

**O'ZBEKISTON RESPUBLIKASI
OLYI VA O'RTA MAXSUS TA'LIM VAZIRLIGI**

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ENGLISH

FOR THE TECHNICAL DIRECTIONS

**Oily texnik ta'lim yo'nalishlari talabalari uchun darslik
sifatida tavsiya etilgan**

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[1]

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Тақризчилар:

Mazkur “Ingliz tili darsligi” oily o’quv yurtlarining texnika yo’nalishi talabalari uchun mo’ljallangan bo’lib, yangicha yondoshuv og’zaki nutq, yozuv, o’qish va tinglab tushunish malakalarini shakllantirishga qaratilgan.

Darslikda ingliz so’zlari, jumla va iboralarining talaffuzi, o’qilishi (transkripsiya) berilgan, shuningdek, ularning qo’llanilishini o’rganishga, texnik sohalarga tegishli turli qiziqarli adabiyotlar va maqolalardan qisqa misollar keltirilgan, e’tibor beradigan materiallar rangli berilgan.

Ushbu darslik asosan texnik oily ta’lim muassasalarida ta’lim olayotgan talabalar hamda mustaqil o’rganuvchilarga mo’ljallangan bo’lib, o’quv yilining 1 kursiga qabul qilingan talabalarning tayyorgarliklarinin hisobga olgan holda sodda mavzulardan tobora murakkablik mavzularga o’tish ta’minlangan.

Ma’sul muharrir:

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SO'Z BOSHI

Mazkur darslik "Xorijiy til" (ingliz tili) fanini o'rganayotgan texnika ta'lim muassasalari talabalariga mo'ljallangan. Oily o'quv yurtlarining nofilologik ta'lim yo'nalishlarin namunaviy dasturi asosida tayyorlangan hamda 6 semestrlik o'qishga jami 356 soatlik hajmga mo'ljallangan.

Darslikning maqsadi-talabalarni maxsus ilmiy-texnik adabiyotlardan ma'lumotlar olishga o'rgatish va sohaga oid og'zaki nutq malakasini rivojlantirishdir.

Darslikni tayyorlashda muallif maktab va o'rta maxsus ta'lim muassasasida o'tilgan asosiy grammatik hamda leksik mavzulaarni takrorlash va umumlashtirishni maqsad qilgan. Matnlar tematikasi texnik oily o'qub yurtlari talabalar uchun zarur bo'lgan umumyexnik bilimlar minimumini qamrab olgan. Darslik matnlari original ingliz va amerika manba'laridan olingan, til va tematikaning murakkabligi o'sib borishiga asoslangan.

Darslik 12-ta dars-mavzu, qo'shimcha matnlar, Grammatik ma'lumotlar, inglizcha-o'zbekcha lug'at va ilovalardan iborat. Har bir dars-mavzu to'rtta matndan iborat. Ulardan uchtasi umumiy mavziga bog'langan, to'rtinchisi o'lkashunoslik mavzusida berilgan. Birinchi matn asosiy hisoblanadi va darsning maqsadi bo'lgan grammatik va leksik birliklar nuqtai nazaridan ishlab chiqish va tahlil qilish talab qilinadi. Ikkinchi va uchinchi matnlar o'qish, kerakli ma'lumotlarni olish, mavzu bo'yicha suxbatlashish malakalarini rivojlantirishga qaratilgan.

Har bir dars-mavzu grammatik va leksik materiallarni o'rganish uchun matn oldi mashqlari bilan boshlangan. Bu tematik mashqlar asosiy matndagi leksik va grammatik qiyinchiliklarni soddalashtirishga qaratilgan. Mashqlar oldingi darslar materiallari asosida tuzilgan. Asosiy matndan keyingi mashqlar grammatik va leksik materiallarni mustaxkamlashga qaratilgan.

So'z yasalishiga qaratilgan mashqlar asosan faol leksikani o'z ichiga iladi. Bu va internasional so'zlar bilan ishlash mashqlarni auditoriyada ishlash tavsiya qilinadi.

Mavzu bo'yicha qo'shimcha mashqlar darslarningf asosiy matnlari bilan bog'liq. Ular mustaqil ishlash uchun mo'ljallangan bo'lib, suzbat, konferensiyalar uchun qo'shimcha material bo'lib xizmat qiladi.

Darslik oxirida inglizcha-o'zbekcha umumlashtirilgan lug'at berilgan bo'lib, barcha matnlardagi yangi so'zlarni o'z ichiga oladi.

Ingliz tili xalqaro muloqotda asosiy o'rin egallaydi, shu sababdan bu tilni bilishning ahamiyati naqadar muhim ekanligi ma'lum.

Ingliz tilining o'ziga xos xususiyatlari va tuzilishini fonetik va grammatik jihatlarini chuqur o'rganish, talabalarimizga vaqt, qunt, sabr-toqat, mustaqil

tayyorgarlik, turli-tuman videomateriallardan foydalanishni taqozo etadi.

Albatta, ushbu darslik turli kamchiliklardan holi 'mfsligi tushunarli, ularni bartaraf etishda foydalanuvchilar tomonidan bildirilgan to'g'ri fikr-mulohazalarni muallif minnatdorchilik bilan qabul qiladi.

Muallif

LESSON 1

to be, to have fe'llari

Indefinite (Simple) Active, Passive

there + be

Gapda so'z tartibi

Suffikslar -tion, -in, -al, -ly

MATN OLDIDAN MASHQLAR

Text IA. Higher Education in Uzbekistan

Text IB. Cambridge

Text IC. Higher Education in the USA

Text ID. A letter



1-mashq. Quyidagi gaplarni Past Indefinite yoki Future Indefinite-da, zarur joylarga last/next week, last/next, tomorrow, yesterday so'zlarini qo'ying:

1. I am tery busy today.
2. They are in the reading-room now.
3. It is a cold day today.
4. We are students of one of the Moscow Institutes.
5. You are late for the lecture.
6. Mary is a good student.
7. Students hate four exams in January.
8. Today they hate time to go to the cinema.
9. We have some English magazines.
10. The book has many diagrams.
11. I hate good news.
12. She has a map of England.



2-mashq. Quyidagi gaplarni Past va Future Indefinite-da qo'ying, yesterday, tomorrow so'zlaridan foydalaning:

1. There is a large reading-room in our university.
2. There are thiny students in our group.
3. There is a new film in our club today.
4. There is one telephone in our of the.
5. There are many students at the lecture.



3-mashq. Quyidagi gaplarni Past yoki Future Indefinite zamonlariga

qo'ying, last/next year, yesterday, tomorrow, last/next week, last/next summer so'zlaridan foydalaning:

1. We study six days a week.
2. I go to the institute every day.
3. My friend lives in a hostel.
4. Usually I get up at 7 o'clock.
5. My studies begin at half past eight.
6. We have four lectures every day.
After lectures we go to the dinning room.
8. We do our home- work for the next day.
9. At night I read and watch TV.
10. On Sunday I visit my friends.



4-mashq. Kesimni bo'lishsiz formada qo'ying:

1. Today our lectures begin at 10 o'clock in the morning. 2. We were school-children last year.
3. We had four entrance exams in summer.
4. Yesterday the First-year students saw the institutelaboratories.
5. We took all the necessary books from the library.
6. I got excellent marks for my entrance exams.
7. Heknows the meaning of the word «engineering» (texnika, mashinasozlik, injenerlik).
8. The students of our group will meet in the laboratory.
9. The librarian game us all the necessary books.



5-mashq. A-qism. Umumiy savollar qo'yib, qavslarni oching:

1. (You do) anything interesting last weekend?
2. (He works) ..at the institute every day?
3. (They will come)to see you soon?
4. (We studied) ... at school last year?
5. (She will go)to the theatre next week?
6. (The students worked) ... in the laboratory yesterday?
7. (Ann gets up) ... at 7 o'clock?
8. (There are) many laboratories at our institute?
9. (There were) ... many students at the lecture?
10. (There will be) ... a library in the new building?
11. (We hare) two lectures today?
12. (The book has) ..many diagrams?

13. (You had) ... four exams last semester?

B qism. Mos keladigan so'roq so'zlarni qo'ying:

1. ...is your name?
2. ... doesn't understand this grammar rule?
3. ... of you studies French?
4. ... is the answer to my question?
5. ... do you live in Moscow?
6. ... were you born?
7. ...lectures you on mathematics?
8. ... do you study?
9. Here are the books. ... is yours?
10. ... knows the answer to this question?



6-mashq. Gapping har bir ishtirokchisiga savol bering va bo'lishsiz formasini yozing:

1. He entered the Aviation Institute last year.
2. My sister studies at the university.
3. The third-year students will have industrial training next summer.

My University



Tashkent State Technical University is one of the oldest universities of Uzbekistan. Currently, the university consists of 6 faculties, and trains highly skilled professionals in technical and engineering fields. In this year, it is estimated that there are 56 departments at this university in which there are over 10 746 students, who are taught by 6 academicians of the Academy of Sciences of Uzbekistan, 74 doctors of sciences and 314 candidates of sciences.

History of "Tashkent State Technical University" named after Islam Karimov ("TSTU") goes back to the Soviet Union times. University currently is one of the oldest educational places in Uzbekistan. Its first establishment date refers to the April 21, 1918. Firstly, the university was created as the small technical faculty of "Turkistan National University", and it was the only University for the whole Central Asia. That technical faculty saw many changes in its history but it is the base of current "Tashkent State Technical University". In 1923 it was re-set as the new faculty called "Engineering-melioration faculty". After 6 years, in 1929 in base of this faculty, there was created new institute called "Central Asian cotton-irrigation institute". After 4 years, in 1933 this institute became the fundament for new and unique technical university in Central Asia. From the year of 1949 it was renamed to "Central Asian Polytechnic Institute".



From the year 1961 it was called as the "Tashkent Polytechnic institute". In 1973 it was named after one of the greatest scientists of Uzbekistan Abu Rayhan Beruni, and was called as the "Tashkent Polytechnic Institute named Abu Rayhan Beruni". After the Independence of Uzbekistan, by the

edict of the President of Republic of Uzbekistan - Islam Karimov, then the university was renamed to its current name and it became one of the leading educational centers of Uzbekistan.



8-mashq. Gaplarni tarjima qiling, kerak joylarda bo'lishsiz yoki so'roq formada qo'ying:

1. The books are taken from the library.
2. He was asked to help one of our students.
3. Many newspapers and magazines are published in this country.
4. That problem was discussed at our meeting.
5. The diagrams were brought by our monitor.
6. The exams will be taken in January.
7. They were told to do their work quickly.
8. The study of theory is accompanied by practical training.
9. A new laboratory was opened last year.
10. We shall be given a new task tomorrow.
11. Every institute is headed by Rector.
12. In summer you will be sent to a big plant for your industrial training.

SO'Z YAASALISHI



9-mashq. Quyidagi qo'shma gaplarni tarjima qiling:

fe'l + tion — ot

to examine — tekshirmoq, imtixon qilmoq + examination — imtihon

to apply — qo'llamoq, foydalanmoq +- application — qo'llash, foydalanish

to educate — education; to adopt — adoption; to graduate-graduation; to specialize — specialization; to organize — organization;

ega + al

education — ta'lim-+ educational — ta'limiy

industry — industrial; profession — professional; person — personal;

10-mashq. Quyidagi so'zlarni o'qing va eslab qoling:

high [haɪ], higher education, highly-qualified, important {im'po:tənt},
provide [prɒ vaɪd), development {di'veləpmənt}, process ['pr əses],
progress ('pr ədʒ res], steadily ['stedili

YANGI SO'Z VA IBORALAR

as conj — shunday, shu darajada, qachon

as well-shunday, shunigdek, shunaqa

affect v-ta'sir o'rkazmoq

become v-yetishmoq

conider v-sanamoq, ko'rib chiqmoq, hisobga olmoq

develop v-rivojlantirmoq, o'stirmoq

development n-rivojlanish, yuksalish

enable v-imkoniyat bermoq

ensure v-ta'minlamoq

especially adv-ayniqsa

further a-keyingi

improve v-sozlamoq, mukammallashtirmoq

mean (meant) v-demak

means n-vosita, usul

number n-son, miqdor

a number of-qator, bir qancha

prepare v-tayyorlamoq, tayyor qilmoq

provide v-yetkazib bermoq, ta'minlamoq

receive v-olmoq, qabul qilmoq

remain v-joyida qolmoq

quality n-sifat

thorough a-asosli, to'liq, aniq

usually adv-odatda, odatiy

to play a part-rol o'ynamoq

to take into consideration-e'tiborga olmoq, hisobga olmoq

at present-hozirgi paytda

Matni o'qing va tarjima qiling:

Text A

Education in Uzbekistan

In Uzbekistan, twelve years of primary and secondary education are obligatory, starting at age six. This requirement includes four years of primary school and two cycles of secondary school, lasting five and three years, respectively. The rate of attendance in those grades is high, although the figure is significantly lower in rural areas than in urban centers. Preschool registration has decreased significantly since 1991.

The official literacy rate is 99 percent. However, in the post-Soviet era educational standards have fallen. Funding and training have not been sufficient to effectively educate the expanding younger cohorts of the population. Between 1992 and 2004, government spending on education dropped from 12 percent to 6.3



percent of gross domestic product. In 2006 education's share of the budget increased to 8.1 percent. Lack of budgetary support has been more noticeable at the primary and secondary levels, as the government has continued to subsidize university students.

Between 1992 and 2001, university attendance dropped from 19 percent of the college-age population to 6.4 percent. The three largest of Uzbekistan's 63 institutions of higher learning are in Nukus, Samarkand, and Tashkent, with all three being state funded.

Private schools are been forbidden as a result of a government crackdown on the establishment of Islamic fundamentalist schools. However, in 1999 the government-supported Tashkent Islamic University was founded for the teaching of Islam.



Among higher educational institutions, the highest rated at domestic level are Tashkent Financial Institute and Westminster International University in Tashkent. The first one was established by the initiative of the first president of Uzbekistan in 1991. Later in 2002, in collaboration with the University of Westminster (UK) and "UMID" Foundation of the President of the Republic of Uzbekistan, Westminster International University in Tashkent was established. Currently these universities are regarded as the best in its sphere of education both in Uzbekistan and Central Asian countries.

In 2007, Uzbekistan Banking Association (UBA) had a joint venture with Management Development Institute of Singapore, Singapore and set up MDIST

university in Tashkent.

In 2010 the British School of Tashkent was established to provide a high-achieving British school where children learn in a secure and stimulating environment and children of all nationalities are exposed to the English National Curriculum. The school is also able to deliver all local Uzbek curriculum requirements.

Notes to the Text

Learning materials-o'quv materiali

To bring up to date-zamonaviy talablarga javob berish

Information and instruction-informasion portlash

Over years-ko'p yillar davomida

Curricula are enriched and brosdened-programmalar, (o'quv kurslari) boyitilyapti va kengaytirilyapti.

MASHQLAR



12-mashq. 7-mashq va Text-A-dan foydalanib, savollarga javob bering:

1. When does the academic year begin in this country? 2. How many exams did you pass to enter the University?
3. Do you pay for your education?
4. Do students get grants?
5. What subjects do students study in the first year?
6. Which subject is the most interesting for you?
7. Is there a sport center in your University?
8. What degree do students get after four years of study?
9. What degree can a student get after two years of further study and research?
10. What new education system is introduced in this country?
- II. What specialities do people get after graduating from a university?
12. Why is higher education important in the life of every country?



13-mashq. Gaplarni tarjima qiling, taqqoslang:

1. Students asked the lecturer many questions. The lecturer was asked many questions.
2. The monitor told the first-year students to come to the laboratory. The first-year students were told to come to the laboratory.
3. Usually a lab assistant shows the equipment to the students. Usually the

equipment is shown to the students by a lab assistant. Usually students are shown the equipment by a lab assistant.

4. Students watched the process with great attention. The process was watched with great attention.

5. Tomorrow our teacher will give us a new task. A new task will be given tomorrow. We shall be given a new task tomorrow.

6. Practice accompanies theory. Theory is accompanied by practice.

7. He asked me to bring a dictionary. He was asked to bring a dictionary.

8. The teacher told the students to sign their drawings. The students were told to sign their drawings.

9. The dean will send the students to a big plant in summer. The students will be sent to a big plant in summer.

10. He taught us to use the lab equipment. We were taught to use the lab equipment.



15-mashq. Participle I va Participle II-ni toping va gaplarni tarjima qiling:

1. The students studying at the institutes passed entrance exams in summer.

2. The subjects studied in the first two years are very important for future engineers.

3. The lecture delivered by our dean was on new methods of technology.

4. The man delivering this lecture is our professor on mathematics.

5. An article discussing the new system of school education appeared in all newspapers.

The results of the experiments discussed yesterday will be published.

7. The attention paid to the study of fundamental subjects is great.

8. Students interested in computer engineering enter technological institutes.


9. The number of specialists connected with new branches of science and engineering is increased every year.


MUSTAQIL ISHLASH UCHUN MASHQLAR



16-mashq. Suffikslar yordamida quyidagi so'zlar qaysi so'z turkumiga kirishini aniqlang:

administration, gradual, electric, intensively, practical, dramatic, integral, specific, operation, illumination, naturally, identical, organization, originally, arctic, technical, acceleration.

 **17-mashq. Text-A-da tion, al, ic, li-da tugagan so'zlarni toping va tarjima qiling:**

 **18-mashq. Gaplarda kesim bo'lib keladigan fe'l formalarini toping:**
student, many, will be passed, doing, technical, has, repons, studied, interesting, connected, are, were done, large, is, tasks, de- meloped, is read, coming, texts, badly, giming, had, was made possible, are gimen, forms, necessary, teaches, basis, was, done.

 **19-mashq. Toping:**

A. Antonim:


to begin, to enter, young, large, to open, to take, quick, much, to graduate from, many, long, slow, little, to finish, old, small, to close, to give, few, short;

B. Sinonim:

new, large, many, to begin, to take, to speak, to enter, to build, to do, to get, modern, big, to start, much, to make, main, to talk, to construct, to come into, major.

 **20-mashq. Ingliz tilidagi so'z tartibi bo'yicha quyidagi so'zlardan gaplar tuzing:**

1. has, buildings, our, semeral, institute.
2. subjects, students, many, the Γmrst-year, study.
3. the third-year, had, last, students, training, industrial, summer.
4. carry out, students, practical, work, in, laboratories, well-equipped.
5. problems, many, scientists, imponent, solve, our.
6. texts, diYmcult, Petrov, technical, translated.
7. his, will, the teacher, translation, correct.
8. next, dean, a lecture, deliver, our, week, will.
9. students, more, institutes, last, entered, a million, than, year.

 **21-mashq. To'g'ri formani toping:**

Entrance exams (held, are held) in summer.

2. More than 20 new technological institutes (were founded, founded) in the last decade.
3. Basic engineering subjects (studied, are studied) in the first and second years.
4. Highly-qualified specialists (trained, are trained) at higher schools.
5. More than a million students (enroled, were enroled) to the institutes and

universities of this country last summer.

6. The training of specialists (will be improved, will improve) as a result of restructuring in the next few years.



22-mashq. Savollarga quyidagi namuna ko'rishida javob yozing:

1. Are there two presidents in the United States? No, there are not. There are not two presidents in the United States. There is one president in the United States. Are there thirteen months in a year?

2. Are there eight days in a week?
3. Are there fifty minutes in a hour?
4. Are there sev- enty seconds in a minute?
5. Are there forty days in a month?
6. Are there thirty days in February?
7. Are there thirty-two days in January?
8. Are there five seasons in a year?



23-mashq. Fikrlarga qo'shilish yoki qo'shilmaslikni aniqlang:

1. Do you study at school?
2. Are you a student of the third year?
3. Do you study many subjects?
4. Did you pass your entrance exams well?
5. Do you live in Tashkent?
6. Do you live far from the institute?
7. Is English your favorite subject?
8. Will you go to the concert tomorrow?
9. Were your books taken from the library?
10. Do you live in the hostel?



24-mashq. Nuqtalar o'rniga in, at, on, to, into, unter, near predloglaridan keragini qo'ying;

1. We live ... Tashkent.
2. I get up ... seven o'clock and leave ... eight.
3. I usually walk ... the institute.
4. There are three rooms our flat.
5. There is a picture ... the wall and a small table ... the picture.
6. He comes ... the room and sits down ... the chair ... the table.
7. ... the evening we watch TV or read books.

8. We do not study... Sunday.
9. There are several newspapers ... the table.
10. The accident happened ... the bridge.



25-mashq. Matnni o'qib, lug'atsiz tarjima qiling:

As you know higher education trains highly—qualified specialists for further development and progress of the country. The students making good progress get state grants. The course of study at the universities lasts about six years. The students take three or four years of general engineering and fundamental courses, then one or two years of specialized training in some fields of science and technology. In the first and second years a good foundation for professional knowledge is provided. At present there are many modern laboratories at institutes. Most higher schools have their own computer centers. This means that the state must spend a lot of money to improve higher education.

CONVERSATION



Exercise 1. Answer the questions.

1. How old are you now?
2. Where were you born?
3. What city did you come from?
4. Where did you go to school?
5. What foreign language did you study at school?
6. How long did you study at school?
7. Why did you enter this institute?
8. What are your favorite subjects at the institute?
9. Where do you live?
10. Do you live with your family?
11. How do you usually spend your Saturday and Sunday?
12. What did you do last weekend?
13. What are you going to do next weekend?
14. What is your favorite sport?
15. What is your hobby?
16. Where do you usually spend your summer vacation?
17. When do you usually get up in the morning?
18. At what time do you usually leave home?
19. How do you usually get to the institute?



Exercise 2. Read and smile:

Mary: Professor, I think you can speak several languages.

Professor: Yes, I'd say about five.

M.: French, I think? And German?

P.: No, neither. I read them well, but have never learned to speak them.

M.: Italian? Chinese?

No, I'm afraid not.

M.: You must be kidding me (алдамоқ, устиданқульмоқ).

P.: Not at all. First, there is a language we are using now. Then there is the language I use in the classroom, in my lectures. Next, there is the speech I use when I go back to my home town. And I have another that I use with my little daughter, and still another with my dog. Then there's...

M.: But those are all English.

P.: Yes, of course. You speak differently to every person. Fortunately, everybody does all this quite naturally.

He was a Rising Star

Max Born, who later became an outstanding German physicist, took an exam in astronomy. He was examined by a professor. Here is their conversation:

Professor: What do you do when you see a falling star?

Born: I think up of a wish (тилакўйламоқ).

Is that all?

Then I take a look at my watch, mark the time and the constellation (юлдузтуркуми) from which the star appeared, determine the direction of its movement and the length of its path, then go home and calculate the orbit of the star.

The professor asked no more questions. He was satisfied (қониқмоқ).

Text 1B

Matni o'qing.

Kembrij universitetida ta'limning o'ziga xos tomonlari haqida gapiring.

CAMBRIDGE

Cambridge is one of the two main universities of England which is located at the Cam River. It was founded at the beginning of the 12th century. The University consists of (iborat) 24 different colleges including 4 colleges for women. Each college is self-governing (o'zini o'zi boshqaradi).

The head of the University is the chancellor who is elected for life. The teachers are commonly called «dons» and «tutors». Part of the teaching is by means of lectures organized by the University. Besides lectures teaching is carried out by tutorial system for which Cambridge University is famous all over the world. This is a system of individual tuition (ta'lim, o'qish) organized by the colleges.

Each student has a tutor who practically guides him through the whole course of studies. The tutor plans the student's work and once a week the student



goes to his tutor to discuss his work with him. The training course lasts 4 years. The academic year is divided into 3 terms. The students study natural and technical sciences, law,

history, languages, geography and many other subjects.

After three years of study a student may proceed (ilmiy daraja olmoq) to a Bachelor's degree, and later to the degrees of Master and Doctor. Students are required to wear gowns (mantiya) at lectures, in the University library, in the street in the evening, for dinners in the colleges and for official visits. All the students must pay for their education, examinations, books, laboratories, university hostel, the use of libraries, etc. Very few students get grants. Not many children from the working class families are able to get higher education, as the cost is high. The cost of education depends on the college and speciality.

A number of great men, well-known scientists and writers studied at Cambridge. Among them are: Erasmus, the great Dutch scholar, Bacon, the philosopher, Milton and Byron, the poets, Cromwell, the soldier, Newton and Darwin, the scientists.

Text 1C

Matni o'qing.

Bizning mamlakatimizda va AQSHda oily ta'limning o'ziga xos tomonlari haqida gapiring.

Higher Education in the USA

There is no national system of higher education in the United States. Higher education is given in colleges and universities. There are over 2100 various higher educational institutions, including colleges, technological institutes and universities. The average college course of study is 4 years. The academic year is usually 9 months or 2 terms (semesters) of four and a half months each. Classes usually begin in September and end in June. The first-year students are called freshmen.

Students choose a major subject (kasbga yo'naltiruvchi predmet, dissiplina) and take many courses in this subject. After four years, they get a traditional Bachelor's degree. Then the students may go on to graduate school (yuqori kurs) and with a year or two of further study get a Master's degree.

After another year or two of study and research, they may get a still higher degree as Doctor of Philosophy (Ph.D.). The student's progress is evaluated by means of tests, term works and final examinations in each course. The student's work is given a mark, usually on a five point scale (5-balli tizim). Letters indicate the level of achievement. «A» is the highest mark. «F» denotes a failure.

Most American colleges and universities charge for tuition. The methods of instruction in the universities are lectures, discussions, laboratory and course works and seminars.

Most cities have colleges or universities that hold classes at night as well as in daytime. In this way people may work for a degree or just take a course in the subject that interests them.

Text ID

Xatni o'qing va javob yozing.

A Letter

Dear Olim,

How are you? I have received your letter of 10-th June for which I thank you very much. I am sorry I haven't written to you sooner, but I have had many things to do. You know it was a very hard year for me. I spent my time getting ready for my exams and I was doing well in many subjects. After passing the exams I was enrolled into the University. The whole course of study is four years. My major subject is mathematics. It is my favourite and my hobby. I am good at it and do maths whenever I have a chance. I take many courses in this subject. I like to take part in mathematical competitions organized at our department and at the University. I think that mathematics is «the language of science» and plays an important part in many sciences. We are lucky to have a brilliant lecturer in mathematics this term. He has a talent to take a difficult subject and make it simple. You leave the lecture hall with a feeling that mathematics is the most interesting subject under the sun. Next term I'll do research in the field of computer engineering.

And how do you feel about maths? Please, write to me, I am especially interested in your life in students' hostel.

Good-bye for the present, your friend Mike

QO'SHIMCHA TOPSHIRIQLAR



1. A. Matnni o'qing va ajratib ko'rsatilgan so'zlarning vazifasini aniqlang:

Computers are now essential in many areas of life — modern banking, information technology and many others. However, this is not true for education.

There are some subjects which may be better taught using computers. Elementary mathematics, elementary language learning, any subject that requires a student to memorize basic facts through repetition (takrorlash) is good to computer learning. The computer can be programmed to provide an endless number of simple questions, and as the student answers these questions the facts are learned.

However, in the learning and practice of more complex ideas, the computer is not adequate. A computer can evaluate (baholash) an answer as right or wrong, but it cannot determine why. It cannot find out why a student is making mistakes, and then explain important concepts in a different way so the student will

understand. Task connected with explanation cannot be taught by computers as there are too many variables for a computer to deal with successfully.

Thus, while computers may be useful for practising simple skills, they are not an essential feature of modern education. Until further developments in computers are made, the human teacher will remain indispensable.

B. A tomondagi so'z va so'z birikmalariga B tomondan mos keladiganini tanlang:

A

essential
area of life
memorize
adequate
concept
variable
indispensable

B

thing that can vary
idea, opinion
absolutely necessary
most important
sphere of activity
learn by heart
satisfactory, sufficient

C. Nuqtalar o'rniga sinonim yoki antonym qo'ying:

right ...

... complex

adequate ...

... new, up-to-date most

important ...

... absolutely necessary



2-mashq. A tomondagi fe'llar va B tomondagi otblar bilan gaplar tuzing:

go to/enter/be enrolled into/graduate

from

read for/take/pass

do/study

take/make

get/receive

make

be

take part

do/conduct/carry out

give/do

a. progress

a course in, notes

good at Maths

research into/on

university

a subject, a course, for a degree

in discussion, competition on

grant, degree

examinations (exams) j. a lecture



3-mashq. Har bir gapda ajratib ko'rsatilgan fe'lni shu ma'nodagi fe'l bilan almashtiring:

1. Did you receive a grant?
2. How many exams did you pass before you entered university?
3. Do you take notes in lectures?
4. Who gives the lecture in history?
5. My friend studies physics.
6. What research did you conduct last semester?



4-mash. Jadvalni to'ldiring:

Verb	Noun
Instruct	• t •
• • •	foundation
Inform	• • •
• • •	determination
Consider	• • •
• • •	preparation
Introduce	• • •

Verb	Noun	Adjective
Educate	• • •	• • •
Occupy	• • •	• • •
Base	• « •	• • ♦



5-mashq. A. «Higher Education» mavzusi bo'yicha 10-15ta kalit so'z va so'z birikmalari tuzing.

B. Speak about:

Computers in education.

LESSON 2

Zamonlar guruxi: Continuous Active, Passive va it, one

Text 2A. Environment Protection must be Global

Text 2B. Pollution

Text 2C. Ecological Problems of Big Cities

Text 2D. London, its History and Development

MATN OLDIDAN MASHQLAR



1-mashq. Continuous zamonlar guruxidan foydalanishni tushuntiring, gaplarni tarjima qiling:

1. I am at my English lesson. I am sitting and doing my exercises. My friend is not sitting, he is standing at the blackboard and looking at me.
2. It is getting cold now, isn't it? Look out. Is it raining now?
3. You are late. What were you doing? — I was translating a text.
4. When I came home my parents were having supper and at the same time they were watching TV.
5. What was he doing when I rang up an hour ago? He was looking through a newspaper when I rang up.
6. Tomorrow we shall be preparing for a test for the whole evening.
7. In July they will be taking their exams for the whole month.
8. What will you be doing tonight at 10 o'clock? Will you be working? No, I shall be reading a book at this hour.

- B.**
1. New Metro lines are being built now in Moscow.
 2. What is going on? A new film is being discussed.
 3. What grammar was being explained when you came in?
 4. What questions were being discussed at that time?
 5. New methods of research are being used in our lab.
 6. Much is being done to improve laboratory methods.



2-mashq. Fe'lining to'g'ri formasini toping:

1. We (are translating, translate) a technical text now.
2. We usually (are not translating, do not translate) stories.
3. She (does not look, is not looking) through all the newspapers every evening.
4. He (looked, was looking) through a newspaper when the telephone rang.

5. What (were, was) you doing a minute ago? I (was watching, watched) television.
- 6.1 (watch, am watching) television every day.
- 7.1 had a late night, I (worked, was working) until midnight.
8. Yesterday he (worked, was working) a lot.
9. The students (had, were having) an interesting discussion when the teacher came in.
10. The students often (have, are having) interesting discussions after lectures.
11. When he comes they (will be taking, will take) a test.
12. They (will be taking, will take) a test next week.
13. Where is Ann? She is in the coffee shop. She (has, is having) a cup of coffee. She always (has, is having) a cup of coffee in the evening.



3-mashq. Fe'lni gapning ma'nosiga qarab kerakli zamonda qo'ying:

This student (study) physics (at present, every day, last semester, when the telephone rang, tomorrow at this time, next semester).



4-mashq. Gaplarni tarjima qiling:

1. Bu ingliz tili darsi. O'qituvchi doska yonida turib, yangi mavzuni tushuntiryapti. Talabalar diqqat bilan tinglayaptilar va yozib olyaptilar.
2. Men kun davomida uyda edim. Do'stlarimga xat yozdim.
3. Besh daqiqa oldin nima ish qilding?
4. Ko'chamizda baxtsiz hodisa yuz berdi (accident).
5. Kechqurun soat sakkizda nima bilan mashg'ul bo'lasan? Men uy vazifalarini bajaraman.
6. Bugun majlisda qanaqa masalalar ko'riladi? Qiziqarli masalalar muxokama qilinadi.
7. Biz shaharga kelganimizda, u yerda yangi sport klubi ko'rilayotgan edi.



5-mashq. Tarjima qiling:

1. It is autumn. It is the 3rd of October. It is dark in the morning and it is difficult to get up.
2. It is a new subject. It is very important for our future speciality. We shall study it for two years. It will be our future speciality, but we do not know much about it in the first year.
3. It is known that the knowledge of general engineering subjects is the basis for the study of special subjects.

4. It seems that he works a lot.
5. It is said that the chemistry laboratory of our institute is good.
6. The student finds it difficult to translate such a text without a dictionary.
7. It was not easy to study at the institute.
8. It is important to understand the fundamentals of this science.
9. It was A.S. Popov who invented the radio.
10. It is the knowledge of general engineering subjects that is the basis of engineering training.



6-mashq. Har xil vazifada one bilan berilgan gaplarni tarjima qiling:

1. One must study a lot to become an engineer.
2. We must write only one exercise now.
3. Engineer is one of the most important professions, it is the one that is taught at technical institutes.
4. One cannot translate such an article without a dictionary in the first year.
5. One must have a very good knowledge of general engineering subjects to become a good engineer.
6. One must pass all exams well to enter an institute.
7. Last summer I read many English articles, and my friend read some German ones.
8. This summer we shall spend in the country, the last one we spent in the city.
9. We translated many texts, but there is one more text to translate.
10. One can take this journal from the library.



7-mashq. Har xil vazifada that bilan berilgan gaplarni tarjima qiling:

1. That student studies in our group.
2. Do you know those girls? They are from our institute.
3. The professor that lectures on mechanics is the dean of our faculty.
4. It is known that the knowledge of general engineering subjects is the basis for the study of special subjects.
5. We know that the study of general engineering subjects is necessary for future engineers.
6. That higher education in this country is excellent is known to everybody.
7. The aim of today's foreign policy is that peace in the world should be permanent.
8. The programme for the first-year students differs from that of the third-year students.
9. There are many interesting articles in this journal, read those on your

speciality.

10. It is the high qualification of future specialists that will determine the scientific and technological progress of any country.



8-mashq. Qiyosiy darajani qo'ying:

(the) biggest, longer, faster, (the) hardest, (the) heaviest, thinner, narrower, lower, (the) greatest, newer, colder, (the) hottest, (the) shortest, less, (the) worst, more.



9-mashq. Gaplarni qiyosiy yoki orttirma darajada qo'ying:

1. National University of Uzbekistan is (large) University in Asia.
2. Strength of materials is (difficult) than chemistry.
3. Is it (interesting) to study at the institute than at school?
4. My friend works (hard) at his English than I.
5. My brother is (old) than I but he is (short).
6. The University is one of the (tall) buildings in Tashkent.
7. Days in summer are (long) than in winter.
8. This group studies (good) than that one.
9. Oxford is (old) University in Britain.



10-mashq. Quyidagi savollarga javob bering:

1. Which is the most difficult subject for you?
2. Which is the easiest subject?
3. Which of the subjects is more difficult: physics or mathematics?
4. Who is the tallest in your group?
5. Which is the most interesting subject for you?
6. Is English as difficult as mathematics?



11-mashq. Nuqtalar o'rniga than, as ... as, not so ... as so'zlaridan mos keladiganini qo'ying:

1. In winter days are ... long ... in summer.
2. Chemistry is... difficult ... physics.
3. I study English ... long ... my friend.
4. My sister is older ... I.
5. English is ... so difficult... mathematics.
6. Moscow is bigger ... Tallinn.
7. This machine is ... old ... that one.

8. The new transistor is more powerful... the old one.
9. The task of school education is ... important... that of higher education.
10. John is ... tall... his brother, but he is ... tall... his father.



12-mashq. Gaplarni quyidagi namuna bo'yicha tarjima qiling:

The longer the nights, the shorter the days.

Tunlar qanchalik uzun bo'lsa, kunlar shunchalik qisqa bo'ladi.

1. The harder we study, the more we know.
2. The more you work, the better you know English.
3. The more we study nature, the more we know about it.
4. The nearer the earth is, the denser the atmosphere is.
5. The stronger the wind, the harder the conditions of work for weather observers.
6. The quicker we finish, the sooner we will go home.

SO'Z QURILISHI



14-mashq. Quyidagi gaplarni namuna bo'yicha tarjima qiling:

Fe'l + -ment = ot to environ — o'rab olmoq -> environment — atrof

to enrol — enrolment, to develop — development, to achieve — achievement, to move — movement;

to'ldiruvchi + -(i)ty = ot communal-keng -> community — jamoa, hamdo'stlik social — jamoaviy -> society — jamiyat

active — activity, special — speciality, national — nationality, intensive — intensity, electric — electricity;

ot + -ous = to'ldiruvchi fame — so'z, taniqlilik -> famous — mashhur, taniqli variety — various, number — numerous, monotony — monotonous;



15-mashq. Internasional so'zlarni o'qing va tarjima qiling:

global ['gleubl], resources [ri'so:siz], problem ['problem], ecology fi'kolecfei], proportion [pre'po:j9n], era ['iara], territory ['teriteri], ocean ['aujan], oceanic [euji'aenik], situation [,sitju'eijen], atmosphere ['aetmasfia], process ['preuses], climate ['klaimit], balance ['baelans], experiment [iks'periment], social ['seujel].



16-mashq. So'zlarni o'qing va talaffuz qilishni eslab qoling:

environment [in'vaiaranmant], pollution [pa'lu:Jan], achieve [a'tfi:v], success [sak'ses], successful [sak'sesfal], successfully [sak'sesfuli], purify ['pjuarifai], air

[ea], natural ['naetfral], however [hau'eva], job [cfcob], remain [n'mein], mankind [maen'kaind], reach [ri:tf], special ['spejal], especially [is'pejali], serious ['siarias], throughout [Gru'aut], world [wa:ld], knowledge ['nolidj], advance [ad'va:ns], eliminate [I'limineit], purpose ['pa:pas], scale [skeil], weather ['weʃa], essential [x'senjal], therefore ['beafo:], data ['deita], joint [djoint], measure ['teza], realize ['nalaiz], circumstance ['sa:kamstans].

Text 2A

Matnni o'qing va savolga javob bering: atrof-muhit muammosini bartaraf qilish uchun qanaqa tadbirlar zarur? Tarjima qiling.

Environment Protection Must Be Global

That the problem of pollution and ecology has become the most important one for mankind is evident to all. The more civilization is developing, the greater the ecological problems are becoming.

Air and water pollution by industry is now reaching tremendous proportions. In our era it is changing from a national to an international problem, especially in territories where rivers cross several countries. The seas and oceans are also becoming seriously polluted.

A similar situation is developing in the atmosphere. It is known that many cities throughout the world suffer from air pollution.

However, our scientific knowledge and technological advancement make it possible to eliminate it if people use good will¹ and make considerable investments for that purpose. The development of natural resources on a global scale is already possible from a scientific and technical standpoint². Large-scale experimental work in this area is successfully being carried out.

At present scientists in industrially developed countries are working on the theory of interaction of all the atmospheric and oceanic global processes that determine the climate and weather of the world. Increasing growth of population, industrialization and the use of resources are slowly but surely changing the global climate and water balance. This can be described as a great experiment, one that may bring about changes in the environment more serious than ever before.

The essential feature in the environment protection is that many problems can be solved only on the level of world community³. Therefore, the planning of protection against pollution by human society as a whole⁴ is imperative today and in the near future. It is necessary to develop an international program to

study data on land, forest, atmospheric and oceanic resources, both renewable and non-renewable. It is the joint efforts of many scientists and special public organizations that can deal with the problem and take necessary measures to protect the environment.

It is still a big job and much remains to be done⁵. However, scientists are confident that planned actions of all countries can eliminate pollution and achieve successes in purifying air, water and soil and in safeguarding natural resources. At the same time one must realize that social and political circumstances may stand in the way of further progress in this field.

Notes to the Text

good will — yaxshi niyat

standpoint — nuqtai nazar

community — hamjamiyat

as a whole — butunlay, umuman

much remains to be done — hali ko'p ishlar qilish kerak

MASHQLAR



17-mashq. A2 matnidan savollarga javob toping:

1. What is this text about?
2. What is ecology?
3. How does water (air) become polluted?
4. Why is the problem of water pollution becoming a global problem?



18-mashq. Present Continuous zamonida fe'l kesimli gaplarni toping, tarjima qiling:

1. Water and air are becoming more and more polluted.
2. At present computers are more widely used in the sphere of education.
3. Where were you at six o'clock? We were studying in the reading-room.
4. There are government and public organizations that are analysing data on land, forest and air.
5. New courses of education such as management are being organized in many institutes.
6. What will you be doing in the laboratory tomorrow morning? We shall be watching the operation of a new device.
7. Measures are being taken to save Lake Baikal.
8. The situation at Lake Baikal is remaining very serious.
9. Much attention is being paid at present to the development of international

scientific contacts.

10. Science is becoming a leading factor in the progress of mankind.



19-mashq. Continuous Passive zamonida fe'l kesimli gaplarni toping, tarjima qiling:

1. Cambridge University was formed in the 12th century.
2. The solution of ecological problems may be achieved only by joint efforts of all countries.
3. Great changes in people's lives and work were brought about by the scientific and technological progress.
4. The theory of interaction of atmospheric and oceanic processes is being developed to determine the weather of the planet.
5. The teachers at Cambridge are called «dons» or «tutors».
6. Computers and lasers are being widely introduced at plants and factories.
7. The most important ecological problems must be considered at the government level.
8. The training at Cambridge and Oxford is carried out by tutorial system.



20-mashq. one va that-ni vazifasini aniqlang, tarjima qiling:

1. The problem that has become the most important one is the problem of pollution.
2. One can easily understand why the profession of an engineer requires a special college training
3. The new technologies that are being developed must be connected with traditional ones.
4. That air and water pollution by industrialization is reaching dangerous levels is realized by everyone.
5. It is the invention of an engine that started the first industrial revolution.
6. The main purpose of education is that graduates must be able to work with the technology of tomorrow.
7. The education in Oxford and Cambridge is different in many ways from that in other universities.
8. We discussed the first industrial revolution, the one that took place some centuries ago.
9. New robots will have several manipulators that will carry out many functions.
10. That computers and robots are important for industrial uses is well known to scientists and engineers.
11. One must realize that the increasing number of cars brings about

considerable pollution of the air.

12. It is the growth of industrialization that is changing the climate of the planet.

13. The essential feature of higher education in this country is that it combines theory with practice.

14. The simplest materials are those which have only one kind of atoms.

15. That the Earth is round was unknown for a long time.

16. It is found that the labour (труд) of a man with secondary education is 108 per cent more efficient than that of a man without that education. Moreover, the work of a university or college graduate is 300 per cent more efficient than that of a specialist with secondary education.

MUSTAQIL ISHLASH UCHUN MASHQLAR



21-mashq. So'zlar gapning qaysi turiga mansubligini aniqlang:

radioactivity, measurement, interaction, society, nervous, elimination, basic, proportion, seriously, symbolic, anxious, ecological.



22-mashq. Otlardan yasalgan fe'llarni toping va ularni tarjima qiling:

advancement (oldinga siljish, progress), investment (mablag' tikish), measurement (o'lchov), achievement (yutuq), improvement (yaxshilanish), fulfillment (bajarilish).



23-mashq. re prefiksi bilan kelgan gaplarni tarjima qiling:

rename, reopen, renew, renewable, non-renewable, renewal.



24-mashq. Quyidagi so'zlar orasidan toping:

a) antonimlar

slowly, old, at present, small, quickly, in the past, new, large;

b) sinonimlar

tremendous, epoch, realize, several, work, progress, great, field, era, understand, make it possible, different, achieve, some, advance, enable, area, various, reach, essential, job, important.

**25-mashq. Jadvaldagi so'z va iboralardan foydalanib, gaplar tuzing:**

Her friend	are watching	a letter
They	is writing	on the téléphoné
I	are listening to	the latest news on the radio
You	am reading	the TV programme
We	is speaking	an exercise

**26-mashq. Quyidagi fe'l-kesimlar bilan gaplar tuzing:**

is changing, was changing, will be changing, are becoming, will be developing, are being introduced, was being solved.

**27-mashq. Qavslarni oching:**

A. When Peter was a child, he had two drawing books. One of them was (large) than the other. His elder brother bought the (large) one for him. Peter liked it (well) because the drawings in it were (large) and simple. He drew something every day. Each new day his drawing was (good) than the one he had made the day before. The last page was much (good) than the first one. After graduating from the institute Mike went to Siberia to a small industrial town. It was (difficult) for him to begin his work as an engineer than he thought that it would be. He moved to (important) city than the first one. He was not (successful) there than before, however, and sometimes he was even (unhappy). However, he was (happy) about one thing, he was becoming a (useful) specialist.

B. New York is the (large) city in the US. Perhaps, with all its suburbs (пригород), it is the (large) city in the world. It is one of the (important) industrial cities in the country. Some of the (old) and historic buildings are there. Some of the buildings in New York City are the (high) buildings in the whole world. New York City is not only the (large) city in the US; it is also the (important) industrial center. Perhaps, the (expensive) office buildings in the world are there. It has the (great) number of factories, the (large) banks and post offices. It sends out many letters and receives the (heavy) mail bags. It is truly the (important) business city.



28-mashq. Matnni o'qing va unga sarlavha qo'ying:

The highest mountain in the world is Mount Everest — 29,002 feet high. The largest ocean is the Pacific having a total area of 63,986,000 square miles. The Atlantic Ocean, the next largest, is only 31,530,000 square miles, the Indian Ocean with 28,350,000 square miles comes third. The longest river is the Nile which is more than 4,000 miles longer or about twice the distance by air from London to Beirut. The biggest island is Greenland which belongs to Denmark and is about 840,000 square miles in extent. The largest lake is the Caspian Sea. Geographers consider it as a lake because it is not connected with any of the great oceans. It has an area of about 170,000 square miles. Which is the deepest sea? So far, as we know at present the greatest depth is in the Pacific Ocean near the Philippines and goes down to 37,000 feet, which is much more than the height of Everest. The biggest volcano is in Ecuador, South America. It is still active and 19,612 feet high. There is another one between Argentina and Chile and it is more than 3,000 feet higher.



29-mashq. Otlarni birlik sonda yozing:

cities, countries, societies, universities, technologies, lorries, industries, dictionaries, territories, theories, communities.



30-mashq. Fe'llarni kerakli formada qo'ying:

grown, stand, dealing, brought, knew, making, send, found, thought, spending.



31-mashq. Matnni o'qing va lug'atsiz tarjima qiling:

It is difficult for mankind to predict (oldindan bilish) changes in the environment accurately. It is known that natural changes in weather and climate may have more catastrophic global effects than human activity. But scientists are developing a new concept that can help make such prediction more accurately. It is based on our understanding that the Earth is an integral system. Its parts — oceans, atmosphere, land or life — cannot be understood in isolation to predict changes in the most accurate way. Modern scientific and technological progress made it possible to use new technologies for that purpose. That satellites can control physical, chemical, biological and geological changes on a global scale is well-known now. One must also know that the study of environmental problems with the help of satellites is becoming international. Russia, the US, France, Japan, Canada, India, China and Italy are planning to send their satellites in both polar and geostationary orbits.

CONVERSATION



Exercise 1. Answer the questions according to the example:

What is one of the most important problems for mankind now? (the problem of pollution and ecology).

The problem of pollution and ecology is one of the most important problems for mankind now.

1. What problem is becoming a global problem? (the problem of air and water pollution).
2. What makes it possible to eliminate air and water pollution? (scientific knowledge and technological advance, good will and large investments).
3. What are scientists in industrially developed countries currently working on? (the theory of interaction of the atmospheric and oceanic global processes).
4. What factors are slowly changing the global climate and water balance? (the growth of population, industrialization and use of resources).
5. What actions are necessary to take to deal successfully with the problem of protecting the environment throughout the world? (planning, developing international programs to study ecological data, joint efforts of scientists and special public organizations).



Exercise 2. Make a sentence out of the two parts.

At present one of the most 1. are becoming seriously pol- important problems for mankind luted by industry.

The rivers, seas and oceans 2. are successfully being carried out on a global scale.

That purifying air, water and 3. it is possible to eliminate air soil is changing from a national and water pollution by planned to a global problem actions of human society as a whole.



Exercise 3. Read and learn.

Rita: Did you have a nice weekend?

Mary: Yes, I did. I was tired of watching television, going to parties, to the movies and so on. John and I decided to go to Pennsylvania University to take part in the discussion on environmental problems.

R.: Oh, really! How unusual! That must have been interesting. M.: Yes, it was. There were a lot of scientists and politicians. Have you heard about such a firm called «Sanyo»?

R.: Certainly. It is well known for its electronics.

M.: It's one of the first companies to make products that don't pollute the environment.

R.: Oh, my father told us about new heating systems made by this company. They use clean and safe technology.



Exercise 4. Speak about:

The problem of pollution and ecology is one of the most important problems for mankind.

Ecological problems in your home town, especially the problem of air pollution. Use exercise 1, 2 and the following words and word combinations for your topic: to become polluted by industry and transport; to reach high level; to develop a program of purifying air in industrial centers; to take necessary measures; for eliminating pollution; new technologies; make it possible; successfully.



Exercise 5. Read and smile.

One evening Rutherford entered the laboratory. It was late, but he found one of his students working with some apparatus.

«What are you doing here so late?» Rutherford asked.

«I'm working, sir,» was the answer.

«And what do you do in the day time?»

«Oh, I work, of course, sir,» answered the student.

«Do you work early in the morning, too?»

«Yes, professor, I work early in the morning, too,» said the student, quite sure that the famous scientist would praise (хвалить) him.

Rutherford looked at him gloomily (мрачно).

«Tell me,» he asked with irritation (раздражение), «when do you think?»

Text 2B

Matnni o'qing. Ilmiy "texnik o'sish"ning salbiy tomonlarini ko'rsating. O'z shahringizning ekologik holatidan misollar keltiring:

Pollution

The British, like many other Europeans, are becoming more and more worried (bezovta bo'lmoq) about their environment. Here are some of the environmental problems that they face.

As the population of large cities like London, Birmingham and Manchester continues to grow, pollution problems become worse.

The air in many towns and cities is being polluted by traffic (transport, harakat) and industry. The number of cars and lorries is growing all the time. On the one hand, they bring mobility to millions of people, but on the other hand, they need bigger, better and more expensive roads, which often ruin the countryside (qishloq). Traffic in cities is getting worse and worse. Water pollution has become a serious problem in many British rivers. People living near airports suffer from the noise of increasingly larger and more powerful jet airliners taking off and landing.

Text 2C

Matnni o'qing. Dunyo sog'liqni saqlash tashkiloti tomonidan o'tkazilgan tadqiqotlat to'g'risida ingliz tilida gapiring:

Ecological Problems of Big Cities

There are over 150 supercities in the world with population from one to 15 million and more. Tokyo, New York, London, Mexico City, Rio de Janeiro and Moscow are just a few of the cities which have become supercities.

People in the supercities suffer from polluted environment: bad water, bad air and noise. A new term, urban (shahar) climate, is used now for such cities. It means high temperature, oppressive atmosphere and intensive smog.

Some experts consider that it is practically impossible to protect the big cities from pollution. The World Health Organization (WHO) studied air pollution around the world for over eight years. It measured two things: the level of sulphur dioxide (SO₂) in the air and the level of smoke. Sulphur dioxide and smoke pollute water and have serious effect on forest, buildings and health of people.

In the WHO report it is shown that the cities with the most considerable level of CO₂ in the air are Milan, Teheran, Prague, Santiago and Sao Paulo. However, some cities with clean air get worse in winter. Helsinki, for example, becomes one of the cities with the largest proportion of it in the air in winter. This must be connected with the heating of houses. One can also mention (eslamog) Glasgow and Warsaw which suffer in the same way.

Text 2D

Matnni o'qing.

Zamonaviy Londonning diqqatga sazovor joylari to'g'risida ingliz tilida gapiring:

London, its History and Development

It is known that the area around London was inhabited (joylashmoq) by the Celts. Later the Romans founded a military camp there. The camp developed into a port. The area of about 1 square mile where the Romans built their fortifications corresponds approximately to today present City of London. London was the capital of one of the Roman provinces of Britain. After the Romans left Britain, London became less important and suffered greatly from the Danes and Vikings. It was under Henry the First in the 12th century that London finally became the capital of England. In the 16th century London, with its 500,000 inhabitants, was the largest city in England. Under Queen Elizabeth the First in the 17th century England dominated the oceans and became the Empire. It is in the Elizabethan Age that art, culture and literature flowered, especially in London. Over the centuries London became the centre of a constantly growing empire. The empire reached its apex (cho'qqi) under Queen Victoria. Industrialization and the expansion of international trade brought London power, growth and cultural and economic development. In the First and Second World Wars London was ruined considerably.

Some 9 million people now live in London and its suburbs, and the city covers an area of 620 square miles, making it one of the largest of the world's capitals. One reason for its size is that the English people like to live in small houses and have small gardens. As a result, less than 5,000 people live in the City of London, while more than half a million come here to work in the daytime. Today London is the capital of Great Britain and is also the seat of the Royal Family, the Parliament, the major administrative bodies and scientific institutions.

The Houses of Parliament stand on the bank of the Thames at Westminster Abbey. Actually it is one building but it is called «Houses» as it consists of two chambers: the House of Lords and the House of Commons. It was set up in the 13-th century. At one end of the Houses of Parliament there is a tower with a large clock.

The largest bell, known as Big Ben, chimes in the hour. Westminster Abbey was a monastery built in the 8th century. It is one of the best examples of the Early English architecture. The kings and queens of England are buried there. Many great statesmen, writers and poets are also buried there.

In the centre of London there is one of the most beautiful squares — Trafalgar Square which was named so to commemorate (sharafiga) Nelson's victory in the battle of Trafalgar. There is the monument in its centre known as Nelson's Column.

In the vicinity of Trafalgar Square is Whitehall which is now a street of government offices. Not far from Whitehall is Downing Street. Number 10 Downing Street is the residence of the Prime Minister of England. The Cabinet meets there. One must mention the British Museum. It is one of the most extensive and valuable museums in West Europe, It was founded in 1753. It also comprises the National Library. There are other numerous museums and galleries displaying interesting finds from all parts of the world and from all stages in the development of nature, man and art. There are also two large opera houses, the National Theatre and 50 other theatres. Monuments of past greatness are everywhere in London.

QO'SHIMCHA TOPSHIRIQLAR



1-mashq. A tomondagi so'zlarga B tomondan mazmuniga to'g'ri keladigan so'zlarni tanlang:

1. protect
2. serious
3. suffer
4. interaction
5. essential
6. imperative
7. public
8. safeguarding

- a. do not feel well **B**
- b. for all people
- c. keep safe from smth.
- d. protection
- e. needing attention
- f. important
- g. necessary, most important, fundamental
- h. action on each other

A	B
1. urgent	a. group, sort, kind of
2. access	b. in the interest of
3. poisonous	c. unusual, not often seen
4. plant	d. of great value (price)
5. rare	e. needing action



2-mashq. A. matnni o'qing va ajratib ko'rsatilgan so'zlarni ma'nosini topishga harakat qiling:

One of the most urgent environmental problems in the world today is the shortage of clean water. Access to clean drinking water is a basic human need. But industrial pollution has made many sources of water undrinkable. Rivers, lakes and even seas have become poisonous.

Lake Baikal is one of the world's largest and most beautiful lakes. Russians call it the Holy Sea. It contains a rich variety of animals and plants, including 1,300 rare species that do not exist anywhere else in the world. However, they are being destroyed by the massive industrial effluent, which some factories still pour into the lake every day.

A few years ago, people thought that the supply of clean water was limitless. Now clean water is scarce, and we are beginning to respect this precious resource. We must protect the clean water that remains for the sake of our children and grandchildren.

B. A tomondagi so'zlarga B tomondagi so'zlardan to'g'ri keladiganini toping:

species	not available, not equal to the demand
destroy	come freely, flow in a continuous stream
effluent	way (road) to, means of using
pour	think about, pay attention to
scarce	j. living organism the kind smaller than trees
respect	k. break, put an end to
precious	l. harmful, causing death
	m. waste from a factory



3-mashq. Nuqtalar o'rnini global, environmental, pollute, dangerous, scale, environment, protection, resources, increase so'zlari bilan to'ldiring :

People are worried about the (1) ... (the air, water, and land around us) as a result of the (2)... effects of human activity. «Developments» that are making our life more comfortable such as industrialization, urbanization and the use of cars all (3) ... the earth's atmosphere. There are some of the (4)... problems today: the ozone layer, (5)... warming (an (6)... in world temperature), the conservation and (7) ... of nature and natural (8) ... on a global (9) ...



4-mashq. A. «Environment protection» mavzusi bo'yicha 10-15 ta kalit so'zlarni toping:

B. Speak about:

The problem of clean water in your town.

LESSON 3

Perfect Active, Passive zamonlar guruxi

-er!-or, -ant/-ent suffikslari

un-/im- prefikslari

Text 3A. Electricity

Text 3B. A Great Citizen of the World

Text 3C. Solar Light by Night

Text 3D. Non-traditional Renewable Sources of Energy

MATN OLDIDAN MASHQLAR



1-mashq. Perfect guruxi zamonlarining ishlatilishini tushuntirib bering, tarjima qiling:

1. This is a very good book, I have just read it with pleasure.
2. He has been absent this week. He has been ill.
3. I haven't seen you for a long time. Where have you been all this time?
4. We haven't heard about her since 1989.
5. By the beginning of the lecture the laboratory assistant had brought all the necessary diagrams.
6. Before we came to the next lecture we had studied the material of the first one.
7. Have you already finished your diploma work? No, I shall have finished it by the end of June.
8. They will not have passed their exams by the time you return.
9. Many students have been enrolled into universities this year.
10. The translation has not been finished yet. It will have been finished by the end of the month.
11. Have you brought these journals with you? No, these journals had been brought by my sister before I returned from St. Petersburg. Don't you know that?



2-mashq. Kesimning to'g'ri formasini toping:

1. He (has graduated, graduated) from MSTU named after Islam Karimov this year. He (graduated, will have graduated) from TSTU named after Islam Karimov in 2 years.
2. She (saw, has seen) us in the morning yesterday. She (saw, has seen) us this morning.

- 3.1 (have met, met) him last year. I never (had met, have met) him before.
4. Our group (will do, will have done) a lab work tomorrow.
5. This problem (is discussed, has been discussed) much in the press lately. This problem (was discussed, had been discussed) yesterday.



3-mashq. O'qing va zamonlarni ishlatilishini tushuntirib bering:

At the Institute

Vera: Hello, Mike! What are you doing here?

Mike: Hello, Vera! I am reading for my mathematics exam.

V.: But your group has passed it already, hasn't it?

M.: Yes, it has, but I was absent at this time. So I'll take this exam tomorrow.

V.: Is it difficult for you to take this exam?

M.: No, it is not. I have finished a specialized mathematical school where mathematics was studied more thoroughly (qunt bilan) than at other schools. Besides, I have taken part in a mathematics contest of our city.

V.: Really? Have you? When was it?

M.: It was last year.

V.: Were you the first at this contest?

M. : No, I was the second. The first one was the boy from one of the Tashkent mathematical schools.

V.: Have you ever been to Tashkent?

M.: Yes, I have been there this year with a group of students of our faculty.

V.: What have you seen there?

M.: Oh, I have seen a lot. But now I have no time to tell you about it. Well, Vera, what are you doing here? Are you reading for your exams too?

V.: No, I am not. I've passed all my exams with good marks this term and so my holidays have already started. I'm waiting for my friend here. Good luck, Mike.



4-mashq. Tarjima qiling:

1. The electronic industry produces several types of minicomputers.
2. The air in many cities has been polluted by traffic and industry.
3. The lecture on environment protection was very interesting.
4. Mankind has never experienced changes in life and work on such a scale.
5. The task of the world community is to improve the ecological situation in the world.
6. In six years we shall become engineers.
7. It is possible to take measures to protect environment on a global level by

the joint efforts of all countries.

8. Professor N. is the dean of our faculty.

9. The important feature of our education is that it combines theory with practical training.

10. The main tendency of our life is that computers are being used in all spheres of technology, science and everyday life.

11. The essential feature in environment protection is that most of it is done by public initiative.

12. What is necessary today is that the protection of global natural resources must be planned.

13. Today one of the most important problems is that big cities are polluted.

SO'Z QURILISHI



7-mashq. Quyidagi so'zlarni namuna bo'yicha tarjima qiling:

Fe'l + -er/-or = ot to teach — o'qitmoq, o'rgatmoq —>

teacher — o'qituvchi to regulate — to'g'rilamoq —> regulator — regulyator to lecture — lecturer, to speak — speaker, to invent — inventor, to generate — generator, to transform — transformer, to indicate — indicator, to compute — computer;

-ant/-ent to excel — yuqori turuvchi -> excellent — ajoyib important, efficient, distant, evident, confident, recent;

Inkor prefikslari un-/im- questionable — bahsli -> unquestionable — shak-shubhasiz.

material — immaterial, limited — unlimited, important — unimportant, usual — unusual, natural — unnatural, necessary — unnecessary, known — unknown, qualified — unqualified, changing — unchanging, seen — unseen, possible — impossible, perfect — imperfect, personal — impersonal, mobile — immobile.



8-mashq. Internasional so'zlarni o'qing va tarjima qiling:

electricity [ilek'trisiti], civilization [,sivilai'zeijan], economic and social progress ['praugras], transformer [traens'fo:ma], universal [ju:ni'va:sal], electrometallurgy [I'lektraume'taelacfei], cable ['keibl], specific [spi'sifik], machine [ma'ʃi:n], photocopying machine, radar ['reida], Paris ['paeris], generator ['cfcenareita], battery ['baetari], lamp [laemp], dynamo ['dainemeu], indicator ['indikeita], nation ['neijan], energy ['enacfei], service ['sa:vis], laser ['leizd], compact ['kompaekt].



9 –mashq. So'zlarni o'qing va talaffuzini yodda tuting:

imagine [I'mædʒɪn], turn [tɜ:n], daily ['deɪli], completely [kəm'pli:tli], power ['paʊə], appearance [ə'piərəns], gear [gɪə], pulley ['pʊli], whole [haʊl], range [reɪnʃ], device [di'vaɪs], source [so:s], century ['sentʃəri], design [di'zain], since [sɪns], consumption [kən'sʌmpʃən], double [dʌbl], health [helθ], reduce [ri'dju:s], beam [bi:m], advantages [əd'vɑ:ntɪdʒɪz], clean [kli:n], regulated ['regjuleɪtɪd], generate ['dʒenəreɪt], human ['hju:mən], latest ['leɪtɪst].

YODDA SAQLANG

advantage и — ahamiyat
appearance π — paydo bo'lish
application π — qo'llash, ariza
completely adv — butunlay
consumption π — ishlatmoq, sarf qilmoq
cover π — qoplab olmoq, o'z ichiga olmoq
design v — qurmoq, yasamoq
device π — qurilma
double v — ikki baravar oshirmoq
efficient a — effektiv
generate v — ishlab chiqarmoq
imagine v — tasavvur qilmoq
invent v — ixtiro qilmoq
power и — energiya, quvvat
recent a — oxirgi
reduce v — kamaytirmoq, pasaytirmoq
replace v — almashtirmoq
set up (set) v — o'rnatmoq, qurmoq
source π — manba'
state π — ahvol
such as — shunday, shunaqa
transform v — o'zgartirmoq
turn v — burilmoq
wide a — keng
without prp — ... siz
whole a — butun, hammasi

Text 3A

Matnni o'qing. Elektronika sohasidagi eng ahamiyatli ixtirolarni sanab bering, tarjima qiling.

Electricity

It is impossible to imagine our civilization without electricity: economic and social progress will be turned to the past and our daily lives completely transformed.

Electrical power has become universal. Thousands of applications of electricity such as lighting, electrochemistry and electrometallurgy are longstanding and unquestionable.

With the appearance of the electrical motor, power cables replaced transmission shafts, gear wheels, belts and pulleys¹ in the 19-th century workshops. And in the home a whole range of various time and labour saving appliances² have become a part of our everyday lives.

Other devices are based on specific properties of electricity: electrostatics in the case of photocopying machine and electromagnetism in the case of radar and television. These applications have made electricity most widely used.

The first industrial application was in the silver workshops in Paris. The generator — a new compact source of electricity — was also developed there. The generator replaced the batteries and other devices that had been used before. Electric lighting came into wide use at the end of the last century with the development of the electric lamp by Thomas Edison. Then the transformer was invented, the first electric lines and networks were set up, dynamos and induction motors³ were designed.

Since the beginning of the 20th century the successful development of electricity has begun throughout the industrial world. The consumption of electricity has doubled every ten years.

Today consumption of electricity per capita⁴ is an indicator of the state of development and economic health of a nation. Electricity has replaced other sources of energy as it has been realized that it offers improved service and reduced cost.

One of the greatest advantages of electricity is that it is clean, easily-regulated and generates no by-products⁵. Applications of electricity now cover all fields of human activity from house washing machines to the latest laser devices. Electricity is the efficient source of some of the most recent technological advances such as the laser and electron beams. Truly⁶ electricity provides mankind with the energy of the future.

Notes to the Text

transmission shafts, gear wheels, belts and pulleys — transmission val, tishli g'ildirak, tasma va blok

time and labour saving appliances — mexnat va vaqtni tejovchi elektruskunalar

induction motors — induksion motor

per capita — kishiga, jon boshiga

by-products — hosil bo'ladigan tovarlar

truly — haqiqatan ham

MASHQLAR



10-mashq. 3A matnni o'qib, savollarga javob bering:

1. What is this text about?
2. What industrial applications of electricity do you know?
3. What home applications of electricity do you know?
4. Where was the generator developed?
5. Who invented the electric lamp?
6. Do you know who invented the dynamo?
7. Can you imagine our life without electricity? Why?



11-mashq. to have fe'lining funksiyasini aniqlang, tarjima qiling:

1. Electricity has many useful properties: it is clean and generates no by-products.
2. It has many important applications in industry as well as in our houses.
3. The latest laser devices have found application in medicine.
4. Electricity has provided mankind with the most efficient source of energy.
5. No other source of energy has been so widely used as electricity.
6. We have many various electric devices in our houses.
7. Our lives have been completely transformed with the appearance of electricity.
8. The generator replaced batteries that had been used before.
9. The consumption of electricity has doubled every ten years.



12-mashq. Gaplarda kesim va to'ldiruvchini toping, tarjima qiling:

1. That electricity is clean and easily-regulated is its great advantage.

2. The important fact is that electricity offers improved service at reduced cost.
3. One of the main advantages of electricity is that it does not pollute the environment.
4. The indicator of nation development is how much electricity is consumed per capita.
5. What has been and is being done in environment protection cannot be measured by yesterday's standards.



13-mashq. Fe'l-kesimning zamonini aniqlang, tarjima qiling:

1. I have not cleaned the window yet. I am cleaning it now. I have cleaned it.
 2. But Bob has a different idea.
 3. Last year she passed school leaving exams.
 4. We will be studying for our exams at the end of the term.
 5. While we were having supper, all the lights went out.
 6. Will people speak the same language all over the world?
 7. People will land on Mars in the 21st century.
 8. I think cars will be powered by electric batteries in five years' time and they will not be powered by atomic power in 100 years' time.
 9. The Earth is getting warmer because of the increase of carbon dioxide in the atmosphere.
1. It is evident that electricity will be the energy of the future.
 2. The transformer was invented and the first electric lines and networks were set up at the end of the 19th century.
 3. New powerful electric stations must be built because it is electricity that offers improved standards of life and work.
 4. A combination of electric lines and networks are being set up throughout the country.
 5. Electric power has become universal
 6. Electricity is transmitted to distant parts of this country by a combination of electric networks.
 7. Our power stations have been connected by high voltage transmission lines into several networks.

MUSTAQIL ISHLASH UCHUN MASHQLAR



14-mashq. So'zlarni tarjima qiling:

invent — inventor, inventive, invention;

transform — transformer, transformation;
generate — generator, generation, generative;
pollute — polluter, pollutant, pollution;
effect — effective, effectively;
vary — variety, various;
possible — impossible, possibly, possibility;
complete — completely;
recent — recently;
replace — replacement;
economic — economical, economically.



15-mashq. Toping:

a) sinonimlar

application, appliance, latest, power, use, enable, reach, device, longstanding, make it possible, achieve, energy, transform, old, turn to, most recent;

b) antonimlar

future, unlimited, with, past, necessary, limited, old, unnecessary, without, present.



16-mashq. Qavs ichidagi fe'llarni kerakli zamonga qo'ying:

My brother (enter) Tashkent University (long ago, already, just, next year, last year, this year, by the end of the month, when I came to Tashkent).



17-mashq. to have, one, that so'zlari bilan kelgan gaplarni toping, tarjima qiling:

Although the US is a large country with many peoples the language is almost the same wherever one goes. There are two reasons for this. One is that people move around a great deal in the US. A man can grow up in one part of the country, go to college in another place, find work in another place and marry a girl from still another part of the country.

The second important factor is public communication. Movies, radio and television all have standard way of speech. The southern part of the US is probably the region with the most individual speech. Southern pronunciation differs from that in the rest of the country. Southerners talk slowly and often do not pronounce «r» or a final «g». Another common Southern expression is the unusual use of the word «evening». In most parts of the country this means the

time after the sun goes down, the early part of the night, but to a Southerner it can mean any time after twelve o'clock noon. In the southern mountains there have not been new settlers from other countries for two hundred years. They have ways of speech that are like the English spoken centuries ago when the first people came there from England. Many songs they sing today are those sung long ago in England.



18-mashq. to be fe'lini kerakli zamonga qo'ying:

Today is ..., ..., 20...

I ... at my English class. I ... reading a story about Thomas A. Edison. I ... learning that his laboratories are in Orange, New Jersey. I... glad to read about such a man as Th.A. Edison. A young inventor ... in Thomas Edison's laboratory. He ... looking at an invention that ... in a glass case. It ... an electrical invention. The young inventor's pencil ... in his hand. He ... drawing the part of the invention which he came there to study. An Englishman and his young son ... in Edison's laboratory. They... looking at hundreds of inventions. Many of them ... in glass cases. The man and his son ... interested in all Mr. Edison's inventions, they ... most interested in the electrical ones. Many of those ... in one room. Several tourists ... in this room, and among them ... the Englishman and his son. The man says to one tourist, «We ... interested in electrical ones».

19 машқ. to, with, about, at, for, on, in предлоглариниқўйинг:.

This morning father spoke ... my brother and me ... going to see our aunt this evening. It is our aunt's birthday. We wanted to surprise her family. Our mother was going to go ... us. We had to be ready... seven o'clock. We wanted to be ... our aunt's house ... seven thirty. We left... my aunt's house... seven... our mother and father. But the aunt was not... home. Her children had taken her and the uncle... the theater. We laughed: we had a surprise party, but it was on us. We left the presents and went... a show ourselves.

We went... Kuskovo yesterday. I went... my mother and father. We took our lunch ... us. We reached Kuskovo ... noon. Father went ... a parking station, but it was full. He went to another and then ... another. Every parking station was crowded. Father drove for a while... one o'clock he found a place ... a car... two o'clock our friends came, we sat down... grass and ate our lunch. We didn't see much because too many people were there ... Kuskovo. Next time we have a day to spend we shall go ... some other place.



20-mashq. Fe'ning kerakli formalarda qo'ying, eslab qoling:

becoming, set up, keep, understand, spoken, showing, built, left, light.



21-mashq. Matnni o'qing va lug'atsiz tarjima qiling:

Before Faraday's inventions in the field of electricity and magnetism the only source of electricity that was used was the galvanic battery. It made possible some practical applications: the electric light and electric telegraph. The practical use of electricity on a larger scale became possible after developing electromagnetic machines, generators and transformers. It is considered that the development of the induction motor has become the most important technical achievement. At first, the induction motor had a constant and unchangeable speed (tezlik). Some years later a motor with two speeds was designed. Since its invention the induction motor has been considerably improved and its power increased. But the principle of operation still remains the same.

CONVERSATION



Exercise 1. Answer the questions.

1. What is electricity? (a source of electric power used in every day life and industry)
2. What are the sources of electricity? (batteries, generators, electric motors and many other devices)
3. What properties of electricity have made it widely used? (electrostatics and electromagnetism)
4. What are the advantages of electricity? (clearness, easy regulation, no byproducts, low cost, improved service)
5. What are home uses of electricity? (lighting, heating, various time and labour saving appliances, radio, television, video and many others)
6. What are the latest industrial applications of electricity? (lasers and electronic devices)



Exercise 2. Make a sentence out of the two parts.

1. Electricity
2. The applications of electricity in the home and industry
3. Electricity was used for the first time
4. The generator, a new source of electricity
5. Since the beginning of the 20-th century
6. Today consumption of electricity

1. have already become universal.
2. has completely transformed our everyday life.
3. per capita is an indicator of the state of development of a nation.
4. the wide industrial use of electricity has begun throughout the world.
5. was also developed in Paris.
6. for industrial purposes in the silver workshops in Paris.



Exercise 3. Read and learn.

A Story about Edison

Edison: Oh, Ben, I'm glad to see you. How are you?

Wilson: Fine, and how are you?

Ed.: So-so. A lot of work to do. Just today I've begun some important work. Oh, excuse me, meet my assistant John Smith. John, this is my old friend from my home town, Ben Wilson. Smith: How do you do, Mr. Wilson?

W: How do you do, Mr. Smith? Glad to meet you.

Ed.: Will you come to my laboratory and have dinner with John and me tonight?

W.: Yes, I will.

Ed.: Come at six tonight, will you?

W.: I'll certainly come.

At six o'clock at the laboratory.

W.: Good evening, Tom. Good evening Mr. Smith.

S.: Good evening, Tom. Good evening Mr. Wilson. Mr. Edison is experimenting with a microscope. All his interest is there. Would you mind walking around for a while looking at Mr. Edison's inventions.

W.: With pleasure.

S.: In a few minutes dinner will be brought. We usually eat our dinner here. Don't you mind?

W.: Certainly not.

S.: The dinner is ready. Let Mr. Edison know you are here.

W.: Shall we eat; Tom? But he doesn't answer.

S.: He is busy working with his microscope.

W.: But I am quite hungry. Tom, the food looks good, and it is getting cold.

S.: You see, Mr. Edison never stops working for a second till he is satisfied with what he is doing.

W.: Then let's sit down and eat.

Two hours later Mr. Wilson and Smith finished eating and left the laboratory.

Ed. (entering the laboratory):

Oh, I am hungry. If those dishes were not empty, I'd say I've had no dinner tonight.



Exercise 4. Speak about:

Electricity — its nature, history and development.

Applications of electricity cover all fields of human activity.

Use exercises 1, 2, as well as the following words and word combinations for your topic:

it is difficult to imagine; applications such as; completely; to replace; to come into wide use; to double every ten years; to be an indicator; the latest technological advances.



Exercise 5. Read and smile.

A young doctor, the son of a well-known professor of medicine, proudly (мағрурланиб) told his father one day: «Imagine, dad! I've cured (даволамоқ) that lady that has been your patient for ten years».

«She deserved (лойиқбўлмоқ) it. It was she who had paid for your studies», his father replied.

«Where did the car hit him?», asked the coroner (эргашмоқ). «At the junction (чорраха, кесишишжойи) of the dorsal and cervical vertebrae (белвабўйинумуртқалари)», answered the doctor. A big man rose from his seat. «Listen, I've lived in these parts for fifty years», he protested, «and I've never heard of this place».

Text 3B

Matnni o'qing. Savolga javob bering: Edison nima uchun «Don't watch the clock» degan?

A Great Citizen of the World

Every day many people visited Thomas A. Edison's laboratories in Orange, New Jersey. Some of them were young inventors who went to study, but many more of them were tourists. They came from all parts of the US and from other countries as well.

One day a very important citizen from England visited Edison's factories, taking with him his young son, eight years old. They spent many hours in great workshops, looking at hundreds of useful inventions.

Before leaving the laboratories the man went to the office of the main building. Giving his card to the person in charge, he asked: «May I speak to Mr. Edison, please?». The man looked at the card and then answered: «Wait a minute, I'll see». Soon he returned and said: «Come this way, please. Mr. Edison will see you».

The father and his son went into the great inventor's workroom. «Mr. Edison», said the Englishman, «I brought my young son here to see what the world's greatest citizen has done. I want this day to help him all his life. Will you please shake hands with him and say something that he will remember?»

Mr. Edison took the boy's hand. He laid his other hand on the child's shoulder and looked into his eyes. «My boy», he said, «don't watch the clock». In 1928 Mr. Edison was eighty-one years old, but he still worked sixteen hours a day.

Text 3C

Matnni o'qing. Ingliz tilida quyosh energiyasining elektr manba'si sifatida afzalliklari haqida gapiring:

Solar Light by Night

Most people living in towns consider it a usual thing that streets are lit at night. But street lights need a power supply (energiya manbai) therefore distant areas with no source of electricity remain in darkness until the sun comes up again.

With new appliances now offered by several British firms, many distant places could be lit with solar-powered street lights. It may seem strange that the lamps can use the power of the sun which shines by day when the lamps are needed at night, but they work by using energy accumulated during the day from a solar panel. The solar panel produces electricity which charges (quvvatlantirmoq) a battery. When the sun goes down, the battery power is then used for lighting. Each lamp has its own panel so the system can be used for one individual light or a number of them.

In the south of Saudi Arabia a motorway tunnel miles from any power supply is lit day and night by solar-powered devices. The solar panels provide power during the day and charge batteries which accumulate enough power to light the tunnel at night. The generation of electricity by batteries is still expensive but the advantage of sun-powered lamps is that they can bring light to areas distant from any other power supply.

There is one more advantage of solar power: not only it is unlimited, but also its use does not pollute the environment. That is why it is very important to develop devices which make it possible to transform solar power into mechanical or electric forms of power.

Text 3D

Matnni o'qing. Energiya, noan'anaviy enrgiya manba'lari, ularning bir-biridan farqlari haqida ma'lumot toping. Matnning mazmunini ingliz tilida aytib bering.

Non-traditional Renewable Sources of Energy

It is known that much is being done in the world today for the development of non-traditional sources of energy. Without them the Earth cannot support its present population of 5 billion people and probably 8 billion people in the 21st century.

Now we are using traditional power sources, that is, oil, natural gas, coal and water power with the consumption of more than 50 billion barrels per year. It is evident that these sources are not unlimited.

That is why it is so important to use such renewable sources of energy as the sun, wind, geothermal energy and others. Research is being carried out in these fields.

One of the most promising (kelajagi bor) research is the development of

power stations with direct transformation of solar energy into electricity on the basis of photo-effect. It was Russia that was the first in the world to develop and test a photoelectric battery of 32,000 volts and effective area of only 0.5 sq.m., which made it possible to concentrate solar radiation. This idea is now being intensively developed in many countries.

However, the efficiency of a solar power station is considerably reduced because of the limited time of its work during the year. But it is possible to improve the efficiency of solar power stations by developing different combinations of solar power stations and traditional ones — thermal, atomic and hydraulic. Today some engineers are working at the problem of developing electric power stations with the use of a thermal-chemical cycle. It will operate on products of the transformation of solar energy, whereas the «solar» chemical reactor uses CO₂ and water steam of the thermal power station. The result is that we have a closed cycle.

In Kamchatka there are geothermal power stations operating on hot water-steam mixture from the depths of about a kilometre. In some projects water will be heated by the warmth of mountains at a depth of four—five km.

It is planned that plants working on the energy of the solar heat provided by the sun will be built on a larger scale.

That different wind energy plants are being developed is also well-known. These energy plants can be small (of several kilowatts) and large powerful systems.

It is important that all these advances in developing new sources of energy and improving the old ones help to solve the energy problem as a whole and they do not have negative effects on the environment.

QO'SHIMCHA TOPSHIRIQLAR



1-mashq. A. A3 matnidan quyidagi so'z birikmalarini o'qing va ajratib ko'rsatilgan so'zlarning vazifalarini toping:

1. such as lighting
2. applications are longstanding
3. in the 19th century workshops
4. a range of appliances
5. devices are based on
6. in the case of
7. all fields of
8. human activity

B. Mashqning A qismidagi har bir ajratib ko'rsatilgan so'zga mazmunan to'g'ri keladigan so'zni toping:

for e. a number of
area or sphere f. things done by man
are built on g. electric lamps
for a long time h. a small factory



2-mashq. A matnni o'qing va portable, work, generate, at present so'zlariga to'g'ri keladiganini toping:

Although most electricity comes from power stations, power can also be generated by far smaller means. Nowadays, electricity generators can be small enough to hold in the hand. A portable generator can provide electricity no matter how far you are from the mains (tizim). It works by turning the movement of a piston into electrical energy. Such a generator can produce a 700 watt output, enough to operate lights, television, and some domestic appliances. Larger versions provide emergency power to hospitals and factories.

B. A qismda berilgan matndan quyidagi so'zlarni ifodalovchi so'z va iboralarni toping:

method, way
change, transform
principal wire to transmit electricity into a building
house
to be of no importance
much, considerably
situation needing action as soon as possible
power, energy produced
variant, form



3-mashq. Nuqtalar o'rniga quyidagi so'zlardan mos keladiganini qo'ying:

electricity increase consumers power use generation reduce consumption far users application provide sources energy light.

We hear so much these days of local problems of electricity (1)

... Many (2)... are taking steps to (3)... their electricity (4)... This is as a result of the recent (5) ... in electricity tariffs for (6) ... We should all try to (7)... less (8)..., by insulating our houses, turning off the (9) ... when leaving a room and

using less hot water.

We must try to develop alternative (10) ... of energy to (11) ... electricity for domestic and industrial (12) ... It is known that nuclear power comes to the consumer as electricity, which is clean and convenient form of (13) ... Although nuclear (14) ... stations are large, they can be built (15) ... from places where people live.



4-mashq. Nuqtalar o'rniga ajratib ko'rsatilgan so'zlarning antonimlarini qo'ying:

Though the capital investment, that is, the initial cost of building the nuclear power station, is high, the cost of generating electricity from a nuclear power station is relatively ...

There is a limited supply of fossil fuels such as oil, gas and coal on the earth, but a supply of natural uranium is

Cheap impure coal produces much more CO₂ than coal of high quality. It is evident to all that an old inefficient power station is more dangerous to the environment than a _____ power station.



5-mashq. Jadvalni to'ldiring:

Verb	Noun	Personal noun
• • •		producer
...	operation	• • •
generate	• • •	◆ • •
...	• « •	mover
act	◆ ◆ •	• ◆ •
...	design	• • .
invent	• . •	◆ ◆ ◆
consume	• • •	• • •
• ◆ •	transformation	• • •
• ◆ .	regulation	• • •
indicate



6-mashq. A tomondagi birikmalardan va B tomondagi otlardan gaplar tuzing. Tarjima qiling:

A

1. carry out (conduct)
2. solve (face, work at, deal with)
3. become
4. suffer from
5. bring about
6. have
7. make
8. develop
9. take
10. achieve

B

- a. a problem
- b. changes
- c. a success
- d. an effect on
- e. measures study, research, experimental work
- f. the center of, a part of
- g. investments
- h. a program, concept, theory
- j. noise, pollution



7 –mashq. Quyidagi so'zlar bilan become so'z birikmasi yordamida gaplar tuzing va yodda saqlang:

popular, universal, international, possible, important, better, worse, polluted, worried, interested in.



8-mashq. «Electricity as a source of energy» mavzusida 10-15ta kalit so'z ayting.

B. Speak about:

The main types of fuel or processes used to generate energy in our country.

REVISION OF LESSONS 1-3



1-mashq. Indefinite (Simple), Continuous, Perfect Active, Passive gurux zamonlarini qaytaring. Fe'lkesim zamonini aniqlang va tarjima qiling:

1. What course are you taking here? Business English? — No, I am not doing Business English yet. I am trying to improve my general English, especially conversation.
2. I liked the lecturer better after I had heard him the second time.
3. My friend will take the course in English next semester.

4. Who has finished the test?
5. We looked at him while he was dancing.
6. How many books of Shaw have you read?
7. Why have not you told them about it?
8. I shall still be studying English in two years' time.
9. The books were taken from the library.
10. You can find the books taken from the library on the table.
11. The exams are held in June.
12. I have been in the laboratory since 8 o'clock.
13. There were many people coming back from their work.
14. Australia is one of the five continents, but it is much smaller than the other four.
15. The light in that room is poor. Please light the candles (sham).
16. People speak the language of their country.
17. Every country needs good specialists for its further progress of science and technology.
18. By the year 2030 human labour in industry will have been replaced by robots. Families will have robots to do the housework.



2-mashq. Savollarga javob bering:

What devices and machines using electricity have become a part of our everyday life?

have made electricity most widely used in all fields of science, technology and industry?

are based on its specific properties?



3-mashq. Nuqtalar o'rniga quyidagi so'zlarni qo'ying:

radar battery generator appliances dynamo transformer

1.... is a machine that generates electricity, steam, gas, etc.

2. A device giving information about position, movement, etc. is named

3. A machine for changing water and steam power into electrical energy is known as

4. Food mixers, toasters, modern dish-washers and a number of the most recent home devices are household....

5. An apparatus to increase or decrease the voltage of an electric power supply — ... — was invented at the end of the 19th century.

6. It is known that a portable cell for supplying electricity is called...



4-mashq. A. 1-3 darslarda o'tilgan Grammatik mavzulardan foydalanib, matnni o'qing va tarjima qiling:

Save the Planet

Today's global economy has been formed by market, not by the principles of ecology. This has created an economy that is destroying its natural support system (tabiiy tizim). It is eco-economy that we need today to save the planet. An eco-economy is one that satisfies our needs without affecting the prospects of future generations to meet their needs. Therefore, it is necessary to turn our economy into in eco-economy. To build an eco-economy means to restore carbon balance, to stabilize population and water use, and to conserve forests, soils and variety of plant and animal life in the world.

Such an eco-economy will affect every side of our lives. It will change how we light our homes, what we eat, where we live, how we use our free time, and how many children we have. It will give us a world where we are a part of nature.

Building a new economy means eliminating and replacing old industries, restructuring existing ones, and creating new ones. The generation of electricity from wind is one such industry. Soon millions of turbines will be turning wind into electricity. In many countries, wind will provide both electricity and hydrogen. Together, electricity and hydrogen can meet all the energy needs of a modern society.

Another industry that will play an important part in the new economy is management of available water supply most efficiently. Irrigation technology will become more efficient. The recycling of urban waste water will become common. At present, water flows into and out of cities, carrying waste with it. In the future, water will be used again and again, never discharged (quyib yuborish, to'kish). As water does not lose its quality from use, there is no limit to how long it can be used, as long as (hozircha) it is cleaned before reuse.

One can easily see eco-economy changes in some countries. It is known that Denmark is the eco-economy leader. It has stabilised its population, banned (тақиқламоқ) the construction of coal power plants, banned the use of non-refillable drink containers, and is now getting 15 per cent of its electricity from wind. Besides, it has restructured its urban transport networks; now 32 per cent of all trips in Copenhagen are on bicycles. Denmark is still not close (near) to balancing carbon emission, but it is moving in that direction.

B. Speak about:

Your idea of the economy of the future.

LESSON 4

Zamonlar moslashuvi

To'ldiruvchi

-ible/-able suffiksi

dis- prefiksi

MATH 4A. Television

MATH 4B. Telegraph

MATH 4C. Telephone

MATH 4D. Talking via Space

MATN OLDIDAN MASHQLAR



1-mashq. Indefinite (Simple), Continuous, Perfect gurux zamonlarini takrorlang. Qavs ichidagi fe'llarni kerakli zamon va formaga qo'ying:

At the time I first (meet) Mr. Alien in 1990, he (consider) the possibility of studying foreign languages again. He (forget) everything that he (learn) about Latin and French at school. The languages that he (want) (learn) at that time (be) Spanish and Portuguese. He (to be going) to study those languages in the Department of General Education at New York University. Therefore, he (enrol) that school in 1991.

After my friend (finish) studying at New York University he (decide) (go) to South America for a year. Because he (be, never) there before, he (enjoy) visiting the famous cities of Brazil and Argentina. He liked Sao Paulo so much that he (consider) staying there much longer. Before that time he (hope, always) to find a place with an ideal climate. Therefore, Sao Paulo (seem) to be a real paradise (jannat). However, he (spend) all his money and (to be forced) to return.

Now my friend Mr. Alien (plan) (visit) France next year. He (leave) for Paris on March 15. Mr. Alien (visit) also Germany on the same trip. He realizes that he must (learn) French and German before he (go) to Europe. At present he (take) a course in French in preparation for the trip. He (think) that French (be) quite easy. Of course he (be, never) in France before, so he (have) little opportunity to hear French. He (work) very hard at his French every day.

He (study) German at New York University next semester. I am sure that

he (have) no language problem in the other countries when he (get) there. Many people in those countries (understand) English or French.



2-mashq. Zamonlar moslashuviga e'tibor qilib, gaplarni tarjima qiling:

1. We knew that his family lived in Orel.
2. He said that the students of that group were studying in the library.
3. She thought that she might finish her work by two o'clock.
4. I didn't think he could come there in time.
5. She said that her name was Lena.
6. The students were told that they had three lectures every day.
7. The dean said that he was busy.
8. We found that he had studied mathematics at the University.
9. The newspapers reported that the Trade Union Congress had finished its work.
10. Students were informed that they would have industrial training in the third year.
11. The weather-man reported over the radio that it would be cold the following weekend.



3-mashq. Zamonlar moslashuvi qoidalaridan kelib chiqib, qavs ichidagi fe'llarni kerakli zamonblarga qo'ying:

1. He says that he (want) to be an engineer.
2. He thinks that he (see) a new device already.
3. He knows that he (lose) his watch yesterday.
4. He says that he (help) with work next week.
5. He said that he (know) him.
6. He understood that the speaker (be) in London recently.
7. He said that he (think) about it later.
8. He asked what they (want) to do.
9. They asked when we (come) to see him.
10. He asked if I (can) stay with them.
11. The teacher wanted to know whether I (be) good at maths.
12. The professor wanted to know whether I (take) part in our conference the week before.
13. My friend wanted to know whether I (go) to the library next Saturday.
14. He asked which book she (read) at that moment.

B. 1. The engineer was told that he (may) test the device in the afternoon.

2. It was known that the head of our laboratory (be) a graduate of Moscow University.
3. They thought that she (graduate) from a technical institute.
4. Our professor informed us that he (give) the following lecture on quantum mechanics on Monday.
5. At the meeting it was said that our lecturer (work) at a new programme of laboratory work.
6. The teacher told us that the term «engineering» (have) many Russian equivalents.
7. The chief engineer believed that we (work) at that problem for a month the following summer.



4-mashq. Bosh gapdagi fe'lni o'tgan zamon qo'yib, ko'chirma gapga aylantiring. Masalan:

Tom wants to spend the winter in Texas.

They said that Tom wanted to spend the winter in Texas.

He asked if Tom wanted to spend the winter in Texas.

1. Mary wants to take a course in German.
2. Ann does not work at the college.
3. The laboratories have new TV sets.
4. The teacher will give you further instructions.
5. Where are you coming from?
6. The lecture will begin in five minutes.
7. John has learned grammar for two years.
8. Could I speak to Mr. Smith, please?
9. Does Bob go to the library every day?



5-mashq. Ingliz tiliga tarjima qiling:

1. do'stimning aytishicha, u ko'p ishlar ekan.
2. olimning aytishicha, u o'z tadqiqoti haqida maqola yozgan.
3. mendan, ishimni qilganligim haqida so'rashdi.
4. u yozda meni Toshkentda bo'lishimni so'radi.
5. biz o'qituvchidan, 4 darsda nechta yangi so'z o'rganishimizni so'radik.
6. yozda uning amaliyoti borligini biz bilmas edik.
7. uning aytishicha, ikkita chet tilini bilar ekan.
8. u akasining Samarqandda yashashini bilardi.



6-mashq. Gaplarda to'ldiruvchilar nima bilan ifodalanganligini aniqlang, tarjima qiling:

1. The students of our group saw a new film yesterday. They said it was very interesting.
2. The dean's assistant told us to do all our work in time.
3. Our laboratory has been equipped with modern devices.
4. The students were informed at the meeting that they would have their practical training in St. Petersburg.
5. We asked the dean if he was busy.
6. The new student asked when our lectures would begin.
7. He also asked to show him where the chemistry laboratory was.
8. He wanted to know whether we had already had our industrial training.
9. I did not know then if I should see him again.
10. We didn't know whether it would be possible to use a computer for our work.



7-mashq. Gaplarda by predlogining tarjimasiga e'tibor bering:

By 3 o'clock I shall be free and go with you to the library.

By the end of the second year we shall have finished studying the main engineering subjects. 3. By the beginning of the lecture the laboratory assistant had brought all the necessary diagrams. 4. By the year 2010 cable television will have been used more widely. 5. By the spring of 1945 World War II was over.



8 машқ. O'zbekcha ekvivalentini toping:.

it is true; compared to; to be of importance; a lot of; to be interested in; like; a step forward; at the right time; direct to; to put into memory.

Qiziqmoq, ahamiyatga ega bo'lmoq, bilan taqqoslaganda, yodda saqlash, bir qadam oldinga, xuddi, shunaq2a, to'g'ri, kerak vaqtda, ko'p.

SO'Z YASALISHI



8 –mashq. A. Quyidagi gaplarni namunadan foydalanib, tarjima qiling:

Ot yoki fe'l + -ible/-able = kesim access — рыхкат -> accessible — yaqqol to rely — ishonmoq -> reliable — ishinchli, practice — amalga oshmoq (амалиётда) -> practicable —amalga oshadigan

to use — usable, to consider — considerable, to avail — available;

prefiks dis- (inkor ma'nosida) to appear — paydo bo'lmoq -> to disappear — yo'qolmoq to like — to dislike, illusion — disillusion, similar — dissimilar,

comfort — discomfort, to connect — to disconnect, connection — disconnection, connected — disconnected, to organize — to disorganize, organized — disorganized, organization — disorganization.

B. Berilgan gaplarni namunadan foydalanib tarjima qiling:

tele- (узоқмасофара) television, telegraph, telegraphy, telemetryphone, text, scope, printer, communication; photo- (fotografiya yoki yorug'likka aloqador) photon, photograph, photography, photographiccopy, finish, meter, electric, sensitive.



9 –mashq. Internasional so'zlarni o'qing va tarjima qiling:

television ['teli,viʒan], action ['aekjan], territory ['teritari], material [ma'tiariəl], million ['miljan], communication [ka,mju:ni'keijan], central ['sentrəl], programme ['praugraem], transmission [traenz'mijan], telephone ['telifaun], cable ['keibl], signal ['signI], crystal ['kristl], code [kaud], visual ['vijjua], video, regular ['regjula], zones ['zaunz].



10-mashq. Quyidagi so'zlarni o'qing va va talaffuzini eslab qoling:

tiny ['taini], fair [fee], research [ri'sa:lf], to spread [spred], instead [in'sted], watch [wotf], provide [pra'vaɪd], artificial [a:ti'fiʃjəl], convenient [kan'vi:njant], nowadays ['nauadeiz], wire ['waia], launching ['lɒmtfirj, to break [breik], to produce [pra'dju:s], production [pra'dAkJan], to weigh [wei], clear [kliə], major ['meɪtʃeə], available [a'veɪləbl], satellite ['sætəlaɪt], size [saɪz], tape [teɪp], liquid ['likwid], magazine [maega'zi:n].

SO'Z VA IBORALAR

appear v — paydo bo'ladi
artificial a — sun'iy
compare v — taqqoslamq
contain v — iborat bo'lmoq
continuous a — uzluksiz
convenient a — qulay
direct a — to'g'ri, bevosita
during prp — davimida, vaqtida
equipment n — dastgoh
essentially adv — asosan
etc (etcetera) — va boshqalar
exist v — mavjud bo'lmoq

influence n — ta'sir
means n — vosita
nowadays adv — hozir, shu vaqtda
occur v — kelib chqish, hosil bo'lish
rapidly adv — tez
research n — tadqiqot
simultaneously adv — bir vaqtda
state v — ta'kidlamq
switch on v — o'z ichiga olmoq
time n — vaqt, times — marta
transmit v — uzatmoq
watch v — kuzatmoq, qaramoq

fewa — kam, oz
a few — bie necha

weighv — o'lchamoq
within prp — orqali

Text 4A

Matnni o'qing. Qaysi abzasda turli television tizimlarning rivojlanishi haqidagi ma'lumotlar xronologik tartibda berilganini toping. Tarjima qiling.

Television

The television set is evidently the most important and popular electronic product of all time. All homes in developed countries have one or more TV sets and in many countries there are considerably more TV sets than telephones.

But in 1939 at the World's Fair in New York a tiny nine-by-twelve inch box was the centre of attention for hundreds of people. They were the first to see a television set in action. Compared to today's TV shows of underwater and outer-space research, those first black-white pictures were not very good. The pictures were only transmitted from one side of the Fair territory to the other. But in 1939 they were of historical importance.

Within a few days the news of television spread throughout the world. A lot of people wanted to have a look at the new invention. Everyone was interested in it. But only few people owned television sets in the next few years. When World War II broke out 2 electronic factories that began the TV production stopped making them and started making war materials instead. When the war was over, TV sets began coming off factory assembly lines. By 1958 there were millions of them.

In a surprisingly short time people watched fewer films and turned from newspapers and magazines to TV. In its short history television has had great influence on people's life and way of thinking. Rocket-launching, concerts and football and tennis matches can be seen direct as they occur. The boundaries of time and space have disappeared.

At present TV communication is provided with the help of a system of artificial earth satellites so that people living in different parts of the country and all over the world and in different time zones are able to watch the central TV programs at the most convenient hours.

Nowadays many countries also have cable TV, a system using wires for the transmission of television programs (like telephone calls). Cable television first appeared in 1949 as a means of transmitting TV signals to rural and mountain areas far from big cities. Cable television's next big step forward was

made by the mid — 1980s. Scientists announced that many technical problems had been solved and in the future it would be possible via satellite and cable TV to use more channels on a TV set at every home in the world.

Then we saw how a new technical invention, colour television, was rapidly replacing black-and-white television. Recently it was reported that the first pocket-size 3 colour television set had been developed. It was stated that a liquid-crystal display 4 was used similar to those on calculators and watches and that it weighed less than a pound.

A few years ago it became evident that the next major advance for TV would be digital television. In a digital system the usual continuous signal is replaced by a digital code containing detailed information on brightness, colour, etc. A digital TV set hangs on the wall like a picture. Essentially, it is a minicomputer with a visual display. Once a week 5 you put the programs you like into the memory, and the TV set will automatically switch on the desired channel at the right time. You can watch several programs simultaneously on miniscreens and then produce one of them in full format. Also, the TV set can automatically video-record the programs when you are absent or occupied.

By the end of 1980s television has moved to a new and the most important stage in its development since the appearance of colour television. Technically it is called high-definition television (HDTV) 6 or Hi-Vision. This is the much higher resolution television 7 of the 21st century. This revolution was started by Japanese manufacturers when they developed a new video system with a picture resembling a wide-screen film more than traditional television. The new system increases the screen's width-to-height ratio 8 (16:9). The result is a picture several times sharper than in the existing TV sets. Besides, recent developments in plasma display panel technology 9 make HDTV commercially practicable. The plasma display makes it possible to produce a large, bright, colour, flat TV screen so thin and light that it can also be hung on a wall like a framed picture. The engineering problem that has existed almost since the first days of television may be solved now.

Notes to the Text

to have a look — qaramoq, nazar tashlamoq

to break out — boshlanmoq, rivojlanmoq

pocket-size — cho'ntak

liquid-crystal display — suyuq kristallarda tasvir beruvchi qurilma

once a week — haftada bir marta

high-definition television (HDTV) — yuqori tiniqlikdagi televideniya

high resolution television — katta aniqlikdagi televideniya

width-to-height ratio —kenglikni balandlikka munosabati
plasma display panel technology — plazma panellari sanoati

MASHQLAR



11-mashq. 4A matnga qarab, savollarga javob bering:

1. When did the first TV set appear?
2. Were people interested in the new invention?
3. Why was the TV production stopped in 1940?
4. What is cable television?
5. What is digital television?
6. What is high-definition television?



12-mashq. Quyidagi gaplardan qaysilari A4 matndagi ma'lumotlarga to'g'ri keladi?

1. A lot of people owned television sets in the first years after its invention.
2. First television black-and-white pictures were excellent.
3. Only few people owned television sets in the next few years after their appearance.
4. Black-and-white television was rapidly replacing colour television.
5. First television black-and-white pictures were not very good.
6. Only a few years ago colour television was rapidly replacing black-and-white television.
7. When the war was over, TV sets stopped coming off factory assembly lines.
8. After World War II TV sets began coming off factory assembly lines.



13-mashq. A4 matnidagi zamonlar moslashuvi sodir bo'lgan gaplarni toping.



15-mashq. O'qing va qaysi gapda zamonlar moslashuvi hodisasi bo'lganini aniqlang:

1. Some years ago India began its Satellite Instructional Television Experiment. This experiment showed (that) satellite television programs had been a success with schoolchildren, their knowledge level had increased considerably. It was found that children could remember and speak about programs which they had seen several week back.
2. Many experts could not decide whether so much TV was harmful to the individual's health and mental activity or not.

3. Specialists did not know if it was possible to continue modernizing the electronic equipment of this kind — the costs were too high.
4. There appeared some reports that we had technical means to use much more channels on a TV set and we should be able to see many sports and news programs from all parts of the world soon.
5. At first it was not clear whether new telephone and teletype communication with ships via six satellites was economical and reliable or not.
6. It was announced that the cryogenic cable had been invented in Russia.
7. We read that for the first time electricity had been applied for industrial use in silver workshops in Paris.
8. We know different transmitters are used in a television system — one for the sound channel and the other for the picture channel.
9. We learnt from the lecture that electricity was still considered the main source for new technological developments.

MUSTAQIL ISHLASH UCHUN MASHQLAR



16-mashq. Quyidagi so'zlarning to'g'ri tarjimasini toping:

attention — diqqat bilan, diqqatli, diqqat

surprisingly — qiziqarli, qiziqish

recorder — yozib oladigan qurilma, yozuv, yozmoq

convenient — qulaylik, qulay, chaqirmoq

numerous — son-sanoqsiz, son, ko'p sonly



17-mashq. Quyidagi so'zlar qaysi o'zakdan hosil bo'lgan?

development, conveniently, communication, production, continuous, beginning, transmitter, action, recorder, electronic, si multaneously, different, usable, central, calculator, possibility, disconnect.



18-mashq. Sinonimlarni, keyin antonimlarni yozing:

tiny — small; to disappear — to appear; a lot of — many; different — various; next — following; short — long; to watch — to see; program — show; commonly — usually; less — more; possible — impossible; true — untrue; small — large; nowadays — at present, now; large — tremendous; advance — progress; to start — to begin; major — main; to report — to announce; to occur — to take place; convenient — suitable.



19-mashq. So'zlarni alifbo tartibida joylashtiring:

true, picture, telephone, communication; world, research, assembly, invention; own, beginning, telegraph, central; satellite, first, artificial, convenient; turn, videotape, transmit, size.



20-mashq. Quyidagi juft so'zlarda alifbo bo'yicha oldin keladiganini ayting:

concept/concert; complete/compare; invention/invasion; available/availability; commonly/commonless; commune/commit; compulsory/compunction .



21-mashq. Lug'atdan axtarib topish uchun bosh so'zni toping:

boxes, matches, beginning, tinier, owned, boundaries, possibly, replacing, less.



22-mashq. Ajratib ko'rsatilgan so'z va so'z birikmalari uchun lug'atdan ma'nosi to'g'ri keladigan so'zlarni toping:

1. The Japanese companies developed the first pocket-size colour television set.
2. Man first set foot on the Moon in July, 1969.
3. Special telephone sets are used at plants in tropical sea climate.
4. A great Russian scientist A.N. Krylov took an active part in the work of the first Atomic Commission set up at the Optical Institute.
5. It was Popov who constructed the first radio set.
6. One of the global tasks nowadays is to set up solar power plants on high orbits.
7. Ships are equipped with radar sets helping them to orient at sea.



23-mashq. Ajratib ko'rsatilgan so'zlarni lug'atdan toping va ma'nosini eslab qoling:

1. New directions of research in robotics were discussed at the last conference.
2. There is no direct connection between those processes.
3. This program is directed toward the scientific study of various physico-chemical processes.
4. Our scientists must direct their attention to the development of new technologies.
5. Further human progress is directly connected with the scientific and technological progress.

6. Our task is to develop technological processes without a direct participation of man.
7. The future of mankind depends on the direction in which scientific and technological progress will be developing.
8. There is a direct communication between spacecrafts and the Earth, and between spacecrafts as well.



24-mashq. Qavs ichidagi fe'llarni kerak zamon va formaga qo'ying:

The Life of a Student

While I (walk) across the campus (университетшаҳарчаси) the other day, I (meet) my old friend Bill, whom I (see, not) since May. Naturally, we (stop) (talk) to each other for a few minutes. I asked him how he (do) in his classes that semester. He told me that he (take) a course in English that semester. He said that he (complete) the elementary course two semesters before, and by the next semester he (be) ready (take) the most difficult English course offered at this school. He also said that he (be) interested in getting his degree as soon as possible and he (ask, already) his adviser for permission to take the final examination. «I am glad (hear) that you (make) such good progress», I (say) to Bill. Then I asked him if he (can) tell me the secret of his success. He answered that the secret of his success (be) simple and he (study) at least two hours a day to improve his English.

After that I told Bill I (have) a little difficulty with my course in French at the moment. I said that I (study, not) very hard the last semester, but I (work) harder in the future.




25-mashq. Matnni o'qing. O'zlashtirma gap ko'rinishida matnni qytib bering:

Albert Einstein liked the film with Charlie Chaplin. Once he wrote a letter to Chaplin:

«Everybody in the world understands your film “Golden Fever” (“Oltin vasvasasi”). You will become a great man by all means.»

Chaplin's answer was:

«I like you even more. Nobody in the world understands your “Theory of Relativity” and you have already become a great man.»

 **26-mashq. Fe'llarning etishmagan qismlarini toping, eslab qoling:**
find, broke, putting, hung, began, seen.

 **27-mashq. Matnni o'qing va lug'atsiz tarjima qiling:**

Recently it was reported in the press that the USA was trying to build bigger, better and much more expensive TV sets. Experts declared that it was the most important change in television since the invention of colour television. They informed that a new kind of television had images so clear that watching it was like looking through a window.

But it became known that Japanese specialists had started their work on HDTV when nobody else in the world was thinking how to improve TV. The inventors expected that their standard for high-definition television would be used throughout the world. However, the Europeans have announced that they would set their own standard. And now it is not clear whether the Japanese standard will be used or not. Some people consider that a single high-definition TV standard will allow to exchange news and may bring nations together.

CONVERSATION

 **Exercise 1. Answer the questions.**

1. What invention was the center of attention at the World Fair in New York in 1939? (the first black-and-white television set)
2. What stopped the TV production? (World War II)
3. What influence has had television on people's life and way of thinking? (great influence; boundaries of time and space have disappeared)
4. What kinds of TV exist now? (satellite, cable, colour, digital and high-definition television)
5. What is the latest and the most important stage in the development of television since the appearance of colour television? (high-definition television)
6. What is the advantage of high-definition television? (the television of much higher resolution)
6. What technology makes HDTV commercially practicable now? (plasma display panel technology)



Exercise 2. Make a sentence out of the two parts.

1. The first black-and-whiteinch TV sets television.
2. In a surprisingly short time
3. At present
4. Satellite and cable TV makes it possible
5. Recently black-and-white TV
6. The next major advance in
7. The invention of high-defini-tion television with a picture resembling a wide screen film

1. has been replaced by colour nine-by-twelve
2. the development of TV became digital television in which the usual signal is replaced by a digital code
3. were of historical importance in 1939.
4. television has had great influence on people's life and way of thinking.
5. is the most important stage in the development of TV since the appearance of colour television.
6. to watch TV programs in different parts of the country and throughout the world.
7. there are different kinds of tele-vision systems: satellite, cable, col-our, pocket-size, digital, high-de-finition television.



Exercise 3. Read and learn.

At the Telephone

Mr. Smith: Can I use your telephone for a long distance call? I couldn't find a pay phone in the building.

Mr. Wilson: Sure.

Mr. S.: My wife is going to meet me in New York tomorrow. I want to tell her what time the train gets in.

Mr. W.: Here you are. New York you can dial the number direct.

Dial 2 and then the number.

Mr. S.: There's no answer. I'll call later.

Mr. W.: You can use the telephone any time you want.

Mr. S.: Direct distance dialing is wonderful, isn't it?

Operator: Trunk-service (shaharlararo), number, please?

Mr. Jones: London Victoria 2884.1 say, operator, will you hurry it up for me as I have a train to catch in a few minutes?

O.: Unless your number is engaged, I can put you through almost at once. I am sorry, sir, your number is engaged. (After a few seconds.) I

have got your number. Hold the line, please.

Mr. J.: Oh, it's you, Mary?

Mrs. Jones: Is it you, George, dear? How are you? So pleased to hear your voice again! When are you going to come back?

Mr. J.: I can't hear you, dear. Operator, will you try again.

O.: I think that's better now.

Mr. J.: Are you there? Is that you, Mary, dear? I say, can you hear me?

Mrs. J.: Yes, dear, I can.

Mr. J.: I shall be arriving at Waterloo Station at 5.40 this afternoon. Will you come and meet me?

Mrs. J.: Certainly, darling.

Mr. J.: There is something else I want to tell you. Get hold of Smith at the office, will you? Ask him to ring me up tomorrow in the morning.

O.: Your time is up. If you want to speak on, drop another sixpence, please.

Mr. J.: All right, dear, so long.



Exercise 4. Speak about:

The history of television development.

Future development of television.

Use exercise 1 and 2 and the following words and word combinations for your topic: to be interested in; research; it is announced (reported) that; to solve problems; it became clear; compared to (with); to call; have an advantage; to find application in.



Exercise 5. Comment on the following statements:

Opponents usually say that the young people are too passive and too lazy (дангаса) because they watch TV so much now.

We don't need the telephone, telegraph and television.



Exercise 6. Read and smile.

A Letter to a Sweetheart

A young man was writing a letter to his sweetheart (sevimli) who lived just a few miles away in a nearby town. He began to tell her how much he loved her and how wonderful he thought she was. But the more he wrote, the more

poetical he became. Finally, he said that in order to be with her he would suffer the greatest hardships (mahrum bo'lish), he would face the greatest dangers (xavf) that anyone could imagine. In fact, to spend only one minute with her, he would climb (ko'tarilmoq) the highest mountain, he would swim the widest river, he would fight the fiercest (badjahl) animals. He signed his name, and then suddenly remembered that he had forgotten to mention something rather important. So, in a postscript below his name, he added: «By the way, I'll be over to see you on Wednesday night — if it doesn't rain».

A Frenchman in England

A Frenchman was once travelling in England. He could speak English quite well but not perfectly. His vocabulary was not large.

Once, for example, he was eating in a small country inn (mexmonxona) and he wanted to order some eggs. But he couldn't remember the word for eggs. Suddenly, through the window, he saw a rooster (xo'roz) walking in the yard. He immediately asked the waiter what the bird was called in English. The waiter told him that it was called a rooster. The Frenchman then asked what the rooster's wife was called. The waiter told him that she was called a hen. The Frenchman then asked what the hen's children were called. The waiter told him that they were called chickens. The Frenchman then asked what the chickens were called before they were bom. The waiter told him that they were called eggs. «Fine!», said the Frenchman, «Please bring me two plus a cup of coffee and some toast.»

Text 4B

Matnni o'qing va qaysi mamlakatlarda olimlar telegraf yaratish sohasida ish olib brogan, qanday qiyinchiliklarga duch kelganliklari haqida ma'lumot toping. Aytib bering.

Telegraph

Benjamin Franklin, an American who is famous for his interesting and useful inventions, published his ideas about electricity in 1752. Scientists in many countries became interested in this wonderful form of energy. They wanted to find the answer to a very important question: could the electricity be used to develop a fast, efficient system of long-distance communication? Experiments proved that electricity could travel instantly over a very long piece of wire. But a note that was written on a piece of paper couldn't be put into a wire. How could electricity be used to send a message? A Danish scientist discovered that electricity could move a needle from left to right and that the

needle could be pointed at letters on a piece of paper. Then a German government worker made up a code system that could be used with an electric needle. In 1837 two English scientists sent a message by electric telegraph for a distance of more than 1.6 kilometers.

Samuel Morse, an American portrait painter, was experimenting with an electric telegraph too. At first he connected a pencil to an electric wire. When the electricity came through the wire the pencil made wavy lines. Then Morse invented a code that used dots and dashes for the letters of the alphabet. Finally, he discovered that telegraph messages did not have to be written, they could be sent in sound.

On May 24, 1844, the first long-distance message was sent by telegraph for 64 kilometers.

Telegraph companies were formed in many cities. By 1861 telegraph wires stretched from the Atlantic to the Pacific. In Europe too, Samuel Morse's system became popular.

But telegraph wires couldn't be hung over an ocean. Messages to and from Europe had to be sent by ship — a journey of two or three weeks. A new method was needed.

The Atlantic Telegraph Company which was organized in 1856 wanted to try to lay a cable on the floor of the Atlantic Ocean. The 4,000-kilometer cable broke three times. Each time a new cable had to be made. Finally, on July 27, 1866, the first transatlantic message was sent from Newfoundland to Ireland.

Later cables were laid to Central and South America. After 1900 transpacific cables were laid to Asia and Australia. At last news and business information could be sent instantly to almost every country in the world.

Text 4C

Matnni o'qing va savollarga javob bering.

Matnda telefon ixtirochisi bografiyasidan qanday ma'lumotlar keltirilgan?

Matnda keltirilgan ma'lumotlardan tashqari, telefon ixtirochisi haqida yana nimalarni bilasiz?

Matndan qanday yangi ma'lumot topdingiz? Telefon tarixi bilan bog'liq qanday hodisalar bo'lgan?

Telephone

Alexander Graham Bell never planned to be an inventor, he wanted to be a musician or a teacher of deaf people (karlar). The subjects that he studied at

school included music, art, literature, Latin and Greek. They did not include German which all scientists used in their books. Alexander's mother was a painter and a musician. His father was a well-known teacher of deaf people.

When Alexander was only sixteen, he became a teacher in boy's school in Scotland. He liked teaching there, but he still wanted to become a teacher of deaf people as his father.

He read all the books about sound that he could find and started to work on some of his own experiments.

At twenty five Alexander became interested in finding a way to send human voice through an electric wire. The parents of his pupils contributed money for the equipment. He found an assistant, Tom Watson, who worked in an electrical shop. For two years Tom and Alexander were working together to build a machine that people could use to talk to one another over long distances. After two years, the two young men were becoming discouraged (hafsalasi pir bo'lmoq). Then, one day, when they were working on a new transmitter Alexander spilled some acid (kislota to'kib yubormoq) on himself. Tom Watson, who was alone in another room, heard a voice. The voice was coming through a wire to a receiver on the table! The voice was Alexander Bell's! It was saying: «Come here, Mr. Watson. I need you!»

The first telephone line was built in Germany in 1877. By 1915 a telephone line was opened in the United States — 5,440 kilometers from New **York to San Francisco.**

Now design bureaus all over the world are conducting experiments to develop video-phone or picture phone. A young man in Moscow wants to speak to his friend in Vladivostok. He lifts his telephone receiver, dials a number. After a very short time his friend answers. As he picks up his receiver, his picture appears on the screen. They can speak to each other face to face because they are using a new kind of telephone which may be called «a video-phone». In addition to the usual telephone, the equipment includes a small television screen (14 cm by 13 cm) and, combined with the screen, a television camera. The camera tube will allow the user to switch from a wide view of the room to the face of the person speaking. The focus can be changed to give clear pictures of objects 0.3, 0.9 and 6.0 meters away from the camera. There is also a mirror attachment, which allows the camera to scan documents which may be lying on the table. The camera adjusts itself automatically to different lighting conditions.

Text 4D

Matnni o'qib, aytib bering:

Talking via Space

Communication has come a long way from the time when an Indian beat a drum (baraban) in the forest to the time when a scientist receives messages from a satellite. In this space age communication has become a highly developed field. The system of communication in large countries is unthinkable today without space satellites. Besides large distances, there is a great time difference: the territories of some countries comprise up to 11 zones. Satellites help to minimize all the difficulties that may appear. They rapidly transmit TV and radio programs to different towns, cities, and distant areas.

Space systems and electronic technology have made it possible to set up an automatic system of communication designed for rapid transmission of all kinds of information.

People write letters and send telegrams. But at the same time people living in various cities like to exchange (almashmoq) news on the telephone. Statistics reports that the number of long distance telephone calls is about 2, 000 million per year. A person in Moscow talking on the phone with Vladivostok must know that this conversation is carried on through a satellite.

Trains and cars can use mobile radio telephones to make calls. Businessmen can use fax machines which provide electronic transmission of documents and messages over telephone lines. Even photographs can be sent and received over telephone wires.

Practically all the population in large countries can watch TV via satellites. The orbital communication systems make it possible for people from different continents to see and hear one another.

The importance of space means of communication is increasing every year. The communication satellites of the international organization «INTERSAT» enable people to keep reliable telephone, telegraph, telex and fax communication in any weather with ships practically in every part of the World Ocean.

QO'SHIMCHA TOPSHIRIQLAR



1-mashq. A. A4 matnidan quyidagi gaplarni o'qing va ajratib ko'rsatilgan so'z va so'z birikmalarining ma'nosini topishga harakat qiling:

TV sets began coming off factory assembly lines

on people's life and way of thinking

it weighed less than a pound

the desired channel

when you are occupied

B. Har bir ajratib ko'rsatilgan so'z va so'z birikmasiga to'g'ri keladigan so'zlarni toping:

unit of weight

programme

busy with smth.

where parts of large machines are put together in mass production

the way you think



2-mashq. Matndan cell, network, area, set so'zlarini toping va to'g'ri variantini tanlang:

A cellular phone (cellphone) is a lightweight, portable radio transceiver, which can transmit and receive telephone calls anywhere in cellular network area. It is a mobile telephone, which communicates through base stations situated in areas called cells. Cell is a subdivision of communication area in a cellphone network. In the network, the same frequencies can be used for many different telephone calls at the same time. Each cell has its own small electronic base station and set of transmission frequencies. The sizes of the cell vary between 1 km to about 30 km across, depending on the output power of the cellphone transmitter.

cell

a small room for one person

apparatus for producing electricity by chemical action

a compartment in a larger structure (e.g., in a honeycomb)

network

a system of lines that cross

a complex system of interconnected radio and TV devices

a connected system

area

a zone, region, district
surface measure
range of activity
set
a number of smth. of the same kind
radio, TV, phone apparatus
direction



3-mashq. A tomondagi fe'l va so'zlarga B tomondan ma'nosiga to'g'ri keladigan fe'llarni toping:

- A**
1. link up to
 2. exchange news
 3. send a signal, message, fax
 4. show
 5. take the place of
 6. have, possess
 7. make it illegible
 8. have

- B**
- a. contain
 - b. connect
 - c. replace
 - d. make it difficult and impossible to read
 - e. own
 - f. communicate
 - g. transmit
 - h. indicate



4-mashq. Ajratib ko'rsatilgan so'z va so'z birikmalarini shu ma'nodagi bishqa so'z bilan almashtiring:

A Fax system can now send texts, graphics and documents to several places at the same time in less than a minute. The information may have photographic images as well as words. The latest Fax machines must be linked up to a special digital phone line. A few seconds' interference (xalaqit) on the phone line can make several lines of a document or text illegible.

Digital systems of information transmission have taken the place of analog systems in the last 25 years.

Most phones now have memories to store frequently used numbers. Some telephone manufacturers make phones with LCDs (liquid-crystal displays) which show the duration of calls.

Before World War II few people had television sets.

A lot of people have cellphones, answerphones and mobile phones now.

It is possible to exchange news with people in most parts of the world by telephone.



5-mashq. Nuqtalar o'rniga connect, transmit, communicate so'zlarini yoki ulardan yasalgan so'zlarni qo'ying:

A small radio receiver called a radiopager makes it possible for people to ... with each other wherever they are.

Data ... services, known as teletext... text and graphics over a long distance as part of the television video signal.

In telecommunication the information can be directed between ... and receivers by cables of various kinds.

The lines which ... telephones within a building are the simplest type of... line.

Mobile phone systems normally do not... directly with other mobile phones.

They send messages to the control base station.

How long will the ... of the new telephone take?

You can now ... your computer to computers all over the world by means of the Internet.



6-mashq. A. «Means of communication» mavzusida 10-15 ta kalit so'z ayting.

B. Speak about:

Your favourite TV programmes at the moment.

Do you often watch football match live (as it happens) on TV or do you watch recorded highlights (parts of the game after it has been played)? Do you enjoy watching the commercials (the advertisements in programmes)? Do you watch satellite TV and/or cable TV?

LESSON 5

aniqlovchi

Aniqlovchi ergash gaplar

carry va mean so'zlari va ular bilan birikkan so'zlar

-/ve, -ire suffikslari

super- prefiksi

Text 5A. Is there an End to the Computer Race?

Text 5B. Computers Concern You

Text 5C.

Text 5D. The Library of Congress

MATN OLDI MASHQLARI



1-mashq. Aniqlovchining berilishiga e'tibor berib, tarjima qiling:

A new invention, to be of great importance, books available in this library, at this time, our professor's lectures, the building of their institute, an institute's library, a television programme, our central TV programme, the first television set, the first pocket-size colour television set, today's shows, a tiny nine-by-twelve inch box, the 1939 World Fair, a reading room, people living in different time zones of the country, modern TV sets appearing now, a written text, a factory built in Siberia, an article to translate, the first to translate those texts.



2-mashq. Ajratib ko'rsatilgan so'z aniqlovchi bo'lgan gapni toping:

1. Complex systems of radio transmission networks have been set up throughout the world.
2. Scientists all over the world were quick to realize the importance of radio and contributed much to its further development.
3. The Russian scientist A.S.Popov worked much at the problem of radio communication.
4. It is necessary to radio the latest news to distant parts of the country.
5. The system of communication in any country is unthinkable today without satellites.
6. Electronic technology has made it possible to set up automatic communication systems.

7. A new international orbital system provides telephone, telegraph and telex communication with ships practically in every part of the World Ocean.
8. It is known that a photon is a particle of light.
9. Some specialists expect that a photon can greatly increase the operation of a computer.
10. Photon computers are quite possible in the not so far future.



3-mashq. Gaplarda aniqlovchini toping va tarjima qiling:

1. There are twenty-five students in our group, five students got excellent marks for all their exams.
2. Students studying at our institute must know mathematics well.
3. The device made at our laboratory will be used in industry.
4. It is a short and easy text, our students don't need a dictionary to translate it.
5. Scientists working at new computers have a lot of different problems to solve.
6. A citizen of our country was the first to circle the globe.
7. The first television black-and-white pictures produced a sensation in 1939.
8. A tiny nine-by-twelve inch box was displayed at the 1939 World Fair.
9. Now we can see many different radio and TV sets in every house.
10. Computers of different types and sizes have appeared in every country of the world.
11. Materials necessary at present to produce supercomputers are difficult to make.
12. A system capable of transmitting long distance messages was developed at the end of the last century.
13. People present at the World Fair in New York were interested in the new invention.
14. Some general engineering subjects difficult for the first-year students are necessary for studying specialized subjects.



4-mashq. Tarjima qiling:

1. Morse invented a code that used dots and dashes for letters of the alphabet.
2. Al. Bell found an assistant who was a specialist in electrical engineering.
3. They wanted to build a machine which people could use to talk over long distances.
4. A television screen and camera that will be used with a usual telephone are very small.

5. People who come to the Aircraft Fair in Paris see new designs of aircraft from different countries.
6. Bell did not know German which most writers of scientific and technical papers used at the time.
7. The decimal system that was developed by French scientists was introduced in Russia by D.I. Mendeleev.



5-mashq. Namunaga qarab, kerak bo'lgan joyda gapni o'zgartiring va tarjima qiling:

Масалан: The experiments which Popov made were discussed at the University meeting. The experiments Popov made were discussed at the University meeting.

1. Newton's great work which was published in 1687 is called «Principia».
2. The Russian Chemical Society which is named after Mendeleev was organised more than a century ago.
3. The subjects that the students study in the first and second years are very important for their future speciality.
4. The invention which Popov made did not interest the government.

Masalan: The laboratory in which the students will work is in a new building. The laboratory which the students will work in is in a new building. The laboratory the students will work in is in a new building.

1. The film about which we were told had been made several years before.
2. The magazine in which a very interesting article is published is available in our library.
3. The material of which this instrument is made is a new one.
4. This is a subject about which we don't know much.
5. The cosmonauts about whom we heard so much came to our town.
6. Have you seen the main components which the new device consists of?



6-mashq. Tarjima qiling:

1. The building our students live in is not far from the institute.
2. Bell was making his experiment in a room next to the room Watson worked in.
3. For a long time Bell couldn't get the results he was looking for.
4. The discovery of Newton's mistake we shall read about was made by a young physicist.
5. When Roentgen made his discovery the room he was experimenting in was

dark.

6. The plant this material is produced at is in the Urals.

7. The problem this article deals with is connected with the subject we study.

8. It is difficult to imagine the world we live in without radio, television and telephone.



7-mashq. Ajratib ko'rsatilgan so'zlar ot yoki fe'l ekanligini aniqlang va asoslab bering:

1. this means that; this means; it means; new means; this means is.

2. this increase is; this increases; it increases; nothing increases; its increase.

3. these results; this results in; both results; this result; both result in; it results from.



8-mashq. carry so'zining ma'nosiga e'tibor berib, tarjima qiling:

1. During the course of study students carry out practical work in well-equipped laboratories.

2. People are carried by airplanes, ships, trains and cars equipped with electronic devices.

3. Intensive work and research are being carried out on new robots in many countries.

4. A new computer carries out a few hundred thousand calculations in a few seconds.

5. Peter, help me carry this heavy box, please.



9-mashq. O'zbekcha ekvivalentlarini toping:

to be in general usage; electronically controlled; in other words; of a few square millimetres; commonly; the more ..., the more; operation by operation; according to; advantage over; a thousand times faster.

Асосан, бир неча мм катталиқда, электрон бошқарув...

SO'Z YASALISHI



10-mashq. A. Gaplarni tarjima qiling:

Fe'l yoki ot + -ive = to act — harakat qilmoq —> active — harakatchan intensity- kadallik -> intensive- jadal

to conserve — conservative, progress — progressive, effect — effective, mass

— massive, to react — reactive;

ot suffiksi -ure nature — tabiat; culture — madaniyat

structure, manufacture, future, measure, feature, agriculture; prefiks super- (o'ta, super) supernatural — g'ayritabiiy; superpower — ulkan davlat

supergenius, supercomputer, superman, supermarket, supersonic, superhot, superconductor.

B. Namuna asosida tarjima qiling:

micro-, miniprefikslari(mikro-, mini-)

microscope — mikroskop, microscopic — mikroskopik

computer, chip, electronics, fiche, film, phone, processor, wave, organism;

minimum — minimum, minimal — minimal, minimize — minimumlash

computer, screen, tour, bus, skirt, -sized.



11-mashq. Quyidagi so'zlarni o'qing va tarjima qiling:

computer, supercomputer ['sju:pakam'pju:ta], general ['(fcenaral], millions, electron, electronics, electronic instrument, electronically controlled machines [ma'Jhnz], airplane, globe ['glaub], millimeter, center, operation, components [kam'paunants], materials [ma'ti9ri9lz], laboratory [l9'boratari], modern, seconds, physical ['fizikal], limit, specialists ['spejialists], photons ['fautonz].



12-mashq. So'zlarni o'qing va talaffuzini eslab qoling:

race [reis], usage ['juizicfc], device [di'vais], circle ['sa:kl], world [wa:ld], circuit ['sa:kit], undoubtedly [An'dautidli], require [ri'kwaia], quality ['kwoliti], quantity ['kwontiti], purity ['pjuariti], produce [pra'dju:s], throughout [Gru'aut], reliable [ri'laiabl], whole [haul], perform [pa'fo:m], simultaneously [simal'teinjasli], basic ['beisik], available [a'veilabl], research [ri'sa:lf], expect [iks'pekt].

YODDA SAQLANG

according to adv — ...ga asosan,

available a — yaqqol, ixtiyorida bo'lgan

beam n — nur

built-in p.p. — qurilgan

by means of prp — vositasida, yordamida

calculation n — hisoblamog

capable a — qoniliyatli

circuit n — sxema, zanjir

close a — yaqin

complete v — tugatmoq
control — boshqarmoq, nazorat qilmoq
depend on v — ...ga qaram bo'lmoq
fast a — tez
generation n — avlod
go on v — davom ettirmoq
machine-tool n — stanok
matter n — masala, muammo
ordinary — oddiy, odatiy
perform v — bajarmoq, qilmoq
quality n — sifat
reliable a — ishonchli
require v — talab qilinadi
speed n — tez
surround v — o'rab olmoq
task n — vazifa
up to prp — ...gacha
usage n — foydalanish
whereas conj — shunda, shu paytda

Text 5A

Matnni o'qing va sarlavhasini sharhlab bering. Shunday sarlavha qo'ygan muallif haqmi? Fikringizni tasdiqlaydigan ma'lumotlarni toping. Tarjima qiling.

Is there an End to the Computer Race?

Today the word «electronics» is in general usage. Millions of people have electron watches. There are a lot of various radio and TV sets, video cassette recorders and CD players in our houses. In factories and plants we are surrounded with electronically controlled machines and instruments, we are carried by airplanes, ships, trains and cars with built-in electronic devices, and satellites circle the globe. In other words, we are living in an electronic world.

And the center of this world is a tiny silicon plate¹ of a few square millimetres, an integrated circuit², or a chip³, as it is more commonly known. The integrated circuit is undoubtedly one of the most sophisticated⁴ inventions of man, science and technology. It is in the heart of every electronic device and the more cassette recorders, TV sets and computers we need, the more integrated circuits are required.

When we speak about a further development of computers we mean not only quantity, but also high technology and high speed.

As the operation of an integrated circuit depends on microscopic «components», the purity of all materials and the cleanness at the plant they are produced at must be of the highest quality. A continuous search is going on in laboratories throughout the world for more perfect, reliable and high speed electronic circuits.

In the past it took scientists and researchers a whole lifetime to make a few thousand calculations, whereas for a modern computer this task is a matter of a few seconds. At present computers capable of performing billions of operations a second are required. Supercomputers are different from ordinary computers. The ordinary computer does the computations operation by operation, while the supercomputer operates like a brain: all operations are being done simultaneously.

In the next few years engineers will complete the work on computers of above 2 billion operations a second. It will take a few more years to produce a 10-billion operations computer. The fifth-generation computers performing 100 billion operations a second will become available in the near future. Is there an end to this race?

According to some researchers, we are close to what can be regarded as a true physical limit. But other specialists think that photons will make the operation a thousand times faster. This means that in the future it will be possible to expect the appearance of photon computers and that computations will be done by means of light. Light has several advantages over electronics: light beams are faster, travel in parallel lines and can pass through one another without interference⁷. Already, the optical equivalent of a transistor has been produced, and intensive research on optical-electronic computers is being carried out in a number of countries around the world. In a few decades a new age of light may replace the still youthful electronic age. The race is going on.

Notes to the Text

silicon plate — kremniy plastina

integrated circuit — integral sxema

chip — kristall

sophisticated — murakkab

high technology — ilg'or texnologiya

it takes ... (one year) — talab qilinadi, so'raladi

interference — o'zaro ta'sir

MASHQLAR



13-mashq. 5A matnidan javob toping:

1. What is this text about?
2. What new things appeared in people's everyday life after World War II?
3. What is at the center of all these things?
4. What applications of computers do you know?
5. Where else (yana) may computers be used?
6. How does an ordinary computer (a supercomputer) operate?
7. What is the speed of a new supercomputer?
8. What is the task of engineers in the field of computer development?
9. What types of computers do you know?
10. What are the prospects in the development of computers?



14-mashq. Quyidagi gaplardan qaysilari 5A matniga mos keladi?

1. Nowadays an integrated circuit is the main component of everyday device.
2. Supercomputers are in general usage now.
3. The operation of integrated circuits depends on their microscopic component quality.
4. Some researchers think that we are close to a physical limit in increasing computer operation speed.
5. Supercomputers are similar to ordinary computers.
6. By the beginning of the 21st century the electronic age may replace the light age.
7. It is possible to expect the appearance of optical-electronic computers in the future.



15-mashq. A. Aniqlovchi nima bilan ifodalanganini toping:

1. Yesterday we watched a very late TV programme of a football match.
2. Y.Gagarin made the world's first space flight on April 12, 1961.
3. It was announced that 1000 well-equipped sport clubs could be opened in this country.
4. Our electronics and radio electronics industry have developed from the country's only radio laboratory in Nizny Novgorod.
5. This country has powerful energy systems with the world's largest hydro and thermal power stations and nuclear plants.

6. How can architects solve the problem of living in a region where night lasts for several months and where the temperature may be between 40 °C and 50 °C?

B 1. The experiments carried out by Bell and Watson didn't give any positive results for a long time.

2. D.K. Chernov laid the foundation of the science dealing with metals.

3. In many countries scientists interested in electricity wanted to find out whether it could be used for a long distance communication.

4. Articles published by Franklin in 1752 dealt with electricity.

5. Communication satellites used by all countries make intercontinental television transmission possible.

C. 1. Nowadays computers capable of performing billions of operations a second are required.

2. People present at the demonstration of Popov's invention were sure of its great future.

3. Wind and solar energies available throughout the earth must be used for useful purposes.

4. Russian engineers have developed the cargo airplane «Ruslan» capable of carrying load up to 150 tons.

5. Computers available everywhere nowadays make our life easier.

D.1. Polzunov was the first to construct a steam engine.

2. Mendeleev was the first to make a classification of chemical elements.

3. The thermometer is a device to measure temperature.

4. Faraday was the first to invent a dynamo.

5. A telephone set is a device to reproduce sounds.

E1. Materials new computers depend on must be of the best quality.

2. The number of components supercomputers consist of is great.

3. The plants computer components are produced at must be superclean.

4. The laboratory the Curies worked in was very primitive.

5. The space laboratory the Russian cosmonauts live and work in is in the orbit for a long time.

6. Satellites our communication goes through are sent into space regularly.

7. The problem Bell was interested in was not an easy one and it took several years to solve it.

8. The problem this article deals with is connected with the subject we study.


9. The changes and movements of the air we are surrounded with influence our

lives.


10. This is an article that deals with some environmental problems we face.


MUSTAQIL ISHLASH UCHUN MASHQLAR

 **16-mashq. super- prefiksi bilan so'zlar yasang va ularni tarjima qiling: man, power, genius, hot, hard, natural, conductor.**

 **17-mashq. Zid ma'noli so'zlarni toping:**
true, unusual, important, disappearance, incapable, information, undiscovered, capable, untrue, changing, usual, undetected, unimportant, appearance, detected, discovered, intention, possible, include, impossible, disadvantages, imagine, unchanging.


 **18-mashq. Quyidagi so'zlardan yasakgan so'zlarni ayting:**
electron, operate, compute, calculate.

 **19-mashq. So'zlarni alifbo tartibida joylashtiring:**
still, start, specialist, speed, speak, second, search, science, sophisticated, surround, supercomputer, ship, simultaneously.

 **20-mashq. So'zlarni bosh formasini toping:**
factories, carried, living, more, depends, components, highest, took, qualitatively.

 **21-mashq. A tomondagi so'z birikmalariga B tomondan ekvivalentlar toping:**

A	B
1. to make faster	a. many
2. able	b. supercomputer
3. a lot of	c. to improve
4. at present	d. capable
5. to make better	e. nowadays
6. to be different from	f. to increase
7. a computer which does all operations simultaneously	g. to differ
8. it takes	h. it requires

 **22-mashq. Antonimlarni toping:**
simple, untrue, begin, sophisticated, reliable, efficient, close to, true, complete,

low, disadvantage, far from, high, unreliable, inefficient, advantage.



23-mashq. Ajratib ko'rsatilgan so'zlarni tarjima qiling va eslab qoling:

1. In the past «Engineer» meant a designer of engines.
2. The word «a means» means (vosita).
3. The meaning of «telemetry» is «measuring at a distance» and is a combination of Greek and Latin words.
4. By means of satellites we can communicate with any country of the world.
5. There were no means of direct communication before the telephone was invented.
6. By communication we mean various ways to send information.
7. Scientists reported that we had technical means to use more channels on a TV set.
8. The importance of space means of communication is increasing every year.
9. By what means is speech transmitted over a distance?
10. By means of telephone people communicate with each other at great distances.
11. The mean distance between these two objects is not known yet.



24-mashq. Nuqtalar o'rniga few va a few so'zlarini qo'ying:

1. ... people know that the first programmer in the world was Lord Byron's daughter.
2. In the past astronomers spent all their lives to make ... hundred thousand calculations.
3. A calculator makes these calculations in ... seconds.
4. In the next ... years a new generation computer will be developed.
- 5.... people read that the first electric light illuminated the laboratory of Vasily Petrov, a St. Petersburg physicist, in 1862.



25-mashq. Which so'zining tarjimasiga e'tibor bering:

1. In our institute the study of theory is linked with practical training, which is very important for future engineers.
2. Students have industrial training at various plants, which allows them not only to watch production processes, but also to take part in production.
3. It is now possible to find a book or an article in this library very quickly, which is extremely important for specialists.
4. Pierre Curie studied the properties of crystals, which led him to the discovery

of the piezoelectric phenomenon.



26-mashq. Noaniq olmoshga e'tibor qilgan holda quyidagi gaplarni tarjima qiling:

1. There are some students in the room now.
2. Are there any students in the classroom now?
3. Everybody knows that one can find any book in the Lenin library.
4. There are no students in the classroom now.
5. I was looking for the new reference book on physics everywhere, but couldn't find it.
6. I must have some paper, can't write anything.
7. This man knows something, but he does not want to tell us.
8. I have seen you somewhere before.
9. No one said anything to us about it at the meeting.
10. In our institute library I always find everything I need.
11. We could park our car nowhere.
12. They found nobody at home.
13. I have been nowhere this summer. I had no vacation.
14. Every faculty at our institute has a computer.



27-mashq. Fe'llarni to'ldiring va eslab qoling:

won, rung, driven, run, fed, laid, read



28-mashq. O'qing va lug'atsiz tarjima qiling:

Let's look at the progress the computers have made in their development. Besides the great changes in size and speed, we now have machines which change numbers into pictures, words and sounds. The next big change will be when we get computers that will understand human language. But now if you want to programme your own computer, you must learn its language. It does not understand yours. For example you talk with an Englishman. You make one small grammar mistake «have» instead of «has». The man understands what you mean and the talk goes on. But if you make even the smallest mistake in computer language, the talk breaks down and you must go back to the beginning.

CONVERSATION



Exercise 1. Answer the questions.

What influences the operation of an integrated circuit? (the quality of microscopic components it consists of) 2. What is the function of a computer? (making a great number of calculations at a very high speed) 3. What will be the speed of the fifth-generation computers? (100 billion operations a second) 4. What can increase the operation speed many times compared to the present computers? (a photon) 5. What physical phenomenon can be used to improve a computer's speed? (light) 6. What are the advantages of light for computation purposes over electronics? (the capability to move faster, in parallel lines and pass one another)



Exercise 2. Make a sentence out of the two parts

1. Nowadays electronic devices
2. We are surrounded
3. There are
4. A personal computer
5. People are carried by
6. The modern production is unthinkable
7. It is impossible to imagine

1. airplanes, ships, trains and cars having built-in electronic circuits and instruments.
2. is being used more widely at home and in office.
3. without electronically controlled machine-tools.
4. with electronics everywhere in everyday life and at plants and factories.
5. scientific research without computers.
6. are in general usage.
7. electronic watches we wear, telephone, radio, and TV sets we speak, listen to and watch.



Exercise 3. Read and learn.

Computers

Mary: Have you seen an interesting advertisement (reklama) in the last issue of «The Economist»?

John: I have not read it yet.

M. : The School of Engineering offers a new programme in information system.

Applications are invited for jobs in this field.

J.: Professor Smith has told me about it. This programme is interesting. It is designed to meet the needs of persons with a computing background for their work in management and industry.

M.: Don't you think that our son can lecture on this new programme?

J.: Why not? He graduated from the Department of Computer Science and for some years was taking part in the research project connected with the problems of supercomputers and their manufacturing.

M.: As far as I remember his research interests cover software (dasturiy ta'minot) and application.

J.: And what do they say about the contract?

M.: It is a three years' contract and it may be extended for further two years. I'll write Mike a letter.

J.: It's too long. You'd better call him.

: How do you like these new electronic games?

: I am crazy (mad) about them. And you?

: Really, I don't know what you see in them.

: Well, I think a real computer game resembles real life as closely as possible, doesn't it?

: May be you are right, but I am not sure.

: Oh, but I find them rather relaxing for a change and try to spend every spare (erkin) minute playing.



Exercise 4. Speak about:

The application of electronics in everyday life.

New developments in computers.

Use exercise 1,2 and the following words and word combinations for your topic: to be in general usage, research is going on, throughout the world, further development, high speed electronic circuits of the highest quality, according to some researchers, a photon computer, by means of light, advantage over, in a few decades.



Exercise 5. Comment on the following statement.

Electronic games are very popular today. There are already up to 10,000 different computer games in the world.



Exercise 6. Read and smile.

Andrew Jackson's Poor Health

After his wife died Andrew Jackson, former President of the United States, became increasingly irritable. He also worried (tashvishlanmoq) more and more about his health.

Several members of his family had died after a paralytic stroke (shol) and Jackson was sure he was going to die in the same way. He therefore lived in daily fear (qo'rquv) of getting such a stroke. One day, during a party at his home, he was playing chess with a young woman. Suddenly Jackson's hands dropped to his side, his face became white. Several friends run to him. «At last it has come», Jackson said weakly. «I have had a stroke. My whole right side is completely paralyzed.» «How do you know?» someone asked. «Because», Jackson said, «in the last few minutes I have pinched (chimchilab olmoq) my leg several times and there is absolutely no sensation in it». «Oh, I beg your pardon, sir», said the young woman he played with, «but it was my leg you were pinching.»

Text 5B

Matnni o'qing va kompyuterdan odamlarning kundalik hayoti va ishida foydalanishlari haqida ma'lumotlar toping.

Computers Concern You

When Ch. Babbage, a professor of mathematics at Cambridge University, invented the first calculating machine in 1812, he could hardly have imagined the situations we find ourselves in today. Almost everything in modern world is done with the help of computers — the complicated descendants (ajdodlar) of his simple machine. Computers are being used more and more extensively in the world today, for the simple reason that they are far more efficient than human beings. They have much better memories and can store (eslab qolmoq) great amount of information and they can do calculations in a fraction of the time required by a human mathematician. No man alive can do 500,000 sums in one second, but a modern computer can.

In fact, computers can do many things we do, but faster and better. They can control machines at factories, work out tomorrow's weather and even play chess, write poetry or compose music. Let's look now at some of the ways in which computers concern people in their daily lives and work.

Many people associate computers with the world of science and mathematics, but they are also a great help to scholars in other subjects: in history, literature and so on. It is now possible for a scholar to find a book or an article he needs very quickly, which nowadays when a million or more new books are published each year is quite an advantage. You tell the computer which subject you are interested in and it produces any microfiche (mikrofishi, diamikrikarta) you need in seconds.

There are also systems which are being developed to translate articles from foreign magazines by computer and to make up many lists of information which are needed in a modern library. So, computer can help us to deal with the knowledge explosion in many ways. One can imagine a time when libraries will be run by computers, without human beings at all.

Or, let's take another example. When a man drives a car for long distances he has two problems: to keep the car at a constant speed and watch that he does not run into the car in front of him. Engineers are now experimenting with a system which has a computer control of these two problems. The car's computer keeps the speed constant. At the same time the distance between the car and any other car in front of it is measured by a beam of light transmitted forwards. The beam meets the rear reflectors of the car in front and it is reflected back, which enables to measure the distance. This information is fed to the computer which adjusts (sozlamog) its speed control accordingly.

TEXT 5C

Matni o'qing va unga sarlavha qo'yning, matning qisqacha mazmunini ingliz tilida aytib bering:

Sir Isaac Newton was a supergenius of science who among other things invented calculus (sanamoq, hisoblamoq), stated the laws of gravity and optics. But it turned out Newton also made mistakes. The University of Chicago announced recently that R. Garusto, 23, a physicist, had discovered in one of Newton's calculations an error that had been undetected for three centuries.

The young scientist discovered it while he was studying Newton's masterpiece (shedevr) of physics «Principia» (1687). Newton had derived (chiqarmoq) a figure for the Earth's mass based on his new theory that a single force — gravity — governed (boshqarmoq) falling bodies on the Earth and the motion of planets around the Sun. The calculation depended on the angle (burchak) between two lines from the Earth to the Sun, but because that angle was not exactly known at the time, Newton used slightly different figures in

«Principia». It was that mistake that the young scientist found, a discovery that was soon confirmed (tasdiqlamoq) by other physicists. The mistake has no influence on Newton's theory, but its discovery was enough to get him a prize from the University of Chicago.

Text 5D

Matnni o'qing va gapiring: Kongress kutubxonasi qanday binolardan tashkil topgan, har qaysi bino qaysi mashhur shaxs nomiga qo'yilgan? houses va numbers so'zlari ishtirok etgan gaplarni toping va eslab qoling:

The Library of Congress

The Library of Congress is the Nation's library in the USA. It serves not only to members and committees of the Congress, but to libraries throughout the USA and the world and to the scholars, researchers and scientists who use it.

Its foundation was laid in 1815 when President Thomas Jefferson offered his personal library accumulated for 50 years and considered one of the best in the United States at that time as the basis for a great national library.

Now the Library of Congress complex on Capital Hill includes three buildings. The Thomas Jefferson Building, which has been built in Italian Renaissance style, is the oldest of them. It was the largest and costliest (shohona) library building in the world when it was completed in 1897. It is decorated with splendid sculpture, murals (freska) created by 50 American artists. Its Main Reading Room is 160 feet high.

The Room houses a collection of 45,000 reference books (spravochniklar), a part of the extensive main catalog of more than 23 million cards and desks for 212 readers. The Computer Catalog Center provides public access to the Library's automated catalog.

The simply designed John Adams Building faced with white marble (marmar) was opened in 1939. Sculptures on its large bronze doors represent 12 famous writers.

The white marble James Madison Memorial Building opened in 1980 more than doubled the Library's available Capitol Hill space. The building which is the official memorial to the Nation's fourth President contains the James Madison Memorial Hall, exhibition areas, eight reading rooms, offices and storage areas for collections which number over 50 million items (predmetlar).

QO'SHIMCHA TOPSHIRIQLAR



1-mashq. A. 5A matnni o'qing va ajratib ko'rsatilgan so'zlarning shu kontestdagi ma'nosini tushunishga harakat qiling:

the word «electronics» is in general usage

more perfect electronic circuits

billions of operations

what can be regarded as

the still youthful electronic age

B. A qismdagi har bir ajratib ko'rsatilgan so'z va so'z birikmasiga ma'nosi bo'yicha mos keladigan so'zni toping:

excellent, exact, accurate

combination of written symbols forming vocabulary of a language

consider

great or long period of time with special characteristics

one thousand million (GB), 109 (US)



2-mashq. Matndan quyidagi so'z va so'z birikmalariga ekvivalentlarini toping:

number

tiny

not likely to change

signal to ring a bell at a fixed (certain) time

divide into two equal parts

watch that is used to time sport events, such as a race, to a fraction (small part) of a second

a place between the hand and the arm

not fast, slowly

smth. that helps smb. to remember, not to forget

start or begin a process

Hertz (Hz)

speed

Digital Watch

In a digital watch the mechanical parts of the traditional mechanical wristwatch have been replaced by a vibrating quartz crystal to keep time. The vibrating quartz crystal is controlled by minute electronic circuits. One of the advantages of quartz is that it is very stable. The artificial quartz crystals used in digital watches are designed to vibrate up to 32,768 cycles per second when the

current from a battery is passed through them.

These vibrations produce electric pulses. As the pulses travel through the electronic circuits of the microchip, their rate is gradually halved. The result is a pulse rate of one per second.

Each one-second pulse triggers the microchip to send signals to the liquid crystal display to advance the numerals by one second. The pulses are also used to control different functions. Such a digital watch can show the day and date; it can have an alarm and a reminder and can act as a stopwatch with an accuracy of 1/100th second.



3-mashq. Quyidagi kompyuter terminlarini o'qing, ajratib ko'rsatilgan so'z va so'z birikmalarini o'zbekcha ekvivalentlarini ayting. Tarjima qiling:

Hardware means the different types of equipment a computer consists of. A computer's hardware comprises a central processing unit (CPU) which is the heart and brain of the computer.

Input and output devices capable of putting information into a computer and getting it out of it are types of peripheral equipment. Peripherals are the units connected to the CPU: input devices, output devices and storage devices.

The simplest and most common type of input device is a keyboard, containing a typewriter keyboard.

A laser printer is a kind of output device to print information.

Software means the programs needed to operate computer equipment. These programs are on disks, the hard disks inside the computer, or floppy disks, or on CD-ROMs, that is, Compact Disk Read Only Memory, which you can put on or store a large amount of information. A disk is a storage device made of flat circular plates with magnetizable surfaces. A hard disk is a disk made from a solid magnetic material and used as a storage device. A floppy disk (also called diskette) is a disk made of flexible plastic material upon which data are stored on magnetic tracks. Tracks are areas marked on the surface of a disk. A disk drive is the electronic mechanism that actually reads what is on a disk. In hard disks, the disk and the drive are built into a single unit.

A word processor is a computer used to write documents, letters and reports, or the software that is used for this purpose.

Databases are programs, which allow you to store, look at or change a large quantity of information quickly and easily.

Graphics are pictures and symbols a computer program can produce.

An extra copy on a floppy disk is called a back-up copy, a copy of data or

software, usually kept in case the original disk is damaged or destroyed.

A bug possible in a computer operation, also a virus is a software problem or error in a program. Debugging means correcting program errors or bugs.

People send e-mail (electronic mail) messages with the help of the Internet, a system that lets computers connect by telephone lines.

A laptop is a portable computer weighing about 2—4 kg.

With a device called the mouse you can do a number of things by clicking on different icons.

A mouse is a small input device, on the top of which there are one or more buttons for communicating with the computer.

Clicking is a basic mouse action to place a cursor to close a window, etc.

An icon is a small picture representing an object, process or function.



4-mashq. Kompyuter terminlaridan foydalanib, nuqtalar o'rnini to'ldiring. Eslab qoling:.

12. data ...	1. mini ...
13. integrated ... or chip	2. ... copy
14. soft ...	3. fifth ... computer
15. ... ROM	4. ... processor
16. hard ...	5. e-...
17. floppy ...	6. ... age
18. ... disk	7. photon ...
19. input, output ...	8. ... writer
20. super ...	9. key ...
21. physical ...	10. laser ...
22. ... network	11. mini ...

**5-mashq. So'zlar yasab, jadvalni to'ldiring:**

Verb, Noun	Adjective
create	...
...	possessive
act	...
compete	competitive
attract	...
...	comparative
expense	...
sense	...
mass	...

**6-mashq. So'zlar yasab, jadvalni to'ldiring:**

Noun	Adjective	Adverb
...	...	questionably
availability
capability	◆ ...	•••
...	usable	...
...	...	possibly
reliability
quality
quantity
...	...	intensively
indispensability

**7-mashq. A. «Computer» mavzusida 10-15 ta kalit so'z ayting.****B. Speak about:**

A lot of people are becoming computer literate (have experience of working with computers and know how to use them). Are you computer literate? Do you find most computers «user- friendly» (easy to use)?

The Internet and its influence on our daily life. Can it help people from different countries to learn English?

LESSON 6

Modal fe'llar va ularning ekvivalentlari

to cause fe'li

no longer, because of, due to, thanks to birikmalari

-ness; -ance/ence; -ist; -Jul; -less suffikslari

Text 6A. Made in Space

Text 6B. Composite Ceramics

Text 6C. Ancient Steel-Making Secret

Text 6D. The British Museum

MATN OLDI MASHQLARI



1-mashq. Modal fe'llarning ishlatilishiga e'tibor berib, dialoglarni o'qing:

A: You can do without lots of things.

B: You can't do without food or water.

A: Oh, yes, you can! You can do without food for weeks and without water for days.

B: Well, you can't do without air or only for a very short time.

A: Can you write without a pen? B: No, of course, I can't.

A: I must have a new dictionary.

B: Why must you? You don't need a new dictionary. You've got a lot of dictionaries.

A: I want to see Mr. Z.

B: I am sorry. I am afraid he may not be in.

A: But perhaps he may be.

B: No, sir. He may not be back for some time.

A: I can wait.

B: He may not be in until twelve.

A: I can wait until he is in.

B: He may be out all day.

A: May I go to the cinema?

B: No, not today, tomorrow.

A: May not I go today? Zed can't come tomorrow. May I go home with Zed afterwards?

B: Oh, no, you mustn't do that.

- A: Why, mustn't I?
B: Because you mustn't be home late.
A: Well, then, may Zed come home with me?
B: Yes, he may do that.
A: May I have the money, please.
B: Oh, very well.



2-mashq. Modal fe'llarni mos keladigan ekvivalentlari bilan almashtiring:

1. Students must take exams in January.
2. She can speak French well.
3. You may take this book till tomorrow.
4. We must learn new words every week.
5. I live not far from my work. I can go by bus or I can walk.
6. You may come in. 7. We can take this book from the library.
8. She cannot do this work in time.
9. He must go to St. Petersburg for a few days.
10. We can see electrical devices everywhere.



3-mashq. Gaplarni so'roq va inkor formalarga aylantiring: маашқ.

1. We were able to read that article in the library.
2. Some students will be permitted to take exams in December.
3. You have to read this book.
4. We shall be able to skate in winter.
5. My friend is to take part in the conference.
6. The students of our group had to go to the plant last week.
7. They were allowed to continue their research.



4-mashq. Modal fe'llar tarjimasiga e'tibor berib, tarjima qiling:

1. Everyone should know a foreign language.
2. To make supercomputers, we need highly developed electronics and new materials.
3. One should do one's work in time.
4. The students ought to know the history of their institute.
5. The development of new materials does not mean that old materials should lose their significance.

6. Marie Curie needed a laboratory and equipment for her research.
7. Every institute ought to be proud of their famous graduates.
8. One should know that «roentgen» is a unit (birlik, dona) of radiation.



5-mashq. would ni used to билан керак жойда алмаштиринг, таржима қилинг:

1. He would spend hours in the Tretyakov Gallery.
2. Tsiolkovsky believed that rockets would be used for space travel.
3. Bell and Watson would repeat their experiments many times.
4. It became known that a new car would be shown at the exhibition.
5. Electricity would pass through metals, but wouldn't pass through wood.
6. I asked my friend to help me, but he wouldn't, he said I could do everything without his help.
7. He would work in the library when he was getting ready for his exam.



6-mashq. To'g'ri modal fe'l yoki ekvivalent toping:

Aniqlash mumkin — (must, can, should) calculate; bajarish imkoniga ega bo'lmoq — (have to, be able to, be allowed to) carry out; oldindan aytib bo'lmaydi — (can't, needn't, be not able to) predict; 10 da boshlanishi kerak — (have to, may, be to) begin at 10; biish kerak — (should, may, need) know; qilish (yaratish) kerak emas — (may not, needn't, should not) create; foqhdalanish zarur — (must, be allowed, may) use; bu kitobni olish mumkin — (must, can, may) take this book; qiishni also xoxlamaslik — (need, wouldn't, must) do.



7-mashq. Gaplarni tarjima qiling:

1. U ingliz tilida yozadi va o'qiy oladi
2. U bu ishni oy oxirida qilib bo'lishi kerak
3. Endi talabalar auditoriyaga kirishlari mumkin
4. U bu yerda shug'ullanishu mumkin
5. U bu maqolani o'qishi kerak
6. Sizning kitobingizni olsam bo'ladimi?
7. Men kutubxonaga borib kitob olishim kerak
8. Siz bilan borsam bo'ladimi?
9. Bu bola yura oladimi (yurishni biladimi?)
10. Kitobni ertaga qaytarishingiz kerak



8-mashq. Ajratib ko'rsatilgan so'z birikmalarini tarjima qiling:

1. It was found that proton and neutron have almost the same weight.
2. It was necessary to lay cables across the Atlantic Ocean as there were no radio or satellites at that time.
3. It is difficult to imagine the world we live in without radio, telephone and television.
4. It is possible to have a direct telephone talk with Vladivostok with the help of satellite systems.
5. This material has properties which make it useful for various space projects.
6. It should be said that computers become increasingly important in our life and work.
7. My adviser considers it necessary for me to read as much literature as possible before starting my work.
8. It is difficult to name all the branches of science and technology which are based on electronics.
9. It is well-known that «watt» is a unit named after James Watt, an inventor from Scotland.
10. It is impossible to solve many modern complex engineering problems without the help of computers.



9-mashq. Inkor nima bilan ifodalanganligini ko'rsating. Tarjima qiling:

1. Popov had no support from the government to continue his research.
2. Not long ago chemists developed new materials that could withstand high temperatures.
3. No system of measurement of the past is as simple as the metric system.
4. It is no longer possible to put off the solution of ecological problems.
5. Tsarist Russia gave no money for Tsiolkovsky's research.
6. No one is allowed to smoke in our office.
7. There is no doubt (shubhasiz) that the development of electronics is one of the greatest achievements of mankind.
8. Half a century is not a long period in the history of civilization.
9. Before Newton no one could explain why the planets moved around the Sun.
10. People no longer think of radio and television as something fantastic.



10-mashq. due to, thanks to, because of bilan kelgan gaplarni tarjima qiling:

1. Ships can communicate over long distances due to the radio.
2. Because of the earth's rotation there are days and nights on the earth.
3. Thanks to the radio it is possible to transmit human voice across the globe.
4. Due to the latest achievements in electronics it has become possible to develop supercomputers.
5. Because of their long life solar and atomic batteries are used to supply power to transmitters in spacecrafts.
6. Thanks to the development of radio telescopes radio astronomy has made great achievements.
7. Our century can be called «Space Age» because of the development of a new branch of science and technology — cosmonautics.



11-mashq. much so'ziga e'tibor qilib, tarjima qiling:

1. We don't notice the gravitational pull of a book because the pull of the earth is much greater.
2. The speed of computer operations will be much greater in the future.
3. Graphite which withstands much higher temperatures is one of the best materials for reactors.
4. When a spaceship is in space, much smaller energy is needed for its movement.



12-mashq. Gaplarni tarjima qiling va to cause fe'lining vazifasini eslab qiling:

1. Heating causes different changes in metals.
2. A Danish scientist discovered that electricity caused the needle to move from left to right.
3. Vibration not only causes noise but can also break materials and structures.
4. The space flight of Gagarin caused a sensation throughout the world.
5. Rutherford showed that positive charge of a nucleus was caused by protons.
6. New achievements in mathematics caused the development of new means of computerization.

 **13-mashq. Ekvivalentlarini toping:**

carry out experiments; zero gravity conditions; at a larger scale; zero-gravity state advantages; on board a spacecraft; manned and unmanned space vehicles; obtain useful and valuable data; new generation materials.

SO'Z QURILISHI

 **14-mashq. A. quyidagi so'zlarni namunaga qarab tarjima qiling:**

ot + -ful = fe'l use

— foyda→ useful —foydali power, skill, success;

ot + -less = fe'l use

— foyda→ useless —foydasiz change, noise, water, help, end;

kesim + -ness — abstrakt weightless — vaznsiz → weightlessness —

vaznsizlikm + -ist — ega science — fan -> scientist — olim

special, art, motor, biology.

B. -ance/-ence suffiksi bilan kelgan otlarni tarjima qiling:

resistance — qarshilik

consequence, distance, appearance, difference, absence, presence.

 **15-mashq. Internasional so'zlarni o'qing va tarjima qiling:**

surprise [sa'praiz], substance ['SAbstans], magnetic [maeg'netik], laser ['leiza], polymer ['polima], plastics ['plaestiks], experiment [iks'perimant], orbital ['o:bitl], expert ['ekspa:t], start [sta:t], simulate ['Simjulaleit], principle ['prinsipl], gravitational [,graevi'teijan], convection [kan'vek/an], temperature ['tempritfa], zero-gravity ['ziarau'graeviti], hydromechanical ['haidraumi'kaenikal], acceleration [ak,sela'reijan], project ['prodjekt].

 **16-mashq. So'zlarni o'qing:**

label ['leibl], material [ma'tiarijal], alloys ['aeloiz], peculiar [pi'kju:lja], numerous ['nju:maras], pave [peiv], vehicle ['vi:ikl], inertia [i'na:Jja], process ['prauses], Archimedes [,a:ki'mi:di:z], consequently ['konsikwantli], separate ['separeit], component [kam'paunant], quite [kwait], gases [gaesiz], cause [ko:z], research [ri'sa:tf], biochemist [,baiau'kemist], biological [,baiau'logikal], special ['spejal].

ESLAB QOLING

aim v — mo'ljal qilmoq, harakat qilmoq

alloy n — eritma

approach v — yaqinlashmoq

certain a — ma'lum
condition n — shart-sharoit
create v — yaratmoq, qurmoq
data n — ma'lumotlar
density n — tig'izlik
differ from v — ...dan farqlanmoq
difference n — farq
estimate n — baholamoq
except prp — dan tashqari, boshqa
include v — yoqmoq, qo'shmoq
launch n — boshlash, qo'shish
liquid n — suyuqlik, a — suyuq
manned p — boshqariladigan, bortida pilot bo'lgan
movement n — harakat
numerous a — ko'p sonli
obtain v — olmoq
possess v — olmoq, ega bo'lmoq
thus adv — shunday, shunday qilib
valuable a — qimmatli
prove v — isbotlamoq
substance n — modda
surface n — yuza
vehicle n — transport vositasi, kosmik uchish apparati
weight n — vazn

TEXT 6A

Matnni o'qing va kosmosda o'tkazilgan eksperimentlarning ahamiyati va natijalari haqida ma'lumot toping. Tarjima qiling:

Made in Space

This label «Made in Space» for industrial materials will probably surprise no one in the not so distant future. They may include superconductors, new kinds of alloys, substances with peculiar magnetic properties, supertransparent laser glass¹, polymers, plastics, and so on. Numerous experiments carried out at the Russian orbital space stations have paved the way² to the development of methods and means of industrial production of new materials of better quality on board a spacecraft³. Experts estimate that within a few coming years industrial production of various materials will be started in space.

Conditions on board a space vehicle orbiting Earth greatly differ from those on its surface. However, all of these conditions can be simulated⁴ on Earth, except for one — prolonged weightlessness. Weightlessness can be created on Earth, but only for a few seconds. A space flight is another matter: a satellite orbiting Earth is in a dynamic zero-gravity state, i.e., when gravity is cancelled out⁵ by inertia.

What can weightlessness be used for? Many well-known processes go on differently due to the absence of weight. The Archimedes principle is no longer valid and, consequently, stable-state⁶ liquid mixtures can be obtained, the components of which would immediately separate on Earth because of different density. In case of melts⁷ of metals, glasses or semiconductors, they can be cooled down to the solidification point even in space and then brought back to Earth. Such materials will possess quite unusual qualities.

In space there is no gravitational convection⁸, i.e., movements of gases or liquids caused by difference of temperatures. It is well-known that various defects in semiconductors occur because of convection. Biochemists also have to deal with the worst aspects of convection, for example, in the production of superpure biologically active substances. Convection makes it very difficult on Earth.

Following the launch of the first orbital stations the specialists started experiments aimed at proving the advantages of the zero-gravity state for the production of certain materials. In this country all orbital stations from Salyut 5 onwards were used for that purpose, as well as rockets. Since 1976 over 600 technological experiments have been carried out on board manned and un-manned space vehicles.

The experiments proved that many of the properties of the materials obtained under the zero-gravity condition were much better than those produced on Earth. Besides, it has been established that it is necessary to develop a new science — physics of the weightless state — which forms the theoretical basis for space industry and space materials study. This science has basically been developed.

The methods of mathematical modelling of the hydromechanical process under the zero-gravity condition have been created with the help of computers.

Special space vehicles will also be needed for industrial production of new-generation materials. Research has shown that the acceleration rate on board these vehicles must be reduced to the minimum. It was found that space platforms in independent flight carrying the equipment were most suitable for producing materials. These vehicles will have to use their own propulsion systems to approach their base orbital station after a certain period of time. The cosmonauts on board the station can replace the specimens. Many new and very interesting projects are planned for orbital stations. Here is one of them. Convection does not allow to grow large protein crystals on Earth. But it is possible to grow such crystals under the zero-gravity condition and to study their structure. The data obtained during the experiments can be useful for the work of laboratories on Earth in using the methods of gene engineering⁹. Thus, it may be possible to make new materials in space and also to obtain valuable scientific data for new highly efficient technologies on Earth.

Preparatory work for industrial production in space at a larger scale is being carried out in Russia, the USA, Western Europe and Japan. It should be said that according to the estimates of American experts production of materials in space is to bring 60 billion dollars in the future.

Notes to the Text

supertransparent laser glass — o'ta mustahkam lazer oynasi

to pave the way — yo'l ochmoq

on board (a spacecraft) — bortda (kosmik kema bortida)

to simulate — modellashtirish, o'xshatish

to cancel out — yo'q qilmoq

stable-state — stabil ahvol

in case of melts — erish jarayoni

gravitational convection — gravitasion konveksiya (og'irlik kuchi ostida issiqlik ajralib chiqishi)

gene engineering — gen injeneriyasi

MASHQLAR



17-mashq. 6A matnni o'qib, savollarga javob bering:

1. What is this text about?
2. Have you seen the label «Made in Space» anywhere?
3. Why can't certain materials be produced on Earth?
4. Can all the conditions on board a space vehicle be simulated on Earth?
5. When will it be possible to start industrial production of materials in space? What do you think about it? Can we start such production now?
6. Why can we obtain materials of better quality in space?
7. What equipment is needed for producing materials in space?
8. How will this equipment operate?



18-mashq. 6A matndan kelib chiqib, to'g'ri gaplar tuzing:

Many well-known processes go on differently in space due to different density.

the presence of weight.

the absence of weight.

The components of stable-state liquid mixtures would separate on Earth because of

high temperature.

different density.

different conditions.

It is well-known that various defects in semiconductors occur because of weightlessness.

solidification.

convection.



19-mashq. 6A matndan modal fe'llar va ularning ekvivalentlarini toping, to'g'ri keladigan fe'llar bilan almashtiring:

20-mashq. Mos keladigan modal fe'lni tanlang:

1. Do you live far? (Can, must) we meet here at 7 o'clock? — We certainly (may, can). — I'll see you later this evening, then.
2. Bill, would you help me? Sure, I'd be glad to help you. What (may, can) I do for you?
3. (Can, may) I take your pen? I've broken mine.
4. Do you know when Bob comes back from the University?

am afraid he (can, may) be very late. He has an examination tomorrow. He (can, must) study for the examination.

5. Do you have a stamp (марка)? — No, I'm afraid I don't. You (may, must) go to the post office for this.

6. I'm very much interested in environment problems. I think we (must, may) learn to live in harmony with nature.



21-mashq. Harakat qilishni talab qiladigan modal fe'll bilan ifodalangan gaplarni toping, tarjima qiling:

1. As telegraph wires couldn't be hung over the ocean, cables had to be laid on the floor of the Atlantic Ocean.

2. In the next few years engineers are to develop computers of more than 2 billion operations a second.

3. A new kind of telephone may be called a video-phone.

4. One must know that we shall need a lot of specialists that will be able to work and live in space for a long time.

5. To see distant objects clearly, one should change the focus.

6. Within a few coming years a quantity production of various materials is to begin in space.

7. Some liquid mixture components would immediately separate on Earth because of different density.

8. It should be said that special space vehicles are necessary for industrial production of space materials.

9. Our group will be allowed to use new laboratory equipment next term. 10. One can see that there is no principal difference between iron and copper as conductors.



22-mashq. to have to, to be to modal fe'llari ekvivalentlari ishtirok etgan gaplarni toping:

1. Television has a great number of uses nowadays.

2. Morse discovered that telegraph messages did not have to be written, they could be sent as a sound.

3. That part of this country has become a highly industrial one.

4. Why couldn't you do it yesterday? — Because I had to go home earlier than usual.

5. This important problem had been solved by the end of 1980.

6. In the past messages to and from Europe had to be sent by ship.

7. Some materials with useful qualities will have to be produced in space.

8. A historian has to study a lot of various facts to be able to reconstruct the far past.

B. 1. Such metals as iron, cobalt, nickel and some alloys are much more magnetic than any other substances.

2. In the next few years Russian engineers are to complete the work on supercomputers.

3. The main aim of this article is to explain methods and means of space industrialization.

4. We are living in an electronic world.

5. A number of TV stations are to be linked up into a network.

6. Experiments for industrial production of materials in space are being carried out in many countries.

7. Weightlessness is created on Earth, but only for a few seconds.

8. The quality of these metal parts is to be very high.

9. It was found that the acceleration rate on board such vehicles was to be reduced to a minimum.

MUSTAQIL ISHLASH UCHUN MASHQLAR



23-mashq. Qaysi soʻz turkumiga kiradi? Tarjima qiling:

requirement, constituent, scientific, distance, agronomist, ancient, density, differ, hardness, structural, various, magnificent, presence, property, culture, conductor, presentation, probably.



24-mashq. Soʻzlarga mos keladigan feʼllarni toping:

surprisingly, difference, equipment, mixture, coming, estimation, weightlessness, production, separately, development, movement, disappearance, functional.



25-mashq. super- prefiksining kelishuga eʼtibor berib, tarjima qiling:

supercritical, superactive, supercooled, superalloy, superhard, superplastic.



27-mashq. Toping:

a) sinonim

to start, movement, nowadays, quality, research, various, a means, manufacture, possess, to occur, consequently, numerous, spacecraft, to use, to substitute, certain;

6) antonim

distant, to stop, few, to reduce, invaluable, unusual, dependence, minimum.



28-mashq. Lug'atsiz tarjima qiling:

The first step in any industrialization project, for example, on the Moon should be preparation for plant construction. It is economically desirable to use local materials for this. It is well-known that metals form the most important group of engineering materials. One must know that they possess necessary mechanical and physical properties. They can be easily fabricated into various forms by a variety of techniques. They are hard, tough (plastik), strong and temperature-resistant, a combination of properties not available in any other materials. The properties of metals can be changed by heat treatment so that the fabrication is much easier since the work pieces can have properties quite different from those needed in the final product.

CONVERSATION



Exercise 1. Answer the questions.

1. What condition on board a space vehicle can't be simulated on Earth? (prolonged weightlessness).
2. What eliminates gravity during a space flight? (inertia).
3. What can be the industrial use of weightlessness? (the production of new materials with unusual properties).
4. What industrial materials can be produced in space? (superconductors, new kinds of alloys, magnetic materials, laser glass, polymers, plastics, etc).
5. What is Russia's contribution to the development of methods and means of industrial material production in space? (over 600 technological experiments carried out at the Russian orbital space stations).
6. What are the results of these experiments? (much better properties of the materials obtained under the zero-gravity condition than those produced on Earth).
7. What is needed for industrial material production in space? (special space platforms).



Exercise 2. Make a sentence out of the two parts

1. Experts estimate that within a few coming years

2. Numerous experiments on board

3. They may include

4. In space there is no gravitational convection

5. Convection makes the production of some materials

6. But in zero-gravity conditions it is possible

7. It should be said that research and preparatory work

1. for industrial production of new-generation materials at a larger scale is being carried out in Russia, the USA, Europe and Japan.

2. very difficult on Earth.

3. i.e. movement of gases or liquids because of difference of temperatures.

4. to grow large crystals and to study their structure.

5. super and semiconductors, metals, glasses, superpure biologically active substances, etc.

6. the industrial production of various materials is to begin in space.

7. the Russian manned and unmanned space vehicles and space stations proved the advantages of the zero-gravity state for the production of some materials.



Exercise 3. Read and learn.

Tom: Are you going to attend the seminar tonight?

Bill: I should go. Unfortunately, I won't be able to do so.

T.: Why should you go there?

B.: The speaker will talk about composite ceramics. I must know all about this subject. As you know, I'll do some experimental work in this field next June. So I'll have to know about it.

T.: In that case, you ought to cancel (bekor qilmoq) your other plans and attend

the seminar. You shouldn't miss (o'tkazib yubormoq, qo'yib yubormoq) it.

B.: You are right. But I can't go.

T.: Why can't you?

B.: Don't you remember (eslab qolmoq)? We are to take an exam in French tomorrow. I have to study for the examination.

T. Do you have to study? Is it a necessity?

B.: Well, I suppose the expression «have to study» is too strong. No one is forcing me. But I really ought to study tonight. Shouldn't you do it too?

T.: I don't have to study. I studied last night and I am sure I can pass it. Besides that, I must attend the seminar.

B.: Why must you attend it?

T.: Have you forgotten? I must introduce the speaker to the audience.

B.: Yes, that's right.

T.: Well, I have to go now. I may be late. I'll see you later.



Exercise 4. Speak about:

Space industrialization and its importance for mankind.

The latest achievements in industrial materials production in space.

Use exercises 1, 2 and the following words and word combinations for your topic : carry out experiments; obtain useful and valuable data; on board a space vehicle; zero-gravity condition; zero-gravity state advantages, materials of better quality; at a larger scale; in case; according to.



Exercise 5. Read and smile.

The teacher was trying to explain the fundamentals of Science to her class. «Sir Isaak Newton was sitting under a tree looking up into it when an apple fell on his head, and from that he could discover the law of gravity. Wasn't that wonderful?»

«Yes, it certainly was», a pupil said, «and if he had been at school at his books, he wouldn't have discovered anything».

A Trick on a President

W.H. Harrison was the ninth President of the United States. Like so many other early American presidents he was born in a small town. As a boy, he was extremely quiet. In fact, he was so quiet that he had the reputation of being very stupid (axmoq, laqma). The town people therefore often used to play tricks (hazil) on him. For example, they would put a nickel and a dime (5, 10 sentli chaqa tanga) in front of him and tell him to take whichever one he wanted. He would always choose the nickel and they would laugh at him.

One day, a woman took pity (afsuslanmoq) on him. She said: «William, why do you always choose the nickel instead (o'rniga) of a dime? Don't you know that a dime, though smaller in size than a nickel, is worth (turmoq (narx)) much more than a nickel?» «Certainly I know it», William answered. «But if I chose the dime, they wouldn't play the trick on me any more.»

Text 6B

Matnni o'qing va kompozision keramika materialidan tayyorlangan kesuvchi qurilmaning egiluvchanligi va chidamliligini oshiruvchi yangi uslublar haqida aytib bering:

Composite Ceramics

Advanced ceramic materials have such interesting properties that mechanical engineers are becoming more and more interested in their use as structural parts (konstruksion detallar).

Ceramic cutting tools have been in use for some time. However, it is only during the last twenty years that there has been rapid development in this field because of the development of new composite ceramics.

Composite materials are materials in which two or more different substances, such as metals, ceramics, glasses, or polymers are combined without chemical reaction. As a result one can produce a material with properties different from those of any of the individual constituents. The constituents of a composite would retain their individual characteristics.

Recently engineers have developed various kinds of composite ceramics which must combine an increased toughness (egiluvchanlik) with the same hardness and strength of usual ceramics. A promising recent development is the addition of a tiny quantity of metal to increase toughness and tool life. Thus, at room and high temperatures (1000 °C) the composite ceramics for cutting tools should possess the following properties: high strength, high toughness, high hardness, high thermal shock resistance and high chemical inertness.

Text 6C

Matnni o'qing, nazaringizda qiziqarli bo'lgan faktlarni ayting:

Ancient Steel-Making Secret

When two metallurgists at Stanford University were trying to produce a «superplastic» metal they became interested in the secret of Damascus steel, the legendary material used by numerous warriors (jangchilar) of the past, including Crusaders (salib yurishi jangchilari). Its formula had been lost for generations.

Analyses of a new steel revealed properties almost identical to those they found in Damascus steel, although their own plastic steel had been produced by present-day methods.

The remarkable characteristics of Damascus steel became known to Europe when the Crusaders reached the Middle East in the 11th century. They discovered that swords (qilich) of the metal could split (chopmoq) a feather in air and at the same time retain their edge sharp through many battles.

The secrets of Damascus steel were known in many parts of the ancient world, especially in Persia, where some of the finest specimens were produced. For eight centuries the Arab sword makers kept the secret about their techniques and methods. And with the invention of firearms (o'q otar qurol), the secret was lost and it was never fully rediscovered.

The two metallurgists carried out a lot of researches. When they realized that they might be close to the discovery of a new material, a sword fancier (bilimdon), at one of their demonstrations, pointed out that Damascus steel, like their own product, was very rich in carbon. This led them to conduct a comparative analysis of their steel and those of the ancient weapons. As a result, it was found that a basic requirement was a high carbon content. The two metallurgists believed it had to be from 1 per cent to 2 per cent, compared to only a part of 1 per cent in ordinary steel. Their research showed how to make steel of even greater hardness than Damascus steel.

Text 6D

Matnni o'qing. Britanmiya Muzeyi kutubxonasi o'quv zali nimasi bilan ajralib turadi, muzeyda qanaqa no'limlar mavjudligini ingliz tilida aytib bering:

The British Museum

The British Museum consisting of the National Museum of Archeology and Ethnography and the National Library is the largest and richest of its kind in the world. Built in the middle of the last century it is situated in central London which consists of quiet squares and streets.

The British Museum was founded by Act of Parliament in 1753 to bring together the collection of Sir Robert Cotton, some others and future addition to them.

Anthony Panizzi designed the famous circular Reading Room at the British Museum. The first thing that strikes a visitor on entering the Reading Room is its unusual shape. It is a perfect circle. The superintendent (boshqaruvchi) and his assistant sit in the centre of the room and they issue (bermoq) and collect books. Long rows of reading desks radiate to the outer walls, like the spokes of the wheel.

Many famous people have used the Reading Room at the British Museum. Of the many distinguished people who have used the Reading Room no one was perhaps more regular and more intent (maqsadga yetishga nitiluvchi) than the German philosopher and socialist Karl Marx. Soon after he arrived in England in 1849, Marx became a daily visitor of the Reading Room, where he used to remain from nine in the morning till closing time.

The British Museum has a department of ethnography. Ethnography is concerned with primitive people and their cultures in various stages of development as revealed by their tools, ritual objects and various crafts (hunar). This collection is so vast that only a tiny percentage is on show to the general public. Then there is a department of prints and drawings. There are also departments devoted to maps, coins and medals. Visitors interested in chronology can see a large collection of clocks and watches. Those who are interested in philately can find a magnificent collection of postage stamps.

QO'SHIMCHA TOPSHIRIQLAR



1-mashq. A. 6A matnidan quyidagi gaplarni o'qing va ajratib ko'rsatilgan so'zlarning tarjimasini toping:

this label «Made in Space»

in the not so distant future

with peculiar magnetic properties

prolonged weightlessness

The Archimedes principal is no longer valid

the theoretical basis for space industry

on board these vehicles; on board orbital station

preparatory work for industrial production in space

replace the specimens

B. A qismdagi ajratib ko'rsatilgan har bir so'zga ma'nosi mos keladigan toping:

well based, correct, effective

needed for preparing; introductory

continuing for a long time

foundation

in a ship

not so far away in time

special, particular

piece of paper, metal or other material used to describe what smth. is, where it is to go, etc.

one as an example of a class



2-mashq. A. matnni o'qing va shape memory alloy, suggest, remember, piston, contract, expand, engine terminlarining ma'nosini tushunishga harakat qiling:

Shape memory alloys (SMA) are in general usage today. What exactly is a SMA? As the name suggests, this alloy can remember its original shape or form. Essentially it is a metal which can be deformed when cold and will return to its first shape when hot.

The particular alloy we are speaking about is nickel titanium.

We can see here one application in a conventional piston. When the piston is cold, the SMA coil or spring contracts and so the piston does not move. Heat causes it to expand and consequently the piston moves up. The advantage is that the device can work without any mechanical power, just from the heat which is

supplied by the engine itself.

B. Yuqoridagi matndan 5 juft sinonim va 3 juft antonym toping:



3-mashq. Ajratib ko'rsatilgan so'z birikmalarini quyidagi fe'llar bilan almashtiring: expand, remember, contract, suggest, deform.

The name SMA causes us to think that such an alloy can keep in memory its original shape. In other words it can change its shape. When cold it gets smaller. When hot it gets bigger.



4-mashq. A tomondagi fe'llar va B tomondagi oylardan gaplar tuzing:

A	B
make	a. the basis, foundation
meet	b. application, a way
obtain/provide	c. an operation
lay	d. an advantage over, influence on
state	e. data, results, access to
find	f. information, a message, signal
develop	g. an experiment, a TV program
send/transmit/receive	h. a law
have	i. a decision, mistake, calculation
perform	j. equipment, a device, design, system
watch k.	requirements



5-mashq. to be fe'li bilan keladigan so'z birikmalarinini tuzing, tarjima qiling va eslab qoling:

famous for, of great importance, in general (common) use (usage), of great help, interested in.



6-mashq. Jadvallarni to'ldiring:

Noun	Adjective	Opposite Adjective
use	• • •	• • •
thought	thoughtful	◆ • ◆
care	...	• • •
...	...	hopeless

Adjective	Noun	Noun, Adjective	Noun
hard	...	journal	...
tough	toughness	science	...
useful	...	economy	...
• • •	uselessness	• • •	metallurgist
hopeful	• ..	active	• • •
...	hopelessness	• • •	humanist
...	carefulness	chemistry	• « •
careless	physicist



7-mashq. A. «Advanced materials» mavzusida 10-15 ta kalit so'z va so'z birikmasi ayting..

B. Speak about:

A new alloy or advanced composite material you have recently read or heard about, its properties and possible uses.

REVISION OF LESSONS 4-6



1-mashq. A. Aniqlovchini ifodalash uslubini qaytaring. Tarjima qiling:

1. This is an excellent computer which will give you many years of service.
2. The number of men present was small.
3. Personal laser printers cost less than ordinary laser printer. They also weigh less and require less space.

4. Do you know the total number of colours available on this graphics system?
5. Supercomputers capable of performing billions of operations a second will have to be developed soon.
6. Ten miles is a long distance to walk.
7. Any mechanic could do that job.
8. Digital television has many features that are absent from conventional TV, such as easy connection to computers and telecommunication networks.
9. E-mail is a very fast data communication service. For e-mail to get a message to the other side of the world is a matter of a second or two.
10. The factory has computer controlled production equipment.

B.1. Tell me about the report you are preparing now.

2. A new radio set Ted has is a Zenith.
3. Ten hours of work a day is the maximum you should do.
4. Do you know about the disco the University is organising?
5. The news we have heard this week is of great importance.
6. You have been given all the information you need.
- 7.1 collected all the information I could find on the Internet about this subject.
8. With the new system you will be able to generate statistics any time you want.
9. Writing letters and reports are the purposes most people use computers for.
10. Composite materials we learnt about are the combination of metals, ceramics, glasses and polymers produced without chemical reactions.
11. Weightlessness the production of new materials depend on cannot be created on the earth for a long period of time.
12. The TV sets people saw at the New York Fair in 1939 were not available for a long time because of World War II.
13. Metals, ceramics, glasses, polymers composite materials consist of have properties different from those of the obtained composite material.



2-mashq. 4, 5, 6 darslarning Grammatik materiallarini eslab, matni tarjima qiling:

We interact with computers by entering instructions and data into them. After the information has been processed (ishlov bermoq), we can see the results (i.e. the output) on the visual display unit (VDU — virtual tasvir qurilmasi) or the monitor. In this interactive process with the computer, the screen plays an important part.

The pictures and the characters (rasmlar) we see on the screen are made up of picture elements which are also called pixels. The total number of pixels the display is divided in (both horizontally and vertically) is known as

resolution. When the number of pixels is very large, we obtain a high resolution display and therefore a sharp image. If the number of pixels is small, a low resolution is obtained. Thus, pixel density or resolution affects the quality of the image: a larger number of pixels gives a much clearer image.

The cathode ray tube of the monitor is very similar to that of a TV set. Inside the tube there is an electron beam which scans the screen and turns on or off the pixels that make up the image. The beam appears in the top left corner, and scans the screen from left to right in a continuous sequence, similar to the movement of our eyes when we read, but much faster. This sequence is repeated 50, 60 or 75 times per second, depending on the system.

In a colour monitor, the screen surface is coated (qoplab olmoq) with substances called phosphors. Three different phosphor materials are used — one each for red, green and blue. A beam of electrons causes phosphor materials to give coloured light from which the picture is formed. Colour monitors are capable to display many different colours at the same time.

Portable computers use a flat liquid-crystal display (LCD) instead of a picture tube.

Super Phones

Not long ago it became known that cell phone manufacturers were experimenting with several different designs for the handheld devices that would be linked to the advanced wireless networks of the future. If these machines really are to become digital companions, they will have to be versatile, adaptable and fashionable (moda). Companies such as Nokia, Ericsson and Motorola are working on the third-generation «super phone» that will look quite different from existing cell phones.. In fact, calling them phones seems absurd (absurd). They will have built-in colour screens several inches square for presentation of high resolution graphics and video. Some may have a keyboard and a miniature mouse for data input, but most of them will use touch-sensitive (sensorli) screens and styluses (patqalam, yozuv quroli) like those employed now by the handheld computers.

In addition to carrying voice communication, the super phone will also be able to play music files that are circulating on the Web in the most popular MP3 format (or in whatever format may replace it).



3-mashq. Quyidagi so'z birikmalarini tushuntirib bering:

Masalan: material properties — the properties of a material;

colour monitor — a monitor that works in colour;

company's database — the database which belongs to the company.

light beams

pixel number, pixel density

eye movements

director's computer

printing device

new generation computer

pocket-sized computer

handheld phones

high resolution display

high speed electronic circuits

computer controlled production equipment



4-mashq. A tomondagi so'zlarga B tomondan mos keladiganini toping:

A	B
1. Pixel	a. the maximum number of pixels in the horizontal and vertical directions of the screen
2. monitor	b. the results produced by a computer
3. resolution	c. the smallest element of a display surface
4. character	d. read the image as a series of pixels to enter information into the computer's memory
5. computer	the picture tube of the display which is made of glass and contains a vacuum
6. CRT	f. a CRT device which displays the computer output
7. image	g. a symbol available on the keyboard
8. scan	h. the machine that stores and processes data
9. output	i. a picture or what is seen on a television or com-



5-mashq. A. nuqtalar o'rniga quyidagi so'zlarni qo'ying:

pixel certain Web stylus chip perform CPU mouse

1. A ... is a tiny piece of silicon containing a set of integrated circuits.
2. The ... directs and coordinates the operations taking place within the computer system.
3. The arithmetic logic units ... calculations on the data.
4. The common name for picture elements is
5. On colour systems, each pixel is a ... combination of the three primary colours: red, green, and blue.
- 6.... is a system by which one can navigate through the Internet and find news, pictures, virtual museums, electronic magazines — any topic you can imagine.
7. What makes the ... especially useful is that it is a very quick way to move around on a screen.
8. A ... is a pen-like input device used to write directly on the screen to enter data.

B. Speak about:

The next generation mobile phones.

LESSON 7

Sifatdosh

Mustaqil sifatdoshli oborot

Since- so'zining ma'nosi

-age, -ate suffikslari

Text 7 A. Transport for Tomorrow

Text 7B. Car of Future

Text 7C. Talking Instrument Panels

Text 7D. Testing Times

MATN OLDI MASHQLARI



1-mashq. Zamonlarga e'tibor berib, matnni o'qing:

«Have you seen a copy of Magna Charta: collection of old English Laws?» «I haven't seen all of it. I have seen parts of it many times. I saw three or four articles from it yesterday. I read them in the translated form. Old English is almost as difficult to read as a foreign language». «Where did you see them?» «I saw them at the Public Library». «I saw you there. Did you see me?» «No, I didn't see you. I didn't see anyone whom I knew except the librarian. I didn't see any of my school friends, I mean». «I have seen you at the library many times, but you don't see anyone. The teacher says she has seen you there too, but you see only the books which you are reading».



2-mashq. to see fe'lini kerakli zamonga qo'yib, nuqtalar o'rnini to'ldiring:

I ... a friend in the library yesterday. I ... him there many times before, but he was so busy that I did not speak to him. When I spoke to him he said that he ... never ... me at the library. He concentrates on his work. He ... only his book. The teacher ... him there many times, but he doesn't... even her. He ... many important facts in books, however, and tells the class about them. He ... and read more important documents than all the rest of our class put together.



3-mashq. Participle I va Participle II bilan quyidagi so'z birikmalarini tarjima qiling: developing industry, developed industry; changing distances, changed distances; a controlling device, a controlled device; an increasing speed, an increased speed; a transmitting signal, a transmitted signal; a reducing

noise, a reduced noise; a moving object, a moved object; heating parts, heated parts.



4-mashq. Gaplarni tarjima qiling:

1. We need highly developed electronics and new materials to make supercomputers.
2. New alloys have appeared during the last decades, among them a magnesium-lithium alloy developed by our scientists.
3. We are carried by airplanes, trains and cars with built-in electronic devices.
4. Computer components produced should be very clean.
5. Many countries have cable TV, a system using wires for transmitting TV programs.
6. The fifth-generation computers performing 100 billion operations a second will become available in the near future.
7. A video phone has a device which allows us to see a room and the face of the person speaking.
8. New technologies reduce the number of workers needed.

1. Driving a car a man tries to keep steady speed and watch the car in front of him. 2. Having stated the laws of gravity, Newton was able to explain the structure of the Universe. 3. Being more efficient than human beings, computers are used more and more extensively. 4. Having graduated from Cambridge, Newton worked there as a tutor. 5. Having been published in 1687, Newton's laws of motion are still the basis for research. 6. Being invented the digital technology solved the old problems of noise in signal transmission.

Having published his book about space exploration in 1895, Tsiolkovsky became known all over the world. 8. Built in the middle of the last century, the British Museum is situated in central London.



5-mashq. -ed bilan tugagan fe'llar qaysi funksiyani bajaryapti? Tarjima qiling:

1. The first television set produced quite a sensation in 1939. The first television set produced in 1939 was a tiny nine-by-twelve inch box.
2. Newton's great work published in 1687 is called «Principia». Newton published his great work «Principia» in 1687.
3. The Russian Chemical Society organized more than a century ago is named after Mendeleev. The Russian Chemical Society organized an international conference devoted to the latest achievements in organic chemistry.
4. The energy possessed by the body due to its position is called the potential

energy. The new material possessed good properties.

5. The equipment required to carry out laboratory experiments was very complex. The equipment required further improvement.

6. The car model developed a speed of 50 miles an hour. The car model developed by our student design bureau will be shown on TV.



6-mashq. Ajratib ko'rsatilgan so'z birikmalarini tarjima qiling:

1. When completed in 1897, Jefferson's building was the largest and costliest library in the world.

2. Though being a school teacher of mathematics all his life, Tsiolkovsky concentrated his attention on man's travel into space.

3. If compared to today's TV program, the first black-and-white pictures were rather bad.

4. While being a teacher of deaf people Bell became interested in sound and its transmission.

5. Though discovered, Newton's mistake had no influence on his theory.

6. While working at a new transmitter for deaf people Bell invented a telephone.

7. If heated to 100 °C, water turns into steam.



7-MAШҚ. A. Tarjima qiling:

1. The room being dark, we couldn't see anything.

2. The book being translated into many languages, everybody will be able to read it.

3. Peter having passed his exams, we decided to have a rest in the country.

4. We went for a walk, our dog running in front of us.

5. The testwork having been written, he gave it to the teacher and left the room.

6. They having arrived at the station early, all of us went to the cafe.

7. My friends decided to go to the park, the weather being warm and sunny.

8. Our library buying all the new books, we needn't buy them ourselves.

9. The fuel burnt out, the engine stopped.

10. Many scientists worked in the field of mechanics before Newton, the most outstanding being Galileo.

B. 1. Numerous experiments having been carried out at the orbital stations, it became possible to develop new methods of industrial production of new materials.

2. President Jefferson having offered his personal library, the foundation of the Library of Congress was laid.

3. Anthony Panizzi designed the Reading Room of the British Museum, the Reading Room being a perfect circle.

4. A beam of light being transmitted forwards, it is possible to measure the distance between the car and the other cars in front of it.
 5. The distance having been measured, the computer adjusts the car's speed.
 6. Two metallurgists produced a new superplastic metal, the new steel showing properties identical to Damascus steel.
 7. The young physicist having discovered Newton's error, other scientists confirmed it.
 8. The first TV sets having been shown in New York, the news about it spread throughout the world.
- C. 1. With the first steam engine built in the 17-th century, people began to use them in factories.
2. The inventor was demonstrating his new device, with the workers watching its operation attentively.
 3. With his numerous experiments being over, Newton was able to write his work very quickly.
 4. With the current being switched on, the machine automatically starts operating.



8-mashq. Ingliz tiliga tarjima qiling:

1. kitob o'qiyotib, u odatda belgi qo'yadi (make notes).
2. matni o'qib, biz uni muxokama qilamiz
3. savolga javob berayotib, u bir necha xato qildi
4. o'qituvchining savollariga javob berib, biz yangi matni tarjima qilishga kirishdik
5. yaxshi o'tkazuvchi bo'lganligi uchun, mis sanoatda keng qo'llaniladi
6. yashil chiroqni ko'rib, biz ko'chani kesib o'tdik (cross).
7. gazeta sotib olayotib, u pulini yo'qotib qo'ydi
8. gazeta sotib olib, u metroga tushdi



9-mashq. Tarjima qiling. Ajratib ko'rsatilgan so'zlar ma'nosini eslab qoling:

1. The Reading Room of the Library of Congress houses a great collection of reference books.
2. The Houses of Parliament are situated in the centre of London on the banks of the Thames.
3. The fuselage of a new cargo aircraft can house large-size equipment.
4. Solar power can be used as a source of heat.
5. When we heat water, it turns into steam.
6. Heat energy may be of a kinetic form.
7. A new computerized system monitors the production processes of this plant.

8. This plant is equipped with video and television monitors.
9. Our laboratory is developing an electronic monitoring system for cars.
10. In new cars instrument panels will have a means to display different objects on the road.
11. Liquid- crystal display was used in the first colour television set.
12. A special electronic device signals the engine to stop.
13. Now it is possible to send signals over long distances.



10-mashq. only so'zining qanaqa vazifada kelganiga e'tibor berib, tarjima qiling:

1. The higher school today considers education not only as a collection of useful facts and theories but as a process which trains the mind to think, analyze and make decisions.
2. Hailey's Comet is the only comet which has been regularly observed for more than 200 years.
3. Many experts now question the idea that environmental problems began only with the industrial revolution in the 19th century.
4. Since their first appearance in 1939 only few people owned television sets.
5. The collection of ethnography in the British Museum is so vast that only a tiny percentage is on show to the general public.
6. When we speak about the further development of computers, we mean not only quantity, but also high technology and high speed.



11-mashq. A. So'z birikmalarini o'zbekcha ekvivalentlarini toping:

one thing is certain, public transport, the time is coming, from home to office, a modern vehicle, in common use, to get into a car, a pack of cigarettes, how far one can drive, various objects ahead, directly above the bumper, get out of a car. Turli obyektlar, jamoat transporti, zamonaviy transport vositasi, vaqti keladi, mashinaga o'tirmoq, bir narsa aniq, doimiy foydalanishda, mashinadan tushmoq, qancha (uzoqlik) yurish kerak, bamper ustida

B. Tarjima qiling:

to go out into the street, a usual means of transport, to get information, to get the best economy, a decade ago, to play a part, the size of a pack of cigarettes, the vehicle's carburetor, an electronic instrument panel, the car's position on a road, objects ahead of the vehicle, stationary objects ahead, ten miles an hour.

SO'Z YASALISHI



12-mashq. Namunadan foydalanib so'zlarni tarjima qiling:

Sifat

ot> + -age = ot, fe'l

short — qisqa -> shortage — kamchilik, yetishmovchilik mile — mil (uzunlik o'lchovi) -> mileage — mil uzunligi to use — foqhdalanmoq usage — foydalanish advantage, breakage, blockage;

fe'l suffiksi -ate illuminate — yoritmoq; sophisticate — qiyinlashtirmoq regulate, demonstrate, concentrate, separate, indicate;

en-prefiksi + sifat = fe'l rich — boy -> to enrich — boyitmoq to enable, to ensure, to enlarge, to enclose.



13-mashq. Internasional so'zlarni o'qing va tarjima qiling:

public ['pAblik], transport, future ['fju.tja], pilot ['pallet], role ['raul], carburetor [ka:bjurete], control [kan'traul], display, component [kam'paunant], model ['modi], characteristics [kaerakta'ristiks], diagonally [dai'aeganali], automatic [o:tam'aetik], automatically, automobile ['o:tamaubi:l], motor ['mauta], decade ['dekeid], gasoline ['gaesauli:n], nature ['neitfa.], to project [pra'c&ekt], Sahara [sa'ha:ra], ceramic [si'raemik], radar ['reida].



14-mashq. O'qing va talaffuzini eslab qoling:

vehicle ['vi:ikl], drive [draiv], driver, arrive [a'raiv], arrival [a'raival], guidance ['gaidans], private ['praivit], motorway, motorcar, lane [lein], luxury ['kkjari], exhaust [ig'zo:st], device [di'vais], adjust [a'd^ASt], fuel [fjual], calculate ['kaelkjuleit], average ['aevaridj], since [sins], feature ['fi:tfa], aerial ['earial], directly [di'rektli], danger ['deindja], observe [ab'za:v], warn [wo:n], buzzer [Ългга], Japan [c&a'pæɪn], Japanese [c(5aepa'ni:z], angle ['aer\gl], axis ['aeksis], data ['deita], impassable [im'pær.sabl], valve [vaelv], 5 °C [faivdi'gri:z'sentigreid], engine ['encfcin].

ESLAB QOLING

adjust v — to'g'rilamoq, moslamoq

angle n — burchak

apply v — qo'llamoq

avoid v — qochmoq (biror ish qilishdan)

axis n — o'q
current a — zamonaviy, hozirgi
detect v — topmoq, sezmoq
directly adv — to'g'ri, bevosita
engine n — dvigatel
ensure v — ta'minlamoq, kafolat bermoq
equip v — jihozlamoq
exceed v — oshnoq
exhaust n — tutun
guidance n — boshqarmoq
ignition n — yonish
indicate v — ko'rsatmoq
make v — qilmoq, qilishga undamoq
mount v — o'rnatmoq
only a — yagona; adv — faqat
place v — joylashtirmoq
select v — tanlamoq
size n — o'lchamoq
sophisticated p.p — murakkab
valve n — klapan
warn v — ogohlantirmoq
in many respects — har qanday munosabatda
to look like — o'xshamoq
to turn on/off — yoqmoq-o'chirmoq

Text 7A

Matnni o'qing va tarjima qing.

Quyidagi savollarga javob bering:

Kelajakda qaysi transport turini kelajagi bor?

Matnda elektronikasi avtomobilda qo'llash haqida qanaqa ma'lumotlar bor?

Transport for Tomorrow

One thing is certain about the public transport of the future: it must be more efficient than it is today. The time is coming when it will be quicker to fly across the Atlantic to New York than to travel from home to office. The two main problems are: what vehicle shall we use and how can we plan our use of it? There are already some modern vehicles which are not yet in common use, but which may become a usual means of transport in the future. One of these is the small electric car: we go out into the street, find an empty car, get into it, drive to our destination, get out and leave the car for the next person who comes along. In fact, there may be no need to drive these cars. With an automatic guidance system for cars being developed, it will be possible for us to select our destination just as today we select a telephone number, and our car will move automatically to the address we want.

For long journeys in private cars one can also use an automatic guidance system. Arriving at the motorway, a driver will select the lane¹ he wishes to use, switch over to automatic driving, and then relax — dream, read the newspaper, have a meal, flirt with his passenger — while the car does the work for him. Unbelievable? It is already possible. Just as in many ships and aircraft today we are piloted automatically for the greater part of the journey, so in the future we can also have this luxury in our own cars.

A decade ago, the only thing electronic on most automobiles was the radio. But at present sophisticated electronics is playing a big part in current automotive research. For example, in every gasoline-powered² car that General Motors Corporation makes there is a small computer continuously monitoring the exhaust.

The device, about the size of a pack of cigarettes, adjusts the vehicle carburetor fuel intake³ to get the best fuel economy. Ford cars are equipped with an electronic instrument panel that, among other things⁴, will calculate how far one can drive on the fuel left in the tank. It will also estimate the time of arrival at destination and tell the driver what speed he has averaged⁵ since turning on

the ignition.

According to specialists these features made possible by microelectronics are only the beginning. Radar may control the brakes to avoid collisions, and a display screen may show the car's position on the road. Recently a radar to be mounted on lorries and cars has been designed in the USA. The radar aerial looks like a third headlight placed directly above the bumper. Having summed up the information about the speed and distance of various objects ahead, the computer detects all possible dangers and their nature. A third component in the system is a monitor on the instrument panel. The radar only observes objects ahead of the vehicle. It is automatically turned on when the speed exceeds ten miles an hour. The green light on the panel indicates that the system is on. The yellow light warns of stationary objects ahead, or something moving slower than the car. The red light and buzzer warn that the speed should go down. Another red light and sound signal make the driver apply the brakes.

A Japanese company is designing a car of a new generation. When completed, the new model will have a lot of unusual characteristics. The car's four-wheel control system will ensure movement diagonally and even sideways, like a crab, at right angles to the longitudinal axis. This is especially important when leaving the car in parking places. To help the driver get information while concentrating on the road, the most important data will be projected on the wind screen. A tourist travelling in such a car will not lose his way even in Sahara with its impassable roads: a navigation Earth satellite will indicate the route.

A new ceramic engine has been developed in Japan. Many important parts as pistons, pressure rings⁶, valves and some others have been made of various ceramic materials, piston rings⁷ made of silicon materials being in many respects better than those of steel. They withstand temperatures up to 1,000 °C. Therefore, the engine does not need a cooling system.

Notes to the Text

lane — qator

gasoline-powered — benzinli dvigatel

fuel intake — yoqilg'i sepish

among other things — bulardan tashqari

what speed he has averaged? — uning o'rtacha tezligi qancha edi?

pressure ring — tig'izlash halqasi

piston ring — porshenli halqa

MASHQLAR



15-mashq. 7A matnni o'qib, savollarga javob bering:

1. What is the text about?
2. What kind of a car may be in common use in the near future?
3. How will a public electric car operate?
4. How will it operate on a motorway?
5. What electronic devices are there in a modern car?
6. What electronic devices does General Motors Corporation offer for a car?
7. What electronic devices are Ford cars equipped with?
8. Can a radar be used in a car? What will its functions be?
9. What functions will a Japanese car of a new generation have?
10. What materials do the Japanese offer to use for car motors?



16-mashq. A quyidagi gaplardan qaysilari 7A matniga mos keladi:

1. An automatic guidance system was developed for the electric car.
 2. Small electric cars are in common use.
 3. Many ships and aircrafts are piloted automatically for the greater part of the journey.
 4. Usually having arrived at a motorway, a driver switches over to automatic control and relaxes.
 5. A decade ago there were many electronic things in the cars.
 6. There is no future for microelectronics in automobiles.
 7. Recently a radar to be mounted on lorries and cars has been designed in the USA.
 8. A new ceramic engine has been developed in France.
- B.1.** Studying Newton's work «Principia», a young physicist discovered a mistake in the calculations.
2. Having designed a car radar, the engineers started complex tests.
 3. While driving a car one should be very attentive.
 4. A new electronic instrument will calculate how far one can drive on the fuel left in the tank.
 5. The engine tested showed that it needed no further improvement.
 6. Scientists are experimenting with a system allowing drivers to see better after dark.
 7. The system being tested will increase the safety and fuel efficiency of a car.
 8. Having been tested, the computer system was installed at a plant.
 9. Soon the night-vision system designed will be available.
 10. The synthetic magnet has a lot of valuable qualities that can be changed, if

desired.

11. Recently there have appeared battery-powered cars.
12. The radar used was of a completely new design.
13. Having been heated, the substance changed its properties.
14. Being provided with batteries an electric car can develop a speed of 50 miles an hour.
15. When mass produced, electric cars will help solve ecological problems of big cities.
16. A defect undetected caused an accident.
17. Though first developed for military purposes, radar can be used in modern cars.



19-mashq. Mustaqil sifatdosh oborotli gaplarni toping:

1. The first engines appeared in the 17th century and people began using them to operate factories, irrigate land, supply water to towns, etc.
2. The steam engine having been invented, a self-propelled vehicle was built.
3. The supply of steam in the car lasting only 15 minutes, the vehicle had to stop every 100 yards to make more steam.
4. After the German engineer N. Otto had invented the gasoline engine, the application of this engine in motor cars began in many countries.
5. The cars at that time were very small, the engine being placed under the seat.
6. Motorists had to carry a supply of fuel, because there were no service stations.
7. Brakes having become more efficient, cars achieved greater reliability.
8. Cars with internal combustion engines having appeared, the automobile industry began to develop rapidly.
9. By 1960 the number of cars in the world had reached 60 million, no other industry having ever developed so quickly.

MUSTAQIL ISHLASH UCHUN MASHQLAR



20-mashq. So'zlar qaysi so'z turkumiga talluqli ekanligini aniqlang:

dangerous, automotive, longitudinal, automatically, present, nature, motorist, enrol, enrolment, guidance, average, current, ignition, diagonally, calculate, impossible, graduate, village, public, garage, useful, usefulness.



21-mashq. -er/ -or suffiksiga e'tibor berib, tarjima qiling:

driver, sensor, starter, monitor, microprocessor, detector, transistor, carburetor,

user, transmitter, lecturer, generator.



22-mashq. Fe'llardan yasalgan so'zlarni ayting, tarjima qiling:

navigate, generate, stimulate, estimate, innovate, investigate, regulate.



23-mashq. Lug'atdan toppish uchun, so'zlarning bosh formasini toping:

companies, easier, accordingly, better, creating, biggest, cried.



24-mashq. So'zlarni juftlashtiring:

a) sinonimlar

regulate, modern, want, select, use, current, wish, average, adjust, choose, mean, apply;

b) antonimlar

unbelievable, cooling, continuous, passable, heating, believable, discontinuous, impassable.



25-mashq. since so'zining turli ma'nolarini eslab, tarjima qiling:

1. Since 1770 there were many brilliant inventions in the automobile industry.
2. The production of motor cars in Great Britain was stopped since there were severe speed limits.
3. In early days many of the cars broke since transmissions were still unreliable and often went out of operation.
4. Since conventional headlights are not very effective, a new system has to be developed.
5. Since the French engineer Gugnot invented the first self-propelled vehicle in 1770, the automobile industry developed very rapidly.
6. The number of chemical elements known to science has grown considerably since Mendeleev created his Periodic Table in 1871.



26-mashq. too (o'ta, juda) so'zining ma'nosini eslab qoling, gaplarni tarjima qiling:

1. The task is too difficult for them.
2. The size of the device is too big now.
3. The difference in temperatures was too great.
4. The old system is too complicated.
5. A sensor mechanism for a car is too large at present.



27-mashq. future va further so'zlarning ma'nolarini eslab qoling, gaplarni tarjima qiling:

1. In the future it will be possible to use more channels on every TV set via satellite and cable TV.
2. Scientists throughout the world were quick to realize the importance of the radio and contributed much to its further development.
3. The subjects that the students study in the first and the second years are very important for their future speciality.
4. The use of computers in cars is a further step in improving safety on the road.
5. I'll give you further instructions tomorrow.



28-mashq. A. Nuqtalar o'rniga only yoki the only so'zlarini qo'ying, tarjima qiling:

1. The Earth is ... planet having liquid water.
2. 2. It is useful to remember that the industrial revolution began ... at the end of the 18th century.
3. 3 way to achieve good results is to apply one's knowledge to practical work.
4. 4. The revolution in science and technology affects not ... economically developed countries, but also developing countries.
5. 5. Multi-cylinder engines came into use ... after World War II.
6. 6. The motor car has not ... brought mobility to millions of people, but also has polluted the atmosphere.
7. 7. Weightlessness can be created on Earth, but... for a few seconds.
8. 8 requirement for plastic steel is that it must be rich in carbon.
9. 9. The Library of Congress serves not... to Members of the Congress, but also to libraries throughout the US and the world.

B.It... new paint on it. It looks new.» «I... a good offer for it yesterday, but the man ... very little cash. I want cash (naqd pul).» «... it a good engine?» «Yes, it... an excellent engine. It ... any weak places in it. Engines that... weak places in them are always in the garage.» «I... an idea you will sell your car.» «I ... two good offers yesterday. One man ... all cash. But he doesn't look like an honest man. I ... no desire to do business with him.»



30-mashq. Fe'llarni to'ldiring, eslab qoling:

driven, learning, said, setting, buy, ridden, break.



31-mashq. O'qing va lug'atsiz tarjima qiling:

A new vacuum-controlled constant velocity carburetor developed by an American company offers several advantages over ordinary carburetors, including 25 per cent gasoline economy, improved engine performance and easier starting. The device having only 54 parts compared with some 300 in conventional carburetors has no choke (drossel). It constantly adjusts the mixture of fuel and air, which cannot be done in usual carburetors. Provided with special mechanism the carburetor helps the engine turn on at once in cold weather. Though developed quite recently, it is already being used by cars and other kinds of public transport. With diesel engine becoming almost standard equipment, the vacuum carburetor will never be used on new cars. It may be said that present-day carburetors are dinosaurs and in 20 years there won't be any more. But there are some countries which are interested in importing the device as a replacement for existing carburetors.

CONVERSATION



Exercise 1. Answer the questions.

1. What are the main problems of public transport? (a new type of vehicle and its much more efficient use)
2. What type of modern vehicle may become a usual means of transport in the future? (a small electric car)
3. What is the possible development in private cars? (the use of an automatic guidance system)
4. What electronic devices are used in modern cars? (a computer, fuel adjusting devices, an electronic instrument panel for indicating the speed, time, distance covered and fuel left)
5. What is the main function of a radar for a car? (detecting all possible dangers ahead of the vehicle on a road)
6. What unusual feature will a new generation car have? (four-wheel control system ensuring diagonal and side movements)
7. What materials are used in current automotive design? (ceramics)



Exercise 2. Make a sentence out of the two parts.

1. There are already some modern vehicles

2. For example, a small electric car can solve

3. A passenger

4. With an automatic guidance system for cars,

5. It will be possible

6. All these innovations will become possible because of

7. Computers, electronic instrument panels, radars, adjusting devices, etc. are playing

1. goes out into the street, finds an empty car, gets into it, drives to his destination, gets out and leaves the car for the next passenger.

2. there may be no need to drive these cars.

3. which may become a usual means of transport in the future.

4. increasingly wide use of modern microelectronics in cars.

5. many problems of public transport.

6. an important part in current car design.

7. to switch over to automatic driving, as we do in ships and aircrafts today.



Exercise 3. Read and learn.

Bob's New Used Car

John: This is the car that Bob bought from Mr. Adams.

Bill: I didn't even know that he had bought a car. When did he tell you that he had bought it?

J: He told me yesterday that he had bought it two days earlier. B: Do you know how much he paid for the car?

J: Well, he said he had paid 800 dollars for it.

B.: I wonder why he bought an old car? I didn't think he needed a car.

J.: Well, I suppose he will use it for his new job.

B.: Do you think the car is in good condition?

J.: He told me that the car was in perfect condition. The tires are practically new. The new generator works perfectly. Frankly (ochiqchasiga aytganda), I think that it was a good bargain (foydali xarid, foydali kelishuv).

B.: I believe you are right.

J.: I haven't mentioned that the car had been driven only 25,000 miles. Also, the covers (choyshab) which are on the front seats are new. They are made of material that can be washed.

B.: Now I want to see how well the car really runs.

J.: O.K. Let's ask Bob when he is going for a ride. Then we can see whether or not the car runs well.

B.: Do you know if Bob is going to come back here soon?

J.: Yes, I'm sure he'll be back right away (shu onda, tezda).

B.: By the way (axborotingiz uchun), can you tell me where Bob is keeping his car?

J.: He is using the garage of the people living next door.



Exercise 4. Speak about:

Public transport of the future.

The application of electronics in modern cars.

The latest innovations in car design.

Use exercises 1,2 and the following words and word combinations for your topic: one thing is certain, to be much more efficient, to be in common use, to select a destination, to monitor, the size of a pack of cigarettes, to look like, to warn of objects ahead of the vehicle, to design, to get information, while driving, to make of.



Exercise 5. Comment on the following statement.

It is natural that everybody should want to have a car.

One point of view : It is convenient, saving time, avoiding crowded buses and other city transport, independent, comfortable, useful at weekends, contact with nature, developing the sense of responsibility, improving the level of technological culture.

A contrary point of view : Expensive, traffic jams (ko'cha harakati tiqini), difficulties with repairs and maintenance, pollution, lack of physical exercise, takes more time than it saves, road accidents, waste of energy resources, the unbearable situation in many cities, especially in supercities.

Exercise 6. Read and smile.

On the Bus

It was during the rush-hour (tig'iz payt). As usual, all the seats in the bus were occupied. When a good-looking young lady got in, an elderly man sitting

near the door wanted to rise, but the lady at once pressed him to keep his seat. «Thank you», she said, «I don't mind standing.» «But, madam, permit me ... ». «I insist upon your sitting down,» she stopped him, and putting her hands on his shoulders she almost forced him back into his seat.

The man tried again to stand up and said, «Madam, will you allow me to ... » But once more the lady said, «I don't wish to take your seat, sir!» and forced him back with another push.

With a great effort the man finally pushed her aside. «Madam», he called out, «I don't care whether you take my seat or not. The bus has already taken me two stops beyond my destination, and now I wish to get out.»

A good-looking lady-motorist was speeding through the sleepy village when a policeman stepped out on the road in front of her and forced her to stop. «What have I done?» she asked. «You were travelling forty miles an hour», replied the policeman. «Forty miles an hour!» cried the lady-motorist in surprise, «I left my house only 20 minutes ago».

Text 7B

Matnni o'qib, quyidagi jadvalni to'ldiring:

Car design innovations since 1770	The latest car electronic systems	Their advantages	Their disadvantages
1.			
2.			

Jadvaldan foydalanib, ixtiro qilinganidan buyon avtomobil konstruksiyasidagi eng yaxshi takomillashtirish haqida ingliz tilida gapiring:

Car of Future

Ever since Nicolas Cugnot, a Frenchman, invented the first self-propelled road vehicle in 1770, there has been no shortage of companies willing to make a better automobile. Over years their efforts have given users the gasoline engine (dizel), the electric starter, tubeless tires (kamasiz shina), fuel-injected engines and anti-lock brakes (antiblokirovkali tormoz tizimi), these are only a few innovations. What is next? Here are some examples of what the car designers are working at in the world today.

Engineers are experimenting with a state-of-art (yangi) system that enables drivers to see better after dark. This «night vision» system uses infrared sensors that can detect a human figure at night more than 1,600 feet away. That's five times the distance at which conventional headlights are effective. The sensors pick up infrared rays emitted by any object that gives off heat. An image-processing system scans the information from the sensors, creating different images for different objects. The images are then displayed on a cathode-ray screen built in a car's instrument panel. It is like black-and-white photograph of an object ahead. And the system is passive, which means no lights are needed to illuminate the object in front of the vehicle. But the biggest problem will be reducing costs and the other one is the size of the sensor mechanism which is too big now.

One of the latest applications of sophisticated electronics is the wheel-computerized system that not only monitors air pressure in automobile tires but adjusts it automatically. In addition this system enables a driver to set tire pressure while seated. The system developed consists of three separate modules.

The first is the instrument panel display which houses the system's main microprocessor, programming buttons (dasturni yoqish knopkasi) and warning signals. The second component is the detector drive module (harakatga keltirish moduli) which is essentially four microchips attached, in one unit, to the chassis. Each chip detecting pressure changes that may occur, the transistors within the module signal the third component — a programmable transducer. The transducer attached to each wheel changes the tire pressure accordingly. However, some automobile experts think this system is too complicated and costly. The design has to be simple and of low cost.

Text 7C

Matnni o'qing va aytib bering:

Talking Instrument Panels

For a few years now some of the most advanced new automobiles have been equipped with instrument panels that can «speak» providing instrument readings or safety warnings from special electronic circuits.

In a polite female voice, the device will report on engine oil pressure, parking-brake and headlight operation, seat belt connection, totalling 14 different functions. The driver can even program the Voice Warning System to announce the time or to give a low-fuel warning for any preset gas tank level. The heart of the Voice Warning System is a microprocessor-based electronic speech module made by National Semiconductor Corp. (US). The device requires the connection of 18 wires, but it is simple enough to install in a car.

Text 7D

Matnni o'qing. Matndagi so'z va iboralardan foydalanib, o'zingizni imtihonlardan oldingi holatingizni aytib vering:

Testing Times

Exam stress doesn't occur most strongly during the actual exams but in the few weeks just before them. The climax is usually the night before when last minute preparations confirm your worst fears (qo'rquv). There are, however, some simple ways of dealing with the problem.

First, one must know that the night before is too late to do anything. Much better to go to a dance, for a walk, to the pictures or to play a game rather than increase stress by frantic efforts to plug in gaps (ochiq joylarni to'ldirish) in your knowledge.

The brain is a complex bio-electrical machine which, like a computer, can be overloaded. It does not work continuously. When you study, your brain reaches its maximum efficiency about five minutes you start work, stays at it for about ten minutes and then it is down. Indeed, after thirty minutes your attention wanders (chalg'ish), your memory shuts off, and boredom (zerikish) sets in.

For this reason, the best way to study is in half-hour sessions with gaps in between of about the same length. It even helps to change subjects and not keep at the same one since it reduces the boredom factor.

Study stress was experienced by Isaac Newton, the greatest mathematical genius, and by Einstein. Newton had a depression after his efforts on gravity. Einstein had no such difficulty: he would break off and go sailing or play violin — not very well, he said, but it was very comforting.

The lesson here is clear. To avoid exam stress, you have to tell that what you are doing is fun and the best way to do this is to treat revision as a game. If you stimulate your brain with short, snappy (chaqqon) sessions, you will be surprised how quick and sharp you are. A laugh with friends or a walk through the country is really giving your mind the recreation it needs.

QO'SHIMCHA TOPSHIRIQLAR



1-mashq. A. 7A matnidan quyidagi so'z va so'z birikmalarini o'qing va ajratib ko'rsatilgan so'zlarning ma'nosini tushunishga harakat qiling:

for long journeys in cars

arriving at the motorway

the fuel left in the tank

the radar aerial

the radar only observes objects ahead of

stationary objects

the red light and buzzer warn

satellite will indicate the route

B. A tomonda ajratib ko'rsatilgan so'zlarga to'g'ri keladiganini toping:

container for liquid or gas

electrical device that produces a sound signal

way taken or planned from one place to another

see, watch carefully objects in front of

not moving or changing

reach a wide road for continuously moving fast vehicles

travel to a distant place

antenna



2-mashq. A matnni o'qing va quyidagi so'zlarga ma'no jihatdan to'g'ri keladiganini toping:

a new idea or product, reduce, basis, joining, position, for each car, whole (complete), very great, large number (quantity), at a very high level (suddenly), put together or fit the parts of, take (send to), every year, the same, a person who takes part in a race for the first place.

Mass Production

Car manufacturer Henry Ford laid the foundation for the revolutionary change in the entire motor vehicle industry.

The key for mass production was not the moving assembly line. It was the complete interchangeability of parts and the simplicity of attaching them to each other. These were the innovations that made the assembly line possible. Taken together, they gave Ford tremendous advantage over his competitors.

Ford's first efforts to assemble his cars, beginning in 1903, were to set up assembly stands on which a whole car was built. Each assembler performed many jobs on one car and had to get the necessary parts for it.

The first step Ford took to make this process more efficient was to deliver the parts to each work station. Now each assembler remained in the same place all day. Later in 1908 Ford decided that each assembler would perform only one task and move around the factory from car to car. In 1913 cars were placed on a moving assembly line. Each assembler performed one task only and remained stationary. This innovation cut cycle time from 2.3 minutes to 1.19 minutes, thus dramatically improving productivity.

Ford's discovery simultaneously reduced the amount of human effort needed to assemble an automobile. What is more, the more vehicles Ford produced, the more the cost per vehicle fell. In the early 1920s Ford produced 2 million identical vehicles a year.

Ford's mass production was adopted in almost every industrial activity in America and Europe.

B. So'z va so'z birikmalari topib, nuqtalar o'rnini to'ldiring:

... time the cost ...
vehicle production
assembly manufacturer
... effort ... industry



3-mashq. Matnni o'qing va ajratib ko'rsatilgan so'zlar ma'nosini topishga harakat qiling:

There was a bad accident on one of the main motorways to Paris this afternoon. A big tourist coach broke down on the inside lane of the motorway, and the driver could not move it. It was about 5.30 in the afternoon, the middle of the rush hour, so it soon created a terrible traffic jam. A driver in a BMW doing about 60 mph tried to go round the coach. Unfortunately, another car was coming in the opposite direction. The driver braked hard and tried to stop, but he could not avoid the accident. The BMW crashed into the front of his car. The driver of the BMW died, the other driver was badly injured, and both cars were badly damaged.



4-mashq. Ajratib ko'rsatilgan so'zlardan to'g'risini toping:

While turning a corner at high speed my car hit/crashed a lamp post.

The only means of arrival/access to the station is through a dark subway.

We managed to complete our journey ahead of/in front of schedule.

The police accused the driver of breaking the speed limit/restriction.

Sixty extra policemen were to direct/control the traffic outside the stadium.

When her car broke down, she had to catch/take a taxi.

There are road works in center streets and long delays/intervals are expected.

This car is an automatic, so you do not have to adjust/change gear all the time.

Only a mechanic could realize/understand the true amount/extent of the damage to the car.

Travellers who wish to visit the old city should travel in the two front buses/coaches.

The driver told his passengers to fasten/fix their safety belts.

You mustn't ride/drive a motorbike without a helmet.

The two buses collided (тўқнашмоқ), but luckily none was injured/wounded.



5-mashq. A matnni o'qing va tube, poor, run so'zlarining ma'nosini toping:

Many of the world's major cities were built long before the car appeared and people realized the need to built efficient road systems. Current traffic management problems may be connected with old city planning.

The thing that saves some of these cities is an effective public transport system, usually below ground. London has an old but effective underground train system known as a tube, and a comprehensive bus and train system above

the ground. Hong Kong has cheap, swift and effective public transport in the form of Mass Transit Railway, buses and ferries.

But there are newly built cities, such as, for example, Dallas, Baltimore and Los Angeles in America. Dallas is a wealthy city in Texas, which has grown up in an era when cars were considered to be essential to move about. It has an excellent road system, as does Baltimore, another new city with wise city leaders who insisted on building good roads. However, the public transport system in both Baltimore and Dallas is extremely poor. As a result, travel in these cities is easy except for peak hour, when a twenty minute run can take more than an hour in traffic jams. Los Angeles suffers from chronic highway blockages, despite efforts to encourage people to use public transport.

Cities with good road systems can use other methods to reduce the number of vehicles travelling together at peak hour. Flexible time is one good method: offices open and close at different times so people are travelling to and from work at different times. Vehicles carrying more than one person can use special priority lanes, which means they can travel more quickly. There are even systems to make peak hours car use more expensive, with electronic chips recording the presence of a vehicle in a given high traffic area at a given time.

ferries, poor so'zlariga A matnidan mos keladiganlarini toping:

spacecrafts, airplanes, boats, space vehicles;
needing help, small in quantity, low in quality.

Quyidagi gaplarga mos keladigan so'zlarni A matnidan toping:

- | | |
|---------------------|---|
| 1. demand | 5. easily changed for new needs or conditions |
| 2. rich | 6. full, including many kinds of |
| 3. journey in a car | 7. having experience, knowledge |
| 4. fast | 8. main public road |

ajratib ko'rsatilgan so'zlarning antonimlarini toping:

Public transport in Hong Kong is cheap, but in London it is ...

Paris has the Metro railway below ground and a large bus system ...

People should ... and finish work at different time to reduce peak hour traffic jams.

City administration try to encourage people to use ... transport, not private cars in the city center.

An electronic device can record the absence or ... of any person at the office.

The public transport available in Baltimore is very poor, while in Sidney it is ...



6-mashq. Nuqtalar o'rniga quyidagi so'zlardan mos keladiganini toping:

reduce transportation advantage car per traffic public transport source study average routes increase symbol atmosphere number motor vehicle reduction solve

The private (1)... has dramatically improved the comfort, speed and individual freedom of movement. The automobile has become a status (2) ... The car brought people much closer to places of work, (3) ... and entertainment.

However, the use of private cars can also be a (4) ... of many most serious problems today. The car is a disadvantage as well as an (5) ... It pollutes the (6) ..., may be involved in dangerous accidents, and by its very numbers blocks roads and chokes (бўғмоқ)

cities. In New York City, 2.5 million cars move in and out of the city each day. In this (7) ..., the average speed is sometimes 8.1 miles (8) ... hour. This speed could easily be reached by riding a horse instead of driving a (9)... But New Yorkers continue to drive, just as people in London where the (10)... speed in certain particularly overcrowded (11)... is only 2 miles per hour. Most people believe that the car is a necessary part of life in today's world. Car owners usually do not consider other methods of public (12) ... such as bus, train or bicycle.

The only way to (13) ... these problems is to reduce the use of private cars. How can we do it? We may (14) ... access to parking spaces in the cities and simultaneously (15)... the quality and availability of public transport. Cars could not be permitted in certain parts of the city, thus making people walk and use (16) ... The cost of buying and running a car can be increased with a corresponding (17) ... in the price of public transport. The reduced (18) ... of cars on the roads means less pollution.

7-mashq. -able/-ible qo'shimchali sifatlarni ayting:

<p>that can be moved that can be reached that can be managed that can be solved</p>

<p>that can be used or obtained that can provide comfort that may be permitted that can be changed for new needs</p>
--

 **8-mashq. Gaplar tuzing:**

Verb	Noun	Person	Adjective
compete assemble found	action manufacture drive	transporter	productive reducible indicative

 **9-mashq. A «Road transport» mavzusida 10-15 ta kalit so'z toping:**

B. Speak about:

The current public transport problems in your city or town, its safety, speed and comfort.

The role and importance of a private car in your own life.

The changes in technology (manual assembly — mass assembly lines — robotics — computerized production).

Offer your own ideas on traffic management improvement in your area.

LESSON 8

Gerundiy

As va by –ning ma'nosi

-ize (-ise) suffiksi

Over prefiksi

Text 8A.A New Era for Aircraft

Text 8B.The Return of the Dirigibles

Text 8C.Off the Ground: How do We Find Where We are Going?

Text 8D. New York

1. On detecting danger on the road the computer signals the driver.
2. Detecting an object in front of a car in the dark is the purpose of the «night vision system».
3. One of the main problems of a driver on the road is keeping the speed constant and watching the cars ahead.
4. A new device for monitoring and adjusting air pressure in tires has recently been developed.
5. Before starting a car one must examine it carefully.
6. Computers are widely used for controlling all kinds of processes.
7. Alexander Bell's being a teacher of deaf people influenced his interest in sound and its transmission.
8. Samuel Morse's hobby was experimenting with electricity.
9. Driving a truck in the city is difficult.



2-mashq. Gerundiyning forma va funksiyasini aniqlang:

1. One of the best ways of keeping the speed steady is using a computer for this purpose.
2. Newton's having made a mistake in his calculations has no influence on his theory.
3. On being turned on the radar will warn the driver of stationary or slow-moving objects on the road.
4. Upon being heated the molecules begin moving very rapidly.
5. The white line in the centre of the road is one of the most effective means of controlling traffic.
6. On graduating from the University S.P. Korolev began working in the field of rocket design.

7. The function of a car computer is detecting and summing up the information about the road conditions.
8. Monitoring and adjusting air pressure in tires is one of the new developments of the car designers.
9. It is difficult to solve some of the present-day scientific and technological problems without using supercomputers.
10. On seeing a red light on a panel and on hearing a warning sound the driver should decrease the speed.
11. By picking up infrared rays emitted by objects ahead of the car an image-processing system produces different images of objects.
12. On studying for half an hour before an exam one should switch over to some other activity.



3-mashq. A. Tarjima qiling va ajratib ko'rsatilgan so'zlarning ma'nosini eslab qoling:

1. When the first self-propelled vehicles appeared, measures were taken to limit their speed in many countries.
2. His having measured the distance will enable him to calculate the intensity of light.
3. The universal system of measures and weights was worked out by the French Academy of Science in 1791.
4. The distance from the North Pole to the Equator was measured, one-fourth was taken and divided into ten million equal parts. One of these parts was called a «measure» or «a meter».

B.1. One of the earliest ideas to propel a vehicle using mechanical power was suggested by Isaac Newton.

2. Having used a steam- driven engine a French engineer built a three-wheeled vehicle for two passengers.
3. At the end of the 19th century the use of cars was still very limited.
4. Constant efforts are made to use standard components for the cars.
5. The use of multi-cylinder engines greatly increased the speed of cars.
6. N. Otto having used the gasoline engine, motor cars got the standard shape and appearance.

C.1. Many times Alexander Bell wanted to stop his experiments being unable to get any results.

2. Since ancient times people dreamt of flying.
3. Four times five is equal to twenty.
4. There is much more lithium on the earth than zinc, 130 times more than

cadmium.

5. The magnesium-lithium alloy is 1.5 times lighter than aluminium and 4.5 times lighter than iron.



4-mashq. Gaplarni tarjima qiling va as-ning har xil ma'nolarini eslab qoling:

1. People no longer think of the radio and television as something fantastic.
2. It was necessary to lay cables across the Atlantic Ocean as there was no radio or satellites at that time.
3. Rocket launching, concerts, football and tennis matches can be seen on TV as they occur.
4. As the operation of integrated circuits depends on microscopic components, the purity of all materials at the plant must be very high.
5. One can see that there is no principal difference between iron and copper as conductors.
6. President T. Jefferson offered his personal library as the basis for the national library.
7. It is difficult for the first-year students to study at the institute as they do not know yet how to organize their work and time.
8. No system of the past was as simple as the metric system.
9. Such metals as iron, cobalt, and nickel are much more magnetic than any other known substances.
10. Cryogenic fuels such as liquid hydrogen are used to cool the aircraft surface.
11. Metallurgists are trying to make composite materials as strong and light as possible.
12. Measures must be taken to keep Moscow air as clean as possible.
13. Engineers are working at the problem of making computers as small as possible.



5-mashq. by predlogining har xil ma'nolarini eslab, tarjima qiling:

1. It should be said that according to estimates the production of materials in space is to bring 60 billion dollars by 2030.
2. The best way to study before the exam is by changing one's activity every 30 minutes.
3. The first self-propelled vehicle in Russia was made by Kulibin in the 18-th century.
4. Driving a new Japanese car a driver will find his way even in Sahara by switching over to a navigation Earth satellite.

5. By 1960 the number of cars in the world has reached 60 million.
6. A driver may avoid collisions on the road by using a radar system.
7. Newton's great work «Principia» was published by Hailey, the famous astronomer, who paid his own money for it.
8. The cosmonauts were told to increase their daily exercises by 30 minutes.



6-mashq. A. So'z birikmalarining o'zbekcha ekvivalentlarini toping:

a new form of supersonic transport, prospective model, elongated fuselage, without horizontal stabilizer, cover the distance, less than two hours, overall length, overall aircraft weight, at high velocities, lower atmosphere, the skin is heated, the only way out, one of the ways, combined engines, combined with, as economical as possible.

B. Tarjima qiling:

today's aircraft, ordinary aircraft, ordinary aircraft windows, passenger liner, future superliners of such a class, reliable hypersonic plane, look like a rocket, five times above the speed of sound, diameter of the fuselage, the front of the cabin, the skin is heated to a very high temperature, highly economical engines, new generation model.

SO'Z YASALISHI



7-mashq. Yamunadan foydalanib, tarjima qiling:

ot+ ize/ise = fe'l special — maxsus -> specialize — maxsus
 computer, ideal, crystal, central;
 prefiks over- (o'ta-;) to heat — qizdirmoq -> to overheat — qizdirib yubormoq
 production, active, grow, estimate.



8-mashq. Internasional so'zlarni o'qing va tarjima qiling:

aviation, airplane, project, passenger, liner, model ['modi], fuselage ['fju:zila:3], horizontal stabilizer ['steibilaiza], rocket, distance, meter ['mi:te], diameter [dai'aemite], cabin, technological, problem, thermodynamics ['09:m9udai'naemiks], aerodynamics ['eeraudai'naemiks], per cent, efficiency [I'fijansi], extreme [iks'tri:m], temperature ['tempritfa], cryogenic ['kraiacfcemk].



9-mashq. So'zlarni o'qing va talaffuzini eslab qoling:

supersonic ['sju:pa'sonik], hypersonic ['haipe'somk], Paris ['paeris], Tokyo

['teukjeu], plane [plein], hours ['auez], reliable [ri'laiebl], combined [kam'baind], engine ['endjin], heat-insulat- ing [hi:t 'insjuleitirj, extreme [iks'tri:m], generate ['c&enareit], generation, in general, require [rx'kwaia], fuel [fjuel], liquid ['likwid], hydrogen ['haidricfcen], surface ['se:fis], vaporize ['veiperaiz], inject [in'cfcekt], combustion [kem'bAS^an], chamber ['tfeimbe], percentage [pa'senticfe].

ESLAB QOLING

Amount *n* —son
 announce *v* — e'lon qilmoq
 combine *v* — qo'shilgan, birlashgan
 combined with — ... bilan birgalikda
 combustion — yonish
 complicated *p.p.* — qiyin
 conventional *a* — odatiy, standart
 currently *adv* — hozirgi vaqt
 disadvantage *n* — kamchilik
 measure *n* — me'yor
 noise *n* — shovqin
 overall *a* —to'la, umumiy
 overcome *v* — yengib o'tmoq
 resistance *n* — qarshilik
 stress *n* — stress

efficiency *n* — foydali harakat koeffisenti
e. g. (for example) — masalan
f. expect *v* — kutmoq, oldindan bilmoq
extreme *a* —favqulodda, ekstrim
friction *n* — ishqalanish
fuel *n* — voailg'i
heat *v* — qizib ketmoq
inject *v* — sepmoq, kiritmoq
mainly *adv* — asosan
structure *n* — konstruksiya, struktura
substitute *v* — almashtirmoq
vaporize *v* — parlanib ketmoq
velocity *n* — tezlik

apart from — undan tashqari
 way out — yo'l, yechim

Text 8A

Matnni abzaslarga bo'lib o'qing va ularga sarlavha qo'ying. Har bir abzasda ko'terilgan muammoni ayting. Qaysi abzaslarni bir sarlavha ostida birlashtirish mumkin? Tarjima qiling.

A New Era for Aircraft

Aviation experts expect that today's aircraft will begin to be replaced with some new form of supersonic transport in a few years' time. A 21st century hypersonic aircraft may open a new age of aircraft design.

The designers of this country displayed the project of such a supersonic passenger liner among the prospective models at one of the latest Aerospace Salon held on the old Le Bourget airfield¹ in Paris. An elongated fuselage with a sharp nose and without a horizontal stabilizer makes it look more like a rocket. The speed matches the looks². This plane will fly at a speed five to six times above the speed of sound, e.g., it will cover the distance between Tokyo and Moscow in less than two hours. The diameter of the fuselage will be 4 meters and the overall length 100 meters, with the cabin accommodating 300 passengers. The future superplanes of such a class will have no windows, but the passengers can enjoy³ watching the panorama of the Earth on the TV monitor at the front of the cabin. They will fly so fast that ordinary aircraft windows would make the structure too weak to withstand the stresses at such a speed. At high velocities the air resistance in the lower atmosphere is so great that the skin is heated to very high temperature. The only way out is to fly higher. Therefore, airliners' routes will mainly lie in the stratosphere.

In general, to build a reliable hypersonic plane one has to overcome a whole set of technological and scientific difficulties. Apart from creating highly economical combined engines and heat-insulating materials⁴, designers have to make such an amount of thermodynamic computations that can't be performed without using supercomputers. One of the ways to make planes as economical as possible is lightening the aircraft by substituting new composite materials for conventional metal alloys. Accounting for ⁵ less than 5 per cent of the overall aircraft weight now, the percentage of composite material parts will exceed 25 per cent in new generation models. An extensive use of new materials combined with better aerodynamics and engines will allow increasing fuel efficiency by one-third⁶.

In addition, specialists in many countries are currently working on new propeller engines considered much more economical and less noisy than jets.

The only disadvantage is that propeller planes fly slower than jet planes. However, it has recently been announced that specialists succeeded in solving this problem. As a result a ventilator engine with a propeller of ten fibre-glass blades has been built, each being five meters long. It will be mounted in the experimental passenger plane.

Notes to the Text

Le Bourget airfield — Le Burje aeroporti
the looks — tashqi ko'rinish
can enjoy — bajonidil (bu yerda)
heat-insulating materials — izzisizlik o'tkazuvchi jismlar
accounting for — tuzib, tuzayotib
by one-third — uchdan bir qism
coolant — sovutuvchi suyuqlik
succeeded in — muvaffaq bo'ldi

MASHQLAR



10-mashq. 8A matnini o'qib, savollarga javob bering:

1. What is this text about?
2. What aircraft was displayed in Paris?
3. What are the characteristics of the new liner?
4. What are the difficulties in building a hypersonic plane?



11-mashq. Qaysigaplar 8A matniga mos keladi? Noto'g'ri gaplarni tuzating.

1. Today's aircraft will be replaced with a new form of supersonic transport in a few years' time.
2. The new hypersonic aircraft that looks like a rocket will cover the distance between Tokyo and Moscow in less than two hours.
3. The future superliner of this class will have large windows that will allow passengers to watch the panorama of the Earth.
4. Airliner's routes will mainly lie in the stratosphere because the air resistance in the lower atmosphere is too great.
5. Designers can easily make all the necessary thermodynamic calculations to build a reliable hypersonic plane.
6. It is possible to lighten the aircraft by substituting conventional metal alloys for new composite materials.
7. Cryogenic fuels are used as both coolants and propellants.

8. The great advantage of propeller planes is that they fly faster than jet planes.



12-mashq. 8A matnidan gerundiyni toping: (3-4 abzaslar):



13-mashq. Gerundiyni toping, tarjima qiling:

1. Flying from Los Angeles to Tokyo on board a new supersonic craft will take two hours.
2. On examining the car before starting on a long journey a driver can be sure that he will get to his destination without accidents.
3. By summing up the information about the speed and distance of various objects on the road, the computer detects all possible dangers.
4. A superliner of a new kind will be capable of flying at five times above the speed of the sound.
5. The only way of overcoming the great air resistance at high velocities is flying higher.
6. At low speeds the engine can use turbines for compressing the air before mixing it with fuel in the combustion chamber.
7. In the future, in switching over to the new Earth satellite a driver can be sure of coming safely to his destination.
8. Cryogenic fuels will vaporize before being injected into combustion chamber.
9. In flowing over the aircraft's surface the fuel cools its skin.
10. On reaching its cruising speed the supersonic liner will fly at 100,000 feet above the Earth.
11. By using supercomputers it is possible to avoid making mistakes in extremely complicated thermodynamic computations.
12. A new carburetor offers easier starting in cold weather.
13. By using the automatic guidance system a driver will be able to make long journeys without concentrating on the road conditions.
14. It is impossible to solve economic problems without using the achievements of the scientific and technological progress.



14-mashq. Gaplarda gerundiyni toping, tarjima qiling:

1. Overcoming these difficulties is not so easy as it may seem. Overcoming these difficulties the designers can increase the fuel efficiency.
2. Setting a problem the scientist makes the first step to its solution. Setting a problem is the first step to its solution.
3. Covering the distance between Tokyo and Moscow in less than two hours this

superliner develops a speed five times above the speed of sound. Covering the distance between Tokyo and Moscow on board a superliner requires about two hours.

4. Putting the discovery into practice the engineers will solve a complicated technological task. Putting the discovery into practice sometimes requires more effort than making it.

MUSTAQIL ISHLASH UCHUN MASHQLAR



15-mashq. Namunaga qarab, fe'l va otlardan sifatlar yasang:

move — harakat qilmoq, qimirlatmoq

comfort, change, compare, control, program, measure.



16-mashq. So'zlar qaysi so'z turkumiga kirishini aniqlang:

reliable, elongate, percentage, stabilizer, stabilize, prospective, carrier, brilliant, relativity, intelligent, intelligence, assistance, fuselage, mainly, encircle, departure, statement, hypersonic, liner, horizontal, powerful.



17-mashq. O'zbekcha so'zlarga to'g'ri keladigan inglizcha so'zlarni toping:

qurmoq — design, designer, to design stabilizatsiya — stabilizer, stability, stabilize eng oxirgi — latest, late, later effektiv — efficient, efficiency, efficiently xarakteristika, ish — perform, performing, performance ishonchli — reliable, reliability, reliably aqlga sig'maydigan — thinking, thinkable, unthinkable vaznsizlik — weightlessness, weightless, weight



18-mashq. Berilgan juft so'zlar sinonim yoki antonym ekanligini aniqlang:

advantage — disadvantage; to remain — to stay; reliable — unreliable; fast — slow; apart from — besides, in addition; capable — incapable; to begin — to start; liquid — solid; to cool — to heat; possible — impossible; weak — strong; to build — to break; aircraft — plane; engine — motor.



19-mashq. Ajratib ko'rsatilgan so'z va so'z birikmalarini tarjima qiling, eslab qoling:

1. At higher schools specialization generally begins in the third year.
2. Nowadays we generally have computers at every plant.

3. This doesn't improve the speed of transport vehicles in general and that of an automobile in particular.
4. The general principles of the design of new transport machines in general and diesel locomotives in particular can be found in the new magazine.
5. The fifth-generation computers performing 100 billion operations a second will become available in the near future.
6. Because of the extreme temperatures generated by atmospheric friction a craft will require protection.
7. The generation of electric power increases every year.



20-mashq. Gaplardagi ajratib ko'rsatilgan so'zlar gapning qaysi so'z turkumiga to'g'ri keladi? Tarjima qiling:

1. Television has a great number of uses nowadays.
2. This car uses a new sensor mechanism.
3. A. Bell wanted to build a mechanism that people could use to talk to one another over long distances.
4. The new material can be applied in manufacturing components much smaller than those in use today.
5. The Library of Congress serves not only Members of the Congress, but researchers and scientists who use it.
6. In Russian universities there is no charge for the use of reading rooms, laboratories and libraries.
7. Measures to keep Moscow's air clean are important components of our ecological programme.
8. A thermometer is a device that measures temperature.
9. Computers can do many things, they can control machines in factories, cars on roads, play chess and so on.
10. Computers control nearly everything we do in the modern world.
11. Today dirigibles are equipped with electronic controls.



21-mashq. Qavs ichidagi fe'llardan mos keladiganini qo'ying:

1. The car has ... (brought, brought about) mobility to millions of people, but at the same time polluted the atmosphere.
2. The scientific and technological achievements ... (brought, brought about) great changes in people's life and work.
3. A lot of people came to ... (look at, look for) a new invention, the television

set, at the World Fair in New York.

4. It was necessary ... (to look at, to look for) a more reliable method of calculation.

5. The airplane «Ruslan» can ... (carry, carry out) up to 150 tons.

6. Research is being ... (carried, carried out) for developing new composite materials to lighten aircraft structure.



22-mashq. Nuqtalar o'rniga by, with, for, at, in predloglarini qo'ying:

The steam was invented ... James Watt, who worked ... many years before he could make the instruments ... which he perfected his machine. ... first he worked ... primitive tools so he could not make his engine well-regulated. The old machine was kept going ... a boy who stood by it and let... the air ... means of which the steam was condensed at every revolution. ... this machine, though it was imperfect, some work was done and it had been used ... a large mine-owner (shaxta egasi) to pump out the water. The first efficient steam-engine was made ... a Birmingham firm and it was soon used...nearly every manufacturer. The revolution in industry made ... this machine was extremely great.



23-mashq. Fe'llarni to'ldiring, eslab qoling:

held, flown, overcome, withstanding, lain, flow, burnt.



24-mashq. O'qing va lug'atsiz tarjima qiling:

«Even the birds aren't flying today» is an old saying used to indicate that the weather for flying is extremely bad. And for man nothing has a greater effect on flying than the weather. And because of its changing so quickly and without warning an extensive network of weather stations has been set up for helping the pilots get all the information about weather. Before flying pilots may get current weather information on changing conditions along their route or at their destination. The weather reporting system helps overcoming many difficulties in flying. In winter, e.g., icing can cause the reduction of lift efficiency of airplane by changing the flow of air. Pilot's being informed about the weather allows him to avoid weather problems. The weather being too bad, pilots just stay on the ground like any wise (тажрибали) bird.

CONVERSATION



Exercise 1. Answer the questions.

1. What kind of aircraft may begin a new age in aviation? (a hypersonic

passenger liner)

2. What is the shape of the new liner? (an elongated fuselage with a sharp nose)
3. What distance can the new liner cover in less than two hours? (the distance between Tokyo and Moscow)
4. What are the main problems of building a reliable hypersonic liner? (developing an economical engine and new heat insulating materials combined with better aerodynamics)
5. What is one of the ways to make a hypersonic liner as economical as possible? (using new composite materials)
6. What will be used for cooling a hypersonic craft? (cryogenic fuels)
7. What combined engine was developed? (a ventilator propeller engine)



Exercise 2. Make a sentence out of the two parts.

1. It is expected that a new hypersonic aircraft
2. The project of such an aircraft was displayed at
3. There is no horizontal stabilizer
4. Therefore it looks more

5. The superliner will mainly fly in the stratosphere at
6. The diameter of the fuselage

7. The passenger superliners of such a class will have no windows

1. will be 4 meters, overall length 100 meters and its cabin will carry 300 passengers.
2. a speed five to six times above the speed of sound.
3. like a rocket.
4. since conventional aircraft windows are too weak to withstand high stresses at supersonic speed.
5. the Aerospace Salon in Paris.

6. will replace today's aircrafts soon.
7. in the design of a new superliner.

Departure

Ann: Well, good-bye, then! I hope you will have a pleasant journey. Bob: I hope so too. The weather isn't too bad, anyway.

- : No, it looks good. Just write me a few lines when you arrive, will you?
- : I will, indeed. And many thanks for your hospitality.
- : It was nice having you with us. When will you come again?
- : It is hard to say. It depends on a number of things.

: Give my love to your mother.

: I will. Thanks. Bye.

Bob: I think, the people of today are the most intelligent (aqlli) people who have ever lived.

Mary: Before answering this question I want you to listen to the following words: «Flying machines are possible. A man may sit in the middle of the machine and turn some device. This device makes the artificial wings beat the air in the manner of a flying bird.»

: Why have you said this? There is nothing new or interesting.

M.: But they were written six hundred years ago.

: Oh, really, who made this statement?

M.: Roger Bacon, an English scientist. Of course, his sentences have been made easier, but these were his words and thoughts. Have you heard about him?

: Certainly, I have heard about him. But I have thought he was a monk (monax) and was in prison for many years.

M.: You are quite right. Besides, he made a deep study of physics. And this was the reason (sabab) for his being in prison. He made men think about new things.

: Oh, Mary, I've always said you are the most clever (aqlli) girl I've ever met. Do you agree with me, Peter?

Peter: Oh, sure. And I remember Bacon's statement about cars that can go very rapidly by their own power and great ships on rivers and oceans guided by one man.



Exercise 4. Speak about:

The characteristics of a new hypersonic passenger liner.

The main difficulties of its construction.

Use exercises 1, 2 and the following words and word combinations for your topic:

The text gives the information on... It is interesting to note that... Speaking about... Further description of... is given. It is pointed out that... As far as I know...

In conclusion I'd like to say that...

aviation designers, to display, to cover the distance, overall, to heat to a very high temperature, new generation aircraft, to overcome difficulties in, a great amount of, without using, extensive use of new materials, exceed, to solve a problem.



Exercise 5. Comment on the following statement.

Air transport has many advantages and many disadvantages.

One point of view : It is fast, comfortable, safe, it is particularly good and efficient for long distances, it is independent of roads, it is good for the health because it is not tiring (charchatadigan, zeriktiradigan), it is the most modern means of transport and it is the best way of travelling.

A contrary point of view : It is not safe, it is not reliable, it depends on the weather, it is not always good for the health, it always takes a long time to get from and to the airport, it is expensive, it is always connected with nervous strain (stress)



Exercise 6. Read and smile.

A teacher was explaining fractions to the class of girls and boys. After having written several examples on the blackboard, he asked a boy whether he would prefer (ma'qul ko'rmoq) one-fifth or one- eighth of a lemon.

«I'd prefer one-eighth, sir.»

Then the teacher began explaining again that though the fraction one-eighth looked larger than the fraction one-fifth, it was really the smaller of the two.

«I know that, sir. I don't like lemons.»

Einstein for a Day

Albert Einstein, one of the world's most brilliant and respected scientists, is best known for formulating the theory of relativity which played a critical part in the development of atomic energy. What may not be widely known is that Einstein had a fine sense of humor.

There is an amusing story about Einstein's visiting universities in a car driven by a chauffeur, giving lectures on relativity. One day the chauffeur said: «Mr. Einstein, I've heard you give this lecture about 30 times. I know it by heart, and I am sure I could give it myself.» «Well, I'll give you a chance», said Einstein. «They won't recognise me at the school. When we get there, I'll put on your cap and you introduce yourself as me and give the lecture.»

The chauffeur gave Einstein's lecture without making a single mistake. On finishing, he started to leave, but one of the professors stopped him to ask a complex question. The chauffeur thought fast.

«That problem is so trivial», he said, «I'm surprised that you have to ask me. In fact, to show you how simple it is, I'm going to ask my chauffeur to come up here and answer your question.»

Text 8B

Matnni o'qing va quyidagi savollarga javob bering:

Nima uchun yana dirijablardan foydalanilyapti?

Zamonaviy dirijabllar oldingilaridan nimasi bilan farq qiladi?

Ulardan amalda qanday foydalanish mumkin?

Matndan qaysi ma'lumotlar sizga tanish?

Matnni o'qib, qanday yangi ma'lumotlar oldingiz?

The Return of the Dirigibles

When it comes to technology, people are not inclined to return to the past. Yet, some exceptions do exist. Such is the attitude at present towards dirigibles. Having abandoned the skies more than 40 years ago, they have suddenly begun to reappear. Designers have once again sat down to design this kind of transportation. Their use can still be limited, but there is no doubt that dirigibles are coming back.

Why is dirigible attractive? What do you do with it? As its cruising speed is about 60 miles per hour, it is too slow to be used as a passenger carrier. But it is cheaper to operate than a helicopter, comfortable and capable of flying for several days. The craft's large size and staying power (dirigibles have remained in skies for as long as a week) make it ideally suited for exploration.

Their use in countries that have large territories and are rich in forests and are planning to explore and exploit new regions is most promising. They may be used to make a geological survey and to make maps, to look for off-shore oil and minerals, to take tourists to roadless, but beautiful places, to deliver heavy loads to remote regions and bring the products back. They have a potential use as a flying platform. In general, their possibilities are endless. They do not need expensive runways required by cargo planes.

Besides, the technological possibilities of manufacturing these crafts have changed. In 1920 and 1930s the dirigibles were manned by a big crew. Today being equipped with electronic control they can be operated by three pilots.

The modern dirigibles have one more important advantage over older models — that of complete safety in flight, for, instead of hydrogen, they are filled with helium which does not burn. The craft is 200 feet long and is made of superstrong materials.

In the future it may be possible to build a dirigible with a metal hull that could carry hundreds of passengers and transport cargo around the world. In

fact, it is probably as a cargo vehicle that the dirigible will have the best chance to find its use.

Text 8C

Matnni o'qing. Navigatsiya haqida va buning uchun zarur bo'ladigan 3 ta qurilma to'g'risida ingliz tilida gapiring:

Off the Ground: How do We Find Where We are Going?

Scientists who are concerned with such a problem generally agree that birds have some kind of so-called «second sense» that allows them to fly over land and water without getting lost. Indeed, birds are always able to find their destinations and make a return fly without any trouble at all.

But people need help in finding their destination when piloting their own airplanes. This, of course, is called navigation.

Navigation is the art of finding your way from where you start to your destination. Whether used by the seamen, explorer or the pilot, navigation falls into three basic categories: dead reckoning (hisoblangan yo'llar) which is the basis for all navigation, celestial navigation which is flying by the aid of the sun and other stars, and radio and radar navigation.

Several different kinds of aeronautical maps provide all the details which might be needed by the pilot. And hundreds of radio navigation stations are located at different places around the world to help guide the pilot. All the pilot needs to do is to tune to these radio transmitters and he will get the directional signals he needs. Distance measuring equipment now used in many airplanes tells the pilot exactly how far he is from a radio station and at what speed he is travelling over the ground.

When certain types of weather prevent the pilot from seeing the ground, additional radio transmitters let him make his approach to an airport by simply watching his flight instruments and his radio receiver indicators. These receivers help the pilot descend on the runway, thus landing at an airport even though he cannot see the ground.

At the world's larger air terminals airplanes are provided with radar guidance as another means of guiding the pilot to the destination. With the help of an electronic transponder (retranslyator) in each airplane which shows it on the radar screen, radar controllers guide hundreds of airplanes to landing. Because of the great improvement in electronic and radio navigation equipment, flying to where you are going is done as efficiently as the birds do it and much more scientifically.

Text 8D

Matnni o'qing. Nyu-York, AQSHning madaniy, moliyaviy markazi haqida ingliz tilida gapiring:

New York

Situated at the mouth of the deep Hudson River, New York has always been the gate of the USA. But it is more than just a door: it is also a window through which the life of the whole nation may be observed. New York is a city of striking social contrasts. It is a place where most of the millionaires live and at the same time a greater proportion of New Yorkers live at a lower level than the average for the US. In 1626 Dutch colonists set up here the first settlement, named New Amsterdam. They bought Manhattan Island from Indians for 24 dollars and a barrel of rum. The Americans say that it was the best business deal ever made in New York. In 1664 the colony was captured by British fleet under Duke of York and renamed New York.

Now New York includes five boroughs: Manhattan, the Bronx, Queens, Brooklyn and Richmond.

Manhattan is the smallest of the five city boroughs in size and it is not the largest in population although the majority spend a considerable part of the day in this center of business life. Here are Broadway, Wall Street and the Stock Exchange. This is the heart and source of American policy.

Harlem is also in Manhattan. Thick walls separate this «Black Bottom» with 450,000 coloured people from the white population.

In the bay stands the bronze Statue of Liberty given to the United States by France as a present in 1886. Its torch is 60 meters high and can be seen at night for many miles. A new American Museum of Immigration is open at the base of the Statue.

The Bronx is a more residential rather than industrial part of the city. The well-known Zoo and Botanic Gardens are in the Bronx.

Queens is both a residential and industrial area. New York's two biggest airports are both there.

The Brooklyn Navy Yard is the largest naval shipbuilding center in the world. Brooklyn has more people than any other part of the city — about 3,000,000. It is mostly a district of middle-class people.

Richmond is the borough of piers and warehouses. Its population is only 200,000.

What makes New York? First of all, it is a great seaport, the greatest in

the USA. The sea encircles many of the city areas. It is also a great financial center, where «money-making» is the main law of life. It is the symbol of big business and its Wall Street has become a tiickname for big monopolies all over the world. New York is the leading textile center of the country and its clothes industry. It has a considerable printing industry and many book-shops; It is also undoubtedly one of the centres of social and spiritual lift of America. There are a lot of Art Galleries, among them rich Henry Frick collections, and many impressive art museums (Metropolitan Museum, Modern Art Museum, American Art Museum and others). For a long time New York specialized in giving visitors a good time at its theatres, restaurants, night clubs, sporting arenas, and therefore has a large hotel industry. It is the main publishing, advertising and radio center with Columbia and New York imiversities and various city colleges.

Among the inhabitants of New York one can meet people of almost all nations. The population of New York numbers about 16 million. Thi citizens speak seventy-five different languages.

QO'SHIMCHA TOPSHIRIQLAR



1-mashq. Matnni o'qing, gerundiy va hozirgi zamonni toping:

In most capital cities built long before the time of the private car there is, rarely enough space for moving traffic, and certainly not enough for parking vehicles. Buses move slowly because of the great volume of traffic, thus encouraging more people to give up (rad qilmoq) using public transport. Banning traffic from some areas may help, but such a solution may not actually make less the number of wars coming into the city. The new city cannot survive (yashab qolmoq) without building a series of ring roads. During the working hours of the day, there is the constant noise of traffic, but at night the center is almost empty.

The most environmentally-friendly way of solving traffic problems is to nise more widely public transportation. Buses require fewer parking lots, make less noise and use less road space per passenger than private cars. They consume less fuel, causing less air pollution.

Some environmentalists dream of turning parking lots into parks and replacing cars with bicycles. In some countries there are extensive networks of bicycle paths, which make cycling a safe and enjoyable form of transportation.



2-mashq. A. so'z birikmalarini o'qing va ajratib ko'rsatilgan so'zlarga 8A matnidan mos keladigan gaplarni qo'ying.

with the cabin accommodating

grant

have, provide a room or place for

change

the skin is heated

outer covering of human body

outer covering of a fruit

outer layer or surface

lightening the aircraft

make light or bright

reduce the weight of

make visible

the fuel flowing through

move along or over

come from

be the result of

fibre-glass blades

cutting part of a knife

a part of a tool for playing baseball

flat wide part of a propeller

B. 8 A matnidan fiil so'ziga mos keladigan so'zlarni toping: (4 abzas):



3-mashq. A. Matnni o'qing va ajratib ko'rsatilgan so'zlarning ma'nolarini toping:

Virtual Laboratory Expands NASA Research

NASA has successfully concluded tests on a computer generated virtual laboratory that will allow researchers, located anywhere in the world, to study potentially dangerous aircraft and spacecraft situations without risking human life.

The lab can enable research organizations to collaborate long distance without having to be physically present at the world's largest flight simulator at Ames Research Center, California. It could also be used by universities, research laboratories and industry to develop a wide variety of products beyond the aerospace field. Future uses of the laboratory being considered include designing new spacecrafts and training astronauts.

The simulator is able to move airplane and spaceship cockpits in all directions, including 60 feet vertically and 40 feet horizontally. There are five interchangeable cockpits that are used to simulate the Space Shuttle, helicopters, airplanes and other aerospace vehicles.

The simulator creates a convincing environment for a pilot and is controlled by computers programmed to represent each aircraft proposed.

Computers calculate correct aircraft response when a pilot changes simulator cockpit controls. In real time, responses by the simulator include cockpit motion, images in the windshield, sounds and control readouts. Simulations are monitored from the control lab at ARC. The virtual laboratory and the «world» it creates exist partly in computer memory and other physical gear.

Recently, astronauts made simulated Space Shuttle landings using a huge motion simulator at ARC while NASA engineers in Houston monitored the sessions using the three-dimensional «world» that includes video screens, computer video, two-way video conferencing, remote data access and a pilot's out-the- window scene.

A matndagi ajratib ko'rsatilgan so'zlarga mos keladigan so'zlarni toping:

- | | |
|----------------|------------------------------|
| a. reaction | d. work in partnership |
| b. view | e. compartment for the pilot |
| c. make larger | f. apparatus, mechanism |

B. Ajratib ko'rsatilgan fe'lni ma'nosi to'g'ri keladigan fe'l bilan almashtiring:

A new system enables researchers to carry out complicated tests.
Engineers have completed their research in the aerospace field.
A huge simulator provides the condition of real operations in flight.
Virtual lab helps us learn how to better use cockpit controls.
A pilot can move aeroplane in all directions.

C. Nuqtalar o'rniga mos keladigan so'z va terminlarni qo'ying:

remote ... space
long ... aerospace
... shuttle ... screen
air ... conference
... memory human ...
out-the-window ... access
... world wind ...

research ... time

E. Jadvalni to'ldiring:

Verb	Noun	Person	Adjective
•••	organization	•••	•••
direct	9 9 9	••◆	••◆
•••	• 99	collaborator	
•••	9 9 9	9 9 9	local
•••	simulation	9 9 9	
represent	...	9 9 9	...

F. ajratib ko'rsatilgan so'zlardan ot yasang va nuqtalar o'rnini to'ldiring:

physics

It is ... impossible to be in two places at once.

... is an expert dealing with matter and energy.

Mechanical laws and Newtonian ... are very important for creating virtual systems.

The equivalent of clip art for virtual reality designers might be ... systems.

possibility

What will make the virtual reality design system of tomorrow...?

Is there any ... of your taking part in virtual reality conference this year?

If we throw an object, it flies across the room, ... hitting another object and causing a complex chain of events as objects crash into each other.

success

Virtual reality can have great... in many ways, especially in experimenting.

Recent... tests of the world's largest simulator enable scientists to do research in education, management and industry.

Astronauts have ... simulated Space Shuttle landings.

potential

Virtual lab helps researchers simulate ... complicated flight situations.

Our country has great... raw resources.

It has not realized its full ... yet.



4 mashq. A tomondagi fe'llar va B tomondagi otlardan gaplar tuzing:

- A**
1. simulate
 2. complete
 3. collaborate
 4. withstand
 5. succeed in
 6. cover
 7. make
 8. overcome
 9. deliver
 10. carry
 11. fly
 12. open
 13. find
 14. guide

- B**
- a. solving a problem
 - b. the distance
 - c. passengers
 - d. a pilot, an airplane
 - e. the conditions of flight
 - f. loads to remote regions
 - g. at a speed
 - h. a new era, age
 - i. stresses, high temperatures
 - j. landings, calculations
 - k. problems, difficulties
 - l. long-distance
 - m. destination, use, application
 - n. research, tests, study



5-mashq. A. «Aircraft of today, its safety, reliability, speed and comfort» mavzusida 10-15 ta kalit so'zlarni ayting.

B. Speak about:

Virtual reality and its application in aerospace field.

LESSON 9

provide so'zining ma'nosi

-th, -en-suffikslari

sub-, under-, non-prefikslari

Text 9A.Descending to New Ocean Depths

Text 9B.

Text 9C.LifeboatsText

9D.Greenwich



1-mashq. A. shart ergash gapning tipini aniqlang, tarjima qiling:

1. If we look around, we can see that electricity is serving us in one way or another.
 2. If I were free, I should help you with pleasure.
 3. If we had tested this material, we should have used it in our work.
 4. If ordinary gases are greatly compressed, they become liquids.
 5. If supercomputers had not been used for thermodynamic calculations, designers would have spent all their lives on computations.
 6. If you think that a computer never makes mistakes, you are wrong.
 7. If extreme temperatures generated by atmospheric friction were not so high, a hypersonic craft would not require complicated cooling measures.
 8. If we had been told about the lecture on reliability in spacecraft production, we should have come by all means.
 9. Superconductivity can be obtained in some materials if the temperature is very low and close to absolute zero.
- B.1.** It you (to know) English well, you will be able to read books in the original.
2. If I get this book, I (to be) very happy.
 3. You (to become) much stronger if you did your morning exercises regularly.
 4. If she went to work in France, she (to learn) French very quickly.
 5. If he (to see) her, he would have spoken to her.
 - 6.1 (to help) them if I had been at home.
 7. You (to write) the testwork well if you have learnt grammar.
 8. If she (to ask) me yesterday, I should have told her about it.
 9. If we had not been present at the lecture, we (not to understand) the new approach to the solution of the problem.

C. **Gaplarni tugating:**

1. I would work much better if... .
2. Life would be much simpler if... .
3. Use every opportunity to practice English if... .
4. I would have started to study English earlier, if... .
5. I would have had more opportunities, if... .



2-mashq. A. gaplarni namunaga qarab o'zgartiring:

If I were free, I should help you. Were I free, I should help you.

If he had known about the lecture, he would have come. Had he known about the lecture, he would have come.

1. If it were possible, we should begin this work at once.
2. If he had had all the necessary books, he would have made his report in time.
3. If the books had been available in our library, we could have done this work much earlier.
4. If there were no computers, space flights would be impossible.
5. If drivers were more attentive while driving, there would be less accidents on the road.

B. **Bog'lovchisiz sgart ergash gaplarni tarjima qiling:**

1. Had he used new materials, the device would have been more reliable.
2. Were electric motors used, cars would not pollute the air, would be practically noiseless and very easy to control.
3. Had they applied the new method, the result would have been much better.
4. Were the design of cars improved, the fuel consumption would be greatly reduced.
5. Had a less explosive gas been used in dirigibles at the beginning of the century, they would have been in operation since that time.
6. Were it possible to learn how birds find their way, people would use the principle to develop a navigation system for aviation.



3-mashq. Gaplarni tarjima qiling va provided – ning ma'nosini eslab qoling:

1. The experiments conducted provided very good results.
2. Russian technological achievements that provided the launching of rockets are known all over the world.
3. A tire pressure display provides information for front and back pairs of tires.

4. Provided new composite materials are used, it will be possible to reduce overall aircraft weight.
5. Provided with a new vacuum-controlled carburetor this car model has several important advantages.
6. Superliners could develop a higher speed provided some special cooling measures were used.
7. An aircraft pilot can get all the information he needs provided he contacts a radio navigation station.
8. The work done provided us with new data.
9. Having measured the distance between two points, it is possible to calculate the time during which a car can cover it provided we know the car's average speed.
10. Our laboratory has been provided with the latest equipment.



4-mashq. A. Qiyosiy darajani bering:

great, easy, good, far, many, difficult, possible.

much –никиёсийдаражаданолдинқўйинг, таржимақилинг:
late, simple, important, valuable, quick, reliable, useful, complex.



5-mashq. A. So'z birikmalarining o'zbekcha ekvivalentlarini toping:

as old as seagoing, a round container, the Swiss National Fair, as primitive as marine life, so-called, to take people deep into the lake, underwater tasks, around the ocean floor, wrist of the manipulator, to lift 120 pounds, marine life, the world's deepest vehicle, underwater helicopter.

Shveytsariya milliy yarmarkasi, suv osti ishlari, odamlarni chuqur suv ostiga tushirish, dengiz osti bo'ylab, suv osti vertolyoti, manipulyator qo'li, dengiz hayvonot va o'simlik olami, dunyoda suv ostiga eng chuqur tushuvchi apparat, dengizda suzish kabi eski, aylana konteyner, 120 funtga ko'tarish.

B. So'z birikmalarini tarjima qiling:

round glass container, marine life people watch around them, centuries before, to take people deeper than before, difficult underwater tasks, mounted on a metal platform, it looks like an underwater helicopter, move like a sport car, video cameras provide vision, to lift up to 120 pounds, work for up to nine hours.

SO'Z YASALISHI



6-mashq. Namunaga qarab, quyidagi yasama so'zlarni tarjima qiling:

sifat + th = ot, deep — chuqur -> depth — chuqurlik length, width, strength;
sifat + en — fe'l light — yengil -> to lighten — yengillashtirmoq deepen,
brighten, lessen;

sub-prefiksi(sub-, osti-, do-), under- (osti-, quyi) submerge — sho'ng'imoq ->
submersible — suv osti, sho'ng'iydigan

estimate — baholamoq -> underestimate — yetarli baho bermaslik, subsystem,
subsonic, subcommittee, subdivision, subsurface, submarine, undersea,
underground, undercooling, underproduction, underdeveloped;

non-prefiksi, non-conductor — o'tkazmaydigan; non-military — harbiy
bo'lmagan non-effective, non-essential, non-standard, non-metal, non-stop.



7- mashq. Internasional so'zlarni o'qing va tarjima qiling:

ocean ['aujan], container, apparatus [ˌæpə'reɪtəs], machine [mə'ʃi:n], spherical
['sferikal], plastic, metal platform, helicopter ['helikopta], manoeuvre
[mə'nu:və], sport, mechanical [mi'kæmkəl], manipulator [mə'nɪpjuleɪtə], system,
miniature ['mɪnjətʃə], microphone ['maɪkrəfaʊn], to lift, minerals, battery, stereo
['stiəriəʊ], construct, cultivate, videocamera, titanium [taɪ'teɪnjəm].



8-mashq. So'zlarni o'qing va talaffuzini eslab qo'ying:

descend [dɪ'send], legend ['lecfeɪnd], submerge [səb'mɑ:cfe], submersible
[səb'mɑ:sɪbl], da Vinci ['vɪnlfi], national ['næʃənəl], Geneva [dʒi'niivə], Japanese
[ˌcɪjəpə'ni:z], technician [tek'nɪʃən], extreme [ɪks'tri:m], precision [pri'si:ʒən],
essentially [ɪ'senʃəli], cycloid ['saɪklɔɪd], particular [pə'tɪkjələ], wrist [rɪst],
provide [pre'vaɪd], sample ['sɑ:mpl], image ['ɪmɪdʒ], scale [skeɪl], join
[dʒɔɪn], politician! [ˌpɒli'tɪʃən].

ESLAB QOLING

accurate *a* — aniq
almost *adv* — deyarli
advanced *p.p.* — yangi, zamonaviy
collect *v* — yig' moq
construct *v* — qurmoq, o' rnatmoq
crew *n* — ekipaj
depth *n* — chuqurlik
descend *v* — tushmoq, pastlamoq
duet *prp* — tufayli
explore *v* — tadqiq qilmoq
find out *v* — aniqlamoq
билмоқ **image** *n* — tasvir
instead of *adv* — o' rniga
join *v* — birlashtirmoq
lift *v* — ko' tarilmoq
mankind *n* — insoniyat
operate *v* — ishlamoq, harakat qilmoq

particular *a* — alohida
penetrate *v* — kirib bormoq
precision *n* — aniqlik
promise *v* — va' da bermoq
provided *cy* — u holda, sharti bilan
realize *v* — amalga oshirmoq
resist *v* — qarshilik
ko' rsatmoq, **chidamoq**
sample *n* — namunaa
submerge *v* — sho' ng' imoq, chuqurlikka tushmoq
test *v* — tekshirmoq
transparent *a* — harir
try *v* — harakat qilmoq

battery-operated *p.p.* — batareyada ishlaydigan

Text 9A

**Matnni o'qing va tarjima qiling. Quyidagi savollarga javob bering:
Qaysi mamlakatlarda suv ostiga tushish apparatlari yaratilmoqda?
Yangi suv osti apparatlarining qulayligi nimada?**

Descending to New Ocean Depths

We know little about the ocean yet. The dream of exploring under the waves is almost as old as seagoing. Legend says that Alexander the Great submerged himself in a round glass container, and Leonardo da Vinci designed a submersible vehicle in his notebooks centuries before Jules Verne wrote «Twenty Thousand Leagues Under the Sea». If their dreams had been realized and such a craft had been constructed, mankind would have known about the secrets of Ocean much earlier. However, already during the Swiss National Fair in 1964 a submersible vehicle took thousands of people deep into Lake Geneva

Not long ago, the crafts that penetrated the ocean depths were almost as primitive as the marine life they watched around them. However, non-military deep sea ships, so-called submersibles, were progressing rapidly. Russian, French, Japanese and American scientists are developing crafts that can submerge deeper, stay longer and find out more than earlier apparatuses.

Soon, one of the most advanced crafts, a one passenger submerging ship, will be tested. It may be able to take explorers and technicians deeper than ever before (up to 3,300 feet) and perform difficult underwater tasks with extreme precision.

This new submersible is essentially a spherical transparent plastic hull¹ mounted on a metal platform. It looks like an underwater helicopter and can manoeuvre itself in its water environment with some of the versatility² of a helicopter due to the use of a cycloid rotor³ instead of conventional marine-propeller screws⁴. It is expected that this apparatus will move around the ocean like a sports car.

However, the breakthrough⁵ that will make this particular craft quite different from other manned submersibles is a mechanical hand called the sensory manipulator system⁶. Miniature video cameras on the «wrist» of the manipulator provide it with vision and microphones enable the submersible to «hear». This manipulator system is designed to lift up to 120 pounds and will also be able to perform such accurate scientific work as collecting samples of ocean-floor minerals and marine life. When demonstrated, it lifted crystal glasses, drew pictures and wrote with a pen.

Some scientists are trying to develop the world's deepest manned submersible. When completed, it will be capable of submerging to the depths of 21,000 feet. Its crew will be in a pressure-resistant titanium-alloy cabin. This craft will be driven by a battery-operated electric motor and will work for up to nine hours. It will record images with colour television and stereo cameras and will collect samples by manipulating two robotic arms.

If such crafts are constructed on a large scale, we shall be able not only to spend our holidays enjoying the underwater life, but also grow and cultivate sea plants, fish and pearls. It will be possible provided scientists, designers and politicians from all over the world join their efforts and solve the most important problems in this field.

Notes to the Text

transparent plastic hull — shaffof plastmassa qobiq

versatility — harakat erkinligi

cycloid rotor — sikloid ko'rinishidagi rotor vinti

marine-propeller screw — kemanding aylanuvchi vinti
breakthrough — radikal qaror
sensory manipulator system —manipulyatorning sensor tizimi

MASHQLAR



9-mashq. 9A matndan savollarga javob toping:

1. What is the text about?
2. What is a submersible?
3. Who was the first to think of a submersible vehicle?
4. What writer wrote about a submersible?
5. What special systems will be used on a new submersible?
6. What are the characteristics of the manipulator system?
7. What kind of submersible is being designed at present?
8. What do you think of the future of such vehicles?
9. What is the name of the famous French scientist, an explorer of the ocean?
10. Have you seen his film? Have you read his books?



10-mashq. Qaysi gaplar 9A matniga mos keladi? Mos kelmaydiganmlarini tuzating:

1. We know very little about the ocean yet.
2. The dream of exploring the underwater life is very old.
3. It was Jules Verne who was the first to write about a submersible vehicle.
4. Only Japanese scientists are developing deep water submersible crafts.
5. A new submersible craft looks and moves like an underwater helicopter.
6. A new submersible is provided with a manipulator that is designed to lift 120 tons.
7. When demonstrated, it lifted crystal glass and drew pictures.
8. When completed, the world's deepest manned submersible will be capable of submerging to the depth of 21,000 feet.
9. This craft will be driven by a battery-operated electric motor.



11-mashq. 9A matndan shart ergash gaplarni toping, imkoni bor joyda ularni bog'lovchisizga aylantiring.



12-mashq. Noreal ish-harakat ifodalangan shart ergash gaplarni toping, tarjima qiling:

1. If a scientific research is closely linked with practice, the results are always good.
2. If you looked at the equipment of 1946, you would notice the difference with that available at present.
3. If there is a pressure change in the tires, a transmitter signals to adjust the pressure.
4. If we were to make a journey in a plane to the nearest star, we should have to travel for several thousand centuries.
5. Were traffic controlled by computers, cars could travel with safety and speed.
6. Had submersibles been developed since the time of Alexander the Great, mankind would have used natural resources from the ocean floor and cultivated plants and fish there.
7. Had all submersibles had autonomous principle of operation, they would have become much more useful.
8. If fire-arms had not been invented, the secret of Damascus steel would not have been lost.
9. If we could make a non-stop flight around the sun in an airplane at a speed about 300 km per hour, it would require 565 days to encircle it at the equator.
10. If the satellite speed is less than necessary, it will go down from the orbit and enter the atmosphere.



13-mashq. Provide, if (whether) so'zlarining ma'nolariga e'tibor berib, tarjima qiling:

1. Specialists reported that a miniature video camera provided the latest submersible with vision.
2. The speed of a satellite would be less provided it moved at a greater distance from the Earth.
3. Drivers don't know yet whether radars will be mounted on the next car models.
4. If the weather is too bad for flying, passenger airplanes don't leave airports.
5. It was very important to find out if electricity could be used for long distance communication.
6. During the entire flight, the pilot is provided with all the necessary information about weather conditions.
7. Modern submersibles can remain at the depth of 20,000 feet for eight hours or, if needed, as long as two or three days.

8. A new system for motor cars can be provided with infrared sensors that can detect a human figure at night.

9. If underwater tourism continued to develop at the present rate, the number of passengers could grow up to millions in only a few years.



14-mashq. Unless bilan kelgan gaplarni tarjima qiling va eslab qoling:

1. Isaac Newton stated that a body would continue moving unless some force was applied to stop it.

2. Space flights would be impossible unless special materials for space vehicles were produced.

3. We should have no radio, telephone, television or computers unless there were electricity.

4. The earth temperature would increase indefinitely unless heat were radiated.

5. Unless the temperature rises, the speed of the molecules will not increase.

6. It would have been impossible to send satellites into orbit unless Newton's laws of motion had been studied.

7. With heat generated by friction of the air on aircraft surface, the temperature inside the cabin would increase to almost 1,000 °C unless it were cooled by mechanical means.

MUSTAQIL ISHLASH UCHUN MASHQLAR



15-mashq. Quyidagi so'zlardan yasang:

a) fe'l

usage, subdivision, indication, complication, difference, large, systematisation, appearance, changeable, measurable;

b) ot

noiseless, powerful, deep, dangerous, perform, realise, lighten.



16-mashq. Quyidagilardan s'zlar yasang:

manipulate, compress, move.



17-mashq. O'zbekcha so'zga mos keladigan so'zlarni toping:

Tadqiq qilmoq — exploration, explorer, to explore;

aniq — exactness, exactly, exact, exaction;

suv tubiga tushgan — submergence, submerge, submerged, submersion;

yo'naltirmoq — navigate, navigable, navigation;
qat'iy — resistance, to resist, resistant, resistor;
kenglik — wide, width, widely, widen.



18-mashq. Toping:

a) sinonim

to finish, to submerge, to work, craft, to build, to descend, vehicle, to operate, rapid, fast, to construct, to complete;

b) antonim

to lift, difficult, to complete, after, to descend, before, easy, to start.



19-mashq. Ajratib ko'rsatilgan so'zlar gapning qaysi turiga mansub?

Tarjima qiling:

1. In a new apparatus rotors mounted on the fuselage provide lift acting as wings when the craft is moving at high velocity.
2. The aerostatic apparatuses of the latest design can vary its lift force.
3. The man can't lift this weight, it can be lifted only automatically.
4. When weight is lifted to a given level, it possesses potential energy due to its position.
5. Russia possesses the world's heaviest helicopters MI -26 which lift and transport cargoes up to 20 tons.



20-mashq. Before va after so'zlarining ma'nolariga e'tibor berib, tarjima qiling:

1. There was no means of direct communication before the telephone was invented.
2. After World War 1 dirigibles gradually lost their significance as a means of transportation.
3. Before Newton no one could explain why the planets moved around the sun.
4. After a French engineer invented the first self-propelled road vehicle in 1770, many car designers wanted to make a better automobile.
5. Before each flight pilots must ask for the information about the weather expected during the planned route.
6. The «night vision» system enables drivers to see better after dark.
7. Before the industrial production of materials in space can be started, it is necessary to create special space stations.



21-mashq. Qavs ichidagi fe'llardan keraklilarini tanlang:

1. A young physicist can (get, get up) a prize for his work.
2. Designers tested a new engine to (find, find out) whether the ceramics it was made of could withstand temperatures up to 1,000 °C.
3. It is difficult to (get, get up) early in winter.
4. Many specialists are working at the problem of developing a new kind of telephone which we (call, call for) «video phone».
5. The projects in Siberia (call, call for) the most effective means of transporting various cargoes over long distances.
6. Specialists wanted to (find, find out) whether telephone communication was reliable or not.
7. Further development (call, call for) new specialists who are able to generate new technical ideas.
8. New generation materials which we (call, call for) composite materials will allow to lighten the aircraft.
9. To translate this text, we must (find, find out) some words in a dictionary.



22-mashq. Quyidagi mazmundagi gaplarni ko'rsating:

Harakat qilib

1. They should know in what direction this force is acting.
Acting upon the body the force changes.
3. They should find the force, acting upon the body.

Ko'rib chiqadi

1. Thermodynamics is the branch of physics dealing with the transformation of heat into work.
2. The experience of France dealing with environmental problems is very important.
3. Now Russia is dealing very seriously with the problem of Baikal protection.

Foydalanib

1. Using thermomagnetic alloys in the turbine rotor allows to develop a lot of various sensors.
2. By using thermomagnetic alloys it is possible to develop a lot of various sensors.
3. Many American companies began using submersibles for tourism.

Mukammallik

1. Construction specialists are working at improving the design of metro escalators.
2. While improving the design of metro escalators specialists developed a two speed escalator.
3. Our design bureau has developed spiral escalators improving the construction of public buildings.

Oshib ketadigan

1. A car exceeding its speed, the indicators show it on the display. 2. Exceeding the speed limit the driver should be very attentive. 3. There are relatively few cargoes exceeding 400 tons.



23-mashq. A. matnni lug'atsiz o'qing:

Three Stonecutters

Three stonecutters (tosh yo'nish) were working hard. A man who was passing by watched them for a few minutes and then, turning to the first stonecutter, he asked: «What are you doing, my friend?» «I am working like a slave (kul). Look at my hands. Did you think I was playing?», he replied. The passer-by then looked at the second workman. «And what are you doing?», he asked. The stone-cutter answered quickly, «I am earning seven dollars and fifty cents a day.

I hope to receive at least nine dollars a day in a very near future.» The visitor studied the face of the third stonecutter. Once more, he asked, «And what are you doing, my friend?» The stonecutter's face lighted up as he replied, «I am helping to erect a magnificent building. Look at the colour in this piece of marble. I was just thinking how beautiful it will be when it is thoroughly polished. This building will last for hundreds of years and its beauty will inspire everyone who sees it.»

B. A matn mazmuniga mos gaplar tuzing:

1. The first stonecutter was the unhappiest of the three because
2. The second one was happier than the first stonecutter because
3. The third stonecutter was the happiest of the three because

1. he saw beauty and joy in his work.
2. he thought that all work was hard and dull.
3. he thought that honest work brings advancement.



24-mashq. Fe'llarni to'ldiring, eslab qoling:

drawn, grew, feeling, wake up, drank, cutting, sink.



25-mashq. Matnni o'qing va lug'atsiz tarjima qiling:

Deep Trouble

An experimental undersea telephone cable in the Canary Islands had to be lifted from the ocean floor three times because of breakage. Each time sharks' (akula) teeth were found in the damaged cable. Though the cable contains optical fibres transmitting signals in the form of light, it carries a very small amount of electrical wires. It is known that electricity attracts sharks. Therefore, ordinary electric power cables are usually provided with some kind of protection to stop their being attacked by sharks. However, it was not expected that it was necessary to mount this expensive protection on the new cable. But provided the designers had used this conventional protection on the new cable, the sharks would not have approached it.

CONVERSATION



Exercise 1. Answer the questions.

1. What apparatuses are used for exploring the ocean depths at present? (non-military submersibles)
2. What countries are developing such submersibles? (Russia, the USA, France and Japan)
3. What kind of submersible is being designed? (an advanced manned submersible)
4. What is the depth it is capable to submerge to? (21,000 feet)
5. What motor is used in it? (a battery-operated electric motor)
6. What devices are provided for collecting samples from the ocean floor? (robotic manipulators)
7. What is the practical application of the submersible? (cultivating sea plants, fish and pearls)



Exercise 2. Make a sentence out of the two parts.

1. A new one-passenger submersible is designed for performing
2. This submersible is a spherical transparent plastic apparatus
3. It looks like
4. It can move in water environment
5. While exploring the ocean floor
6. The apparatus is capable to descend
7. A special feature of this manned submersible is

1. an underwater helicopter.
2. to the depth of 3,300 feet.
3. this apparatus will move like a sports car.
4. its sensory manipulator with miniature video cameras and microphones.
5. accurate scientific explorations.
6. due to the use of rotor instead of conventional propeller.
7. mounted on a metal platform.



Exercise 3. Read and learn.

Hiking in the Mountains

Mike: My steps become lighter because I hear the music of running water. Let's stand and look at the stream.

Jane: Why only look? I'm thirsty (sotib olaman) and nothing tastes so good as cool mountain water.

M.: But passing the same water through the pores of the skin does the body fifteen times as much good as it does when you drink it. Put your hands and arms into the deepest place and keep them for a while and you'll feel so wonderful.

J.: I can't stop drinking. Look at the clear, smooth surface of the stream. Water is beautiful.

M.: And perhaps, the most beautiful thing about it is its use. It helps all living things in one way or another.

J.: I know that my own body is eighty-five per cent water.

M.: Yes, and this water keeps you going in spite of the weather.

J.: How does it do this?

M.: By circulation it keeps your body at the same temperature all the time.

J.: I've read that water has the most interesting properties of all liquids. It is the slowest to cool and the slowest to heat.

M.: In winter the water in your body keeps you warm by circulating evenly to all parts. In the heat of summer it passes off through the million of pores of your skin. This keeps you cool and takes away toxic material at the same time.

J.: I think the great supply of water in the body is one of the nature's great provisions.

M.: Sure, especially taking into consideration (e'tiborga olmoq) that the human being can live only within the narrow range (diapazon) in body temperature of a very few degrees Fahrenheit. Have you had enough water?

J.: Yes, I have. Usually I drink at least six glassfuls of water daily.



Exercise 4. Speak about:

An advanced manned submersible.

Practical applications of manned submersibles.

Use exercises 1, 2 and the following words and word combinations for your topic: to realize a dream, underwater exploration, to penetrate, a submersible vehicle, to descend to a depth up to, to perform tasks, collecting samples of minerals and marine life, to work for nine hours, to join efforts.



Exercise 5. Comment on the following statement.

Scientists cannot afford (o'ziga ep ko'rmoq) to be interested in things not connected with their subject.

One point of view: There is no alternative to narrow (tor) specialization, everybody has a limited amount of time, it is unrealistic to expect a scientist to be interested in other fields than his own, a person who is interested in many things is sure to become a dilettante.

A contrary point of view : It is impossible to understand a particular science in complete isolation, the scientist should not be treated as a machine for solving specialized problems, a narrow specialist may tend to become a narrow -minded person, really great scientists have always had wide interests.

What do you think about it? Why?



Exercise 6. A. Read and say what you think about tea and what it does for you.

Tea

The English know how to make tea and what it does for you. Seven cups of it wake you up in the morning; nine cups will put you to sleep at night.

If you are hot, tea will cool you off, and if you are cold, it will warm you up.

If you take it in the middle of the morning, it will stimulate you for further work; if you drink it in the afternoon, it will relax you for further thought. Then, of course, you drink lots of it in off hours (bo'sh vaqt).

The test of good tea is simple. If a spoon stands in it, then it is strong enough.

B. Use the following phrases.

If you ask me, tea...

If you want my opinion, tea...

I entirely / quite agree with the idea that...

That's exactly my opinion / that's exactly what I feel...

I don't like tea because...



Exercise 7. Read and smile.

A Fable from Aesop ['i:sop]

While sitting together one time, a group of animals was discussing the popularity of the elephant. They all agreed that the elephant was the most popular animal in the forest, but none of them could give a satisfactory explanation of this fact. Yet they all had certain comments to offer.

The giraffe [dji'raif] said, «If the elephant had a long neck like mine, then it would be easy to understand his popularity. He would be the tallest animal in the forest».

The peacock (tovus) said, «If he possessed my beautiful tail, it would be easy to understand. He would be the most beautiful creature in the forest».

The rabbit said, «If he could run as fast as I, it would be easy to understand. He would be the fastest animal in the forest».

The bear said, «If he was as strong as I, it would be easy to understand. He would be the strongest animal in the forest».

Suddenly the elephant himself appeared. He was larger and stronger than any of the other animals, and he was also superior in many ways. But he was always quiet and modest about his many accomplishments. This, after all, was

the real explanation for his popularity.

An American lady got into a smoking carriage (vagon) where an Englishman was smoking a pipe.

She began doing everything to show him she objected to his smoking. At last, seeing that the man paid no attention, she said,

«If you were a gentleman, you would stop smoking when a lady got into the carriage».

«If you were a lady», replied the Englishman, «you would not get into a smoking carriage».

«If you were my husband», said the American lady angrily, «I would give you poison (яд)».

«Well,» said the Englishman at last, «if I were your husband, I would take it».

Text 9B

Matnni o'qing va sarlavha qo'ying. Quyidagi savollarga javob bering:

Matndan qanday yangi ma'lumot oldingiz?

Mavjud suv osti apparatlarini nimalar hisobidan mukammallashtirish mumkin?

Now most submersibles are connected with a support ship on the surface. This connection is an armoured cable measuring an inch or two in diameter and weighing up to 10 tons and it transmits power and navigational commands to the submersible, as well as sends sensor data and television images back to the support ship. Cables allow submersibles to transmit data at a great speed, but they limit the range of territory studied and have many disadvantages in operation.

Autonomous underwater submersibles can move freely. Controlled by on-board microprocessors or by acoustic signals transmitted by a ship on the surface, battery-operated submersibles can cover much greater areas. They can operate under ice and in very deep water. Such three-ton unmanned crafts can submerge to the depth of almost 20,000 feet and stay there for up to seven hours. High quality images of the ocean bottom can be transmitted to the support ship in three to four seconds (because of the slow speed — about 5,000 feet per second through water — acoustic data transmission is much less quick than signals sent via cable which travel at the speed of light).

But even these most advanced submersibles have definite disadvantages: batteries are heavy, data transmission is slow and computer programs are primitive. Future submersibles may overcome those difficulties. Some may be

propelled by nuclear power or by fuel cells (yoqilg'i elementlari) that use oxygen from the sea water. Many of them will rely on signal-compression techniques to speed up acoustic data links. Computerized systems will enable some submersibles to repair damaged telephone cables or oil platforms. If research work in this field continues to expand at its present rate, the number of radically different kind of more efficient crafts will appear very soon.

Text 9C

Matnni o'qing.

Zamonaviy qutqaruv apparatlarining ishlash prinsiplarini va o'ziga xos tomonlarini ayting:

Lifeboats

Even though we now have ships of a kind unknown in earlier centuries, we are still very far from mastering the sea. The Greek sailor who was shipwrecked (kema halokatiga uchramoq) on his way home from Troy and the sailor of tomorrow whose nuclear- powered cargo ship might be on fire both face the same dangers. They may drown (cho'kmoq), and so they need to keep afloat. They may die, and so they need to keep themselves covered and dry. Rescuers (qutqaruvchi) may never find them, and so they need to send signals. The Greek sailor at the time of the Trojan war had only a small chance of survival (qutqarish). The sailor of tomorrow has a greater chance, especially if the ship has one of the new rescue crafts on board.

One such lifeboat looks more like a flying saucer (likopcha) than a boat. Sailors on board a ship which is in trouble can get into the capsule, close the water-tight doors and operate the controls which drop the capsule automatically into the sea. Made of glass fibre (shihstola) the capsule will float on the sea and will not be dragged down by the sinking ship. It will protect the men inside from explosions, fire and extreme cold. It has a thirty-kilowatt diesel engine and so can carry survivors to the coast. To help rescue ship and aircraft to find it, the upper part of the capsule is covered with a special orange paint which can be detected by radar. Each capsule is large enough for twenty eight men.

Text 9D

Matnni o'qing.

Grinvich tarixi va uning bugungi kuni haqida ingliz tilida gapiring:

Greenwich

Greenwich is on the river Thames, five miles from the middle of London, and its story is 2,000 years old. The first English people the Saxons — were fishermen there and they gave Greenwich its name — «the green village».

You can still walk along the old Roman road in Greenwich park.

But the river was the true road to the outside world for the Romans and for English kings and queens who later lived in Greenwich.

The King Henry VIII loved this place. He knew that England must be strong at sea. So two big shipyards were started at Greenwich and for 350 years the ships made there were the best in the world.

Many ships were lost at sea — their sailors did not know how to tell exactly where they were.

In the 17th century astronomer Flamstead tried to find the answer. He worked in an Observatory on the high ground in Greenwich park. The walls of its big light-sided room shook when the weather was bad. But from it, with a telescope made by himself, Flamstead could look all round the sky. And he did look night after night for twenty years. Carrying on Flamstead's work a hundred years later, an astronomer called Harrison finally made a clock which told the time at sea and helped sailors to know where they were. You can see Harrison's clock, still working in Greenwich museum of the sea. Because of Flamstead's work every country in the world now tells its time by Greenwich time.

Every year a million people come to Greenwich to see its museums and palaces and its two famous ships: one old, one new. Both the big CUTTY SARK and the little GYPSY MOTH sailed through dangerous waters before they came safely back to their Greenwich home. At the end of the 1800's the CUTTY SARK was the fastest ship of its size. Carrying more than a million kilos of tea, she travelled the 25,000 kilometers from China to England in only hundred days.

Next to the CUTTY SARK is the GYPSY MOTH - only 16.5 metres long, but full of newest equipment. Her captain Sir F. Chichester wanted his ship to sail as far and as fast as the CUTTY SARK. When he sailed round the world by himself in GYPSY MOTH in 1966 — the first man ever to do this — he took a flag from the CUTTY SARK with him.

QO'SHIMCHA TOPSHIRIQLAR



1-mashq. 9 A matnidan toping:

- a) deep sea ship mazmundagi kalit so'zlarni toping, tarjima qiling;
- б) cc under bilan kelgan so'z birikmalarini toping va tarjima qiling;
- в) marine so'zi va u bilan kelgan so'z birikmalarini toping, tushuntiring va misollar keltiring:



2-mashq. A. matnni o'qing. scuba divers terminining ma'nosini tushunishga harakat qiling:

A computer for scuba divers will provide in one device information about time, depth and air supply. It is to be used together with special divers' tables. A display will provide visual information and audible warnings about critical conditions.

If a diver wants to know an accurate depth he is down, he must set water type he is in. If he is in the sea, he will set «sea water», otherwise he will set «fresh water». The device shows the diver's current depth in meters and the level of power left in the batteries. It will indicate if the level is low, medium or high.

If a diver wants to know how long he has been down, he can see this from the display. If a diver needs to spend some minutes at a certain depth for decompression, he will start his stop watch, and will wait until the time has elapsed (passed). If a diver wants to know the amount of air left in the tank, he can see this from the contents display.

A warning signal tells him when he must start his ascent. Before he descends, the diver sets the time to ascend. If he began his ascent before the display started flashing, he would be within safe limits. If he did not ascend then, he would expose himself to decompression sickness. If he started his ascent and went up too quickly, he would see a warning light «Too fast». Then he should slow down his ascent.

B. Nuqtalar o'rniga ajratib ko'rsatilgan so'zlarning antonimlarini qo'ying:

Tables give information about safe and ... diving limit,

Time information is the time from the beginning of the diver's descent to the ... of his ...

If a diver is in the sea, he will set «sea water», otherwise he will set ...

Battery level information indicates if the level is low or ...

Before a diver starts to descend, he should set the time when he must...

C. Jadvalni to'ldiring:

Verb	Noun	Adjective
popularize	submergence • • • • • • creature performance exposure	• • • exploratory • • • sick connective definite

3-mashq. A tomondagi fe'llar va B tomondagi otlardan gaplar tuzing:

A

realize

master / penetrateb.

join

submerge

descend / ascend

be

cover

transmit

B

a. data, images

b. areas

c. at a rate of

d. the sea and ocean depths

e. a dream

f. efforts

g. within safe limits

h. to the depth of



4-mashq. Terminlardan foydalanib, nuqtalar o'rnini to'ldiring:

1. battery-... 7. ocean-... minerals

2. ... warning 8. ... arms

3. visual ... 9. support ...

4. ... diving 10. life ... system

5. stop ... 11. one ...

6. ... plants 12. ... camera



5-mashq. A. «New developments in manned submersibles» mavzusida 10-15 kalit so'zlar ayting.

B. Speak about:

Modern scuba diving.

REVISION OF LESSONS 7-9



1-mashq. Sifatdoshlarni, gerundiy vas hart ergash gaplarni qaytaring, tarjima qiling:

1. Bob is very good at solving mathematical equations.
2. She has never done any computing.
3. We saw an old man lying on the road.
4. Being a disabled, he could not drive a car.
5. The train being late, they decided to return home.
6. His favourite pastime is playing computer games.
7. Realizing the danger, they stopped.
8. The house rebuilt recently is very beautiful.
9. Look at the displayed objects! Look at the objects being displayed!
10. Graphic artists like adding colour and depth to their drawings and designs.
11. Having completed the job, the man left early.
12. The task having been accomplished, the pilot returned to the base.
13. Having been rebuilt recently, the house is very attractive now.
14. Scientists are interested in developing new programming languages.
15. What do you think of the methods being used in these experiments?
16. Our engineers will discuss the methods used and the results obtained.
17. Given certain conditions such work can be done by anybody.
18. The speed of a microprocessor is very important in processing information.
19. A fax machine is used for sending and receiving copies of original documents via a phone line.
20. Joystick is an input device especially helpful when playing computer games.
21. Distance measuring equipment now being used in all airplanes, pilots know exactly their position and speed.
22. Provided electronic and radio navigation equipment had not been improved so radically in recent years, aircraft flying would not have been so reliable and efficient.
23. Manhattan, one of the New York boroughs, is not large in size and population, people coming there only for work, to the theaters, museums and clubs.
24. If you got tired while getting ready for your exam, you should break off for half an hour.
25. We learnt of the engineers' having invented a wheel-computerized system that monitors and adjusts air-pressure in tyres.
26. Most submersibles do not move very far from the support ship, the

connecting cables limiting their range.

27. Unless the internal combustion engine had been invented, the automobile industry would not have begun to develop so rapidly all over the world.

28. When completed, the new dirigible will be the largest and the most powerful one.

29. Hundreds of radio navigation stations being located at different places around the world, pilots are at constant link with them.

30. The principles of ecology are as real as those of aerodynamics. If an aircraft is to fly, it has to satisfy certain criteria of thrust and lift. Similarly, if an economy is to keep up progress, it must satisfy the basic principles of ecology. If it does not, it will decline (ТАШЛАНДИҚХОЛГАКЕЛМОҚ).



2-mashq. 7-9 darslar Grammatik mavzulariga e'tibor berib, matnni o'qing va tarjima qiling:

How It Works

Fuel warning light. Many cars have a fuel warning light. The level of fuel (petrol) in the tank being very low, this light switches on and the driver can see that he needs more petrol. How does this fuel warning light work?

The level of the fuel falling, the float moves downwards. When this happens, the arm also moves downwards and makes the lever touch an electrical contact, thus switching on the fuel light in the car.

Seeing the fuel warning light, the driver puts more petrol into the tank. This makes the fuel level rise and pushes the float upwards. When risen, the float makes the arm move upwards and this causes the level to move upwards also. The fuel warning light then switches off.

A car cooling system. Most car engines are cooled by water. The water flows around the engine and then passes through the radiator. It then passes through the water pump and around the engine again.

Thus, there are several stages in this cycle:

Water flows around the engine. The engine is cooled and water is heated. When heated, the hot water enters the radiator through the top hose (shlang). Flowing down through the radiator, the hot water is cooled by air. The air is drawn through the radiator by a fan (ventilyator). This fan is turned by a belt, which is driven by the engine. The cool water leaves the radiator through the bottom hose. The water is pumped around the engine again.

Finding a fault in a car. If your car doesn't start in the morning, you

should check three things first: the battery, the fuel level and the spark plugs. It is easy to repair these faults. If the battery is flat, you should recharge it. If this doesn't work, you should replace it. If the petrol tank is empty, fill it up. If the spark plugs are dirty, clean them, and if the gap in a spark plug is too narrow or too wide, adjust it to the correct width.

If your car still doesn't start, the petrol pump may be broken, or the fuel pipe may be blocked. If the pump is broken, it must be repaired or replaced. If the fuel pipe is blocked, take it off and unblock it.

If there is a loud click when you turn the key, the starter motor may be jammed. If it is, you can try to release it by pushing the car forwards and backwards (in 2nd gear). If the car still doesn't start, the starter motor should be repaired or replaced.



3-mashq. Nuqtalar o'rniga quyidagi so'zlardan mos keladiganini qo'ying:

flat be repaired click recharge faults battery clean tank empty replace fuel wide spark plugs cooling backwards
--

1. In a car the flat battery, the empty fuel tank and the dirty spark plugs are the ... that can be easily eliminated.
2. If your car doesn't start, check the ... and the fuel... .
3. If the battery is flat, try to ... or ... it.
4. If the ... tank is ... , fill it with petrol.
5. If the are dirty,... them.
6. Adjust the gap in a spark plug if it is too ... or too
7. If the petrol pump is broken, it must
8. If the tyres are ... , you should pump them up.
9. If you hear a loud ... , while turning the key, the starter motor may be jammed.
10. If it is jammed, try to move the car ... or
11. If the engine becomes too hot, there is a fault in the ... system.



4-mashq. A. Matnni o'qing:

Automotive Engines

Speaking about automotive engines one should say that the two most common types of engine for land vehicles are the petrol engine and the diesel engine.

Since petrol engines are usually lighter and smaller than diesel engines, they are cheaper. Therefore, most cars and motorbikes use petrol engines. Petrol engines are also less noisy than diesel engines. They usually go faster. On the other hand, diesel engines use less fuel and last longer than petrol engines, and this is why larger vehicles such as trucks and trains use them. They are also safer than petrol engines, because there is less danger of fire.

There are two main types of petrol engine — 4-stroke and 2-stroke. All cars and larger motor-cycles use 4-stroke engines. But most smaller motorbikes use 2-stroke engines. These are lighter and smaller than 4-stroke engines, and are therefore cheaper.

Savollarga javob bering:

1. Which is the lightest of the three engines (2-stroke, 4-stroke or diesel)?
2. Which is the least expensive?
3. Which is the noisiest?
4. Which is the largest?
5. Which is the safest? Why?
6. Which has the lowest fuel consumption?

Speak about:

The main systems of a car.

LESSON 10

Infinitive, forma va funksiyalari

there + kesim

to cause, to make, to force fe'llari

Text 10A. Laser

Text 10B. Optical Technology

Text 10C. An Encyclopedia on a Tiny Crystal

Text 10D. Science and International Cooperation

MATN OLDI MASHQLARI



1-mashq. Gaplarda infinitive funksiyalarini aniqlang, tarjima qiling:

1. To develop a new submersible craft with a manipulator is not an easy task.
2. To develop the supercomputer, highly developed electronics and new materials were required.
3. One of the best ways to keep the car speed steady is to use a computer.
4. Experiments helped Mendeleev to discover the properties of new chemical elements.
5. Francis Chichester was the first to sail round the world by himself.
6. Some materials with new useful properties may be produced in space.
7. A special electronic device signals the engine to stop.
8. Radar may control the brakes to avoid collisions with other cars.
9. High temperature alloys make it possible for jet engines to be operating under severe conditions for a long period of time.
10. Recently a radar to be mounted on cars has been developed.
11. In a new Japanese car the information to be received by the driver will come through a navigation earth satellite.
12. To help helicopters and aircraft find the capsule, its upper part is covered with special paint which can be detected by radar.
13. To detect objects at a distance such as ships, aircrafts, buildings, mountains, etc. is of great importance for navigation both at sea and in air.
14. The radar detects the stationary objects ahead of the car to warn the driver about them and slow down the speed.
15. We had fresh water to drink.
16. They returned to listen about our accident and help.
17. He asked permission to leave.



2-mashq. Namuna bo'yicha tarjima qiling:

There are many ways ... — ko'p usullari bor ...

There has appeared a new kind of vehicle. — apparatning yangi turi paydi bo'ldi

There is no doubt... — shubha yo'qki ...

1. There are unique conditions in space for producing materials with special qualities.
2. There exist different designs of submersible crafts in several countries.
3. There remains one more test to be carried out before using the device.
4. There has recently appeared a new way of communication through satellite networks.
5. There is no doubt that soon we shall see the appearance of a new kind of superliners and space crafts.
6. We have read that there exists an international organization that makes it possible to keep telephone and telegraph communication via satellite with ships in any part of the World Ocean.
7. There is no doubt that mankind will be able to explore the solar system by using nuclear rockets. But there still remain a lot of problems to be solved.



3-mashq. Gaplarni tarjima qiling va to cause, to take, to force fe'llarining ma'nolarini eslab qoling:

1. Weather changes are often caused by cyclones and anticyclones.
2. Work with deaf people made Al. Bell look for a way to help them and he began to study the theory of sound.
3. In internal combustion engines the pressure of gases forces the piston to go down.
4. The fact that Sofia Kovalevskaya couldn't continue her studies in Russia made her leave for Germany.
5. Heating causes the motion of molecules in a substance, the hotter it becomes, the quicker the molecules move.
6. Morse's interest in electricity made him start experimenting with it.
7. Sometimes bad weather forces the aircrafts to land.
8. In ordinary air it is possible to make electrons jump through space by means of pressure of high voltage.
9. The manager made Mary copy the report again.
10. They made him wait for an hour.



4-mashq. enough so'ziga e'tibor berib, tarjima qiling:

1. Materials used for superliner structures must be strong enough to withstand the air resistance at high speeds.
2. The «night vision» system is to be small enough to be used in automobiles.
3. The film must be interesting enough since everyone has already seen it. 4. New materials for hypersonic craft should be light enough because the weight of the aircraft structure is of the greatest importance.
4. Infrared rays emitted by any object on the road are to be intensive enough for sensors to pick them up.
5. The Voice Warning system for cars requires the connection of 18 wires, but it is simple enough to be installed in a car.



5-mashq. A. so'z birikmalarining o'zbekcha ekvivalentlarini toping:

before the turn of the century, fantastic story, sword of heat, mysterious sword of heat, has come to reality, the name stands for, light amplification, stimulated emission, mankind's oldest dream, to make lead run like water, technological tool, thermonuclear fuel, to have no time to disintegrate, experiments in heating, required temperature, dozens of times greater, in just a fraction of a second.

Texnologik vosita, qo'rg'oshinni suvdek oqishga majbur qiladi, nom bildiradi, insoniyatning azaliy orzusi, yorug'likning kuchayishi, o'tgan asr oxirida, indusirli emissiya (nurlanish), real holga keldi, fantastic viqea, qizitish bo'yicha tajribalar, talab qilingan harirat

B. So'z birikmalarini tarjima qiling:

a very pure colour, to vaporize the hardest materials, to vaporize any substance on the earth, to combine two technological discoveries, limitless source of energy, practically limitless source of energy, thermonuclear fuel, thermonuclear reaction, controlled thermonuclear reaction, current estimates, a billionth of a second, to work hard.



6-mashq. Internasional so'zlarni o'qing va tarjima qiling:

fantastic [faen'taestik], Martians ['ma:Jjanz], to stimulate ['stimjuleit], laser ['leiza], colour ['kɒlɪə], thermonuclear reaction, controlled thermonuclear reaction, energy, plasma ['plaezme], dozens ['dʌznz], practice ['praektis], practical ['praektikal], potential [pau'tenjal], intensive, intensity, principle, to

vibrate [vai'breit], fraction, project ['prodjekt], transmission, solar transmission, realise ['rialaiz], effect [1'fekt], Encyclopaedia [en,saiklau'pi:dja].



7-mashq. So'zlarni o'qing va talaffuz qilishni eslab qoling:

world [wa:ld], turn [ta:n], earth [a:0], invade [in'veid], sword [so:d], heat [hi:t], beam [bi:m], pure [pjua], mankind [maen'kaind], enough [i'riAf], vaporize ['veiparaiz], lead [led], focused ['faukast], treatment ['tri:tmant], vary ['veari], varied ['vearid], suggest [sa'djest], magic ['maecfeik], problem ['problem], combine [kom'bain], source [so:s], contribute [kan'tribjuit], duration [djua'reijan], pulse [paIs], though [5au], encounter [in'kaunta], encode [in'kaud], surface ['sa:fis], therefore ['Seafo:], doubt [daut], entire [in'taia], weapon ['wepan].

ESLAB QOLING

Amplification *n* — kuchyish
as well *adv* — shuningdek
approximately *adv* — deyarli
capacity *n* — quvvat
conduct *v* — olib bormoq
cost *n* — narx
duration *n* — davomiylik
enough *adv* — yetarli
entire *a* — to'liq, umumiy
fulfilment *n* — bajarish, amalga oshirish
single *a* — bitta, yolg'iz, yakka
suggest *v* — taklif, maslahat
tool *я* — asbob

heat *v* — isitmoq, issiqlik
heating — isitish
heat-resistant *a* — issiqlikka chidamli
indeed *adv* — harakat qilmoq
installation *n* — o'rnatish, yig'ish
involved *p.II* — bor bo'lgan, ko'rib chiqilayotgan
rapidly *adv* — tez
represent *v* — tasavvur qilmoq
stimulate *v* — qo'zg'amoq
treatment *n* — qayta ishlamoq
vary *v* — o'zgarmoq, o'zgartirmoq
weapon *я* — qurol

to meet the demands, the requirements — talablarga javob bermoq

in order to — ... uchun, ... tufayli

power plant — kuchlanish qurilmasi, elektrostansiya

Text 10A

Matnni o'qing va lazerlarni qo'llanilishi haqida gap ketgan abzaslarni toping, tarjima qiling:

Laser

In the «War of Worlds» written before the turn of the last century H. Wells told a fantastic story of how Martians almost invaded our Earth. Their weapon was a mysterious «sword of heat». Today Wells' sword of heat has come to reality in the laser. The name stands for light amplification by stimulated emission of radiation.

Laser, one of the most sophisticated inventions of man, produces an intensive beam of light of a very pure single colour. It represents the fulfilment of one of the mankind's oldest dreams of technology to provide¹ a light beam intensive enough to vaporize the hardest and most heat-resistant materials. It can indeed make lead run like water, or, when focused, it can vaporize any substance on the earth. There is no material unamenable² to laser treatment and laser will become one of the main technological tools quite soon.

The applications of laser in industry and science are so many and so varied as to suggest magic³. Scientists in many countries are working at a very interesting problem: combining the two big technological discoveries of the second half of the 20th century — laser and thermonuclear reaction — to produce a practically limitless source of energy. Physicists of this country have developed large laser installations to conduct physical experiments in heating thermonuclear fuel with laser beams. There also exists an idea to use laser for solving the problem of controlled thermonuclear reaction. The laser beam must heat the fuel to the required temperature so quickly that the plasma does not have time to disintegrate. According to current estimates, the duration of the pulse has to be approximately a billionth of a second. The light capacity of this pulse would be dozens of times greater than the capacity of all the world's power plants. To meet such demands in practice, scientists and engineers must work hard as it is clear that a lot of difficulties are to be encountered on route⁴. The laser's most important potential may be its use in communications. The intensity of a laser can be rapidly changed to encode very complex signals. In principle, one laser beam, vibrating a billion times faster than ordinary radio waves, could carry the radio, TV and telephone messages of the world simultaneously. In just a fraction of a second, for example, one laser beam could transmit the entire text of the Encyclopaedia Britannica.

Besides, there are projects to use lasers for long distance communication and for transmission of energy to space stations, to the surface of the Moon or to planets in the Solar system. Projects have also been suggested to place lasers aboard Earth satellites nearer to the Sun in order to transform the solar radiation into laser beams, with this transformed energy subsequently transmitted to the Earth or to other space bodies. These projects have not yet been put into effect⁵, because of the great technological difficulties to be overcome and, therefore, the great cost involved. But there is no doubt that in time⁶ these projects will be realized and the laser beam will begin operating in outer space as well.

Notes to the Text

to provide — olmoq, ega bo'lmoq

unamenable — bardoshli

as to suggest magic — mo'jiza singari

on route — yo'lida

put into effect — amalga oshirmoq

in time — vaqt o'tishi bilan

MASHQLAR



8-mashq. Savollarga 10 A matnidan javob toping:

1. What is this text about?
2. What does the word «laser» mean?
3. What is the laser, is it a device or some phenomenon?
4. Who was the first to write about lasers?
5. What writer from this country wrote a book about a laser?
6. What can a laser do?
7. Where can it be used?
8. What other uses do you know?



9-mashq. Qaysi ta'kidlar 10 A matniga to'g'ri keladi? Noto'g'ri gaplarni tuzating:

1. Laser means «light amplification by stimulated emission of radiation».
2. Laser produces an intensive beam of light.
3. In the next few years laser will become one of the main technological tools.
4. Martians almost invaded the Earth before the turn of the last century.

5. Laser and thermonuclear reaction can produce a limited source of energy.
6. The laser beam heats the fuel so quickly that the plasma disintegrates.
7. There are projects to transform lu nar radiation into beams.
8. The laser beam will begin operating in outer space.



10-mashq. 10 A matnidan kesim va maqsad holi vazifasidagi infinitivlarni toping:



11-mashq. Infinitive aniqlovchi va to'ldiruvchi vazifalarida kelgan gaplarni toping. Tarjima qiling:

1. To design, construct and operate a laser system is a great technological achievement.
2. To protect the water resources, forests and atmosphere, several laws were passed in Russia in the 1970s.
3. A very interesting problem is to produce a practically limitless source of energy.
4. There are projects to use lasers for long distance communication.
5. Automation makes it possible to obtain and develop new sources of energy.
6. To combine laser and thermonuclear reaction is a very interesting problem for the scientists in many countries.
7. To conduct physical experiments with laser beams, Russian physicists have developed large laser installations.
8. Some Western experts consider that it is practically impossible to protect big cities from pollution.
9. Lasers to be placed on Earth satellites will transform solar radiation into laser beams.
10. A special design bureau in St. Petersburg was the first in the world to develop production of superlong escalators.
11. To put some projects with lasers in operation, great technological difficulties must be overcome.
12. One of the ways to make planes as economical as possible is to lighten the aircraft by using new composite materials.
13. Signals to be measured must be strong enough.



12-mashq. Aniqlovchi nima bilan ifodalanganini ayting. Tarjima qiling:

1. The new system developed increased the safety and efficiency of a car.
2. The laser's most important potential use may be its long distance

communication applications.

3. 3. Provided the problems of using laser for controlled thermonuclear reaction were solved, the capacity of the pulse received would be much greater than that of all the world's power plants.
4. All a pilot needs to do is to tune to radio transmitters and he will get direction signals he needs.
5. One of the problems scientists are working at is to transmit energy to space stations by using lasers.
6. Laser provides a light beam intensive enough to vaporize the hardest and most heat-resistant materials.
7. A hypersonic aircraft will require complicated cooling measures because of the extreme temperatures involved.
8. A new electronic device to be installed in the car's panel will calculate how far one can drive on the fuel left.
9. The hardest materials a laser beam is aimed at vaporize within a fraction of a second.
10. Aircraft designers are interested in all kinds of new materials that are strong enough to be used for high-speed airliners.
11. Noise and vibration are also the problems to be faced by designers of hypersonic crafts.
12. Besides, there is one more problem to be studied — that of surface cooling.
13. The ordinary aircraft windows would make the future superliner structure too weak to withstand great stresses developed.
14. Every student of Cambridge is to go to his tutor once a week to discuss with him the work done.

MUSTAQIL ISHLASH UCHUN MASHQLAR



13-mashq. Suffiks va prefikslardan so'z turkumlarini toping:

encode, capacity, disintegrate, emission, widen, intensive, incredible, defence, stranger, reality, strengthen, fulfilment, indestructible, amplification, substance, entirely, vaporize.



14-mashq. Quyidagi so'zlardan kelib chiqqan so'zlarni toping, tarjima qiling:

limit, transmit, approximate, success, science, relate.



15-mashq. O'zbekcha so'zlarning inglizcha muqobilini toping:

O'rnatmoq — installment, installation, install;

farq — differ, difference, different;

bo'linmoq, ajralmoq — disintegrator, disintegration, disintegrate;

qo'llanadigan — application, applicable, apply;

mustaxkamlanoq — strong, strength, strengthen;

effektiv — efficient, efficiency, efficiently;

kuchaytirgich — amplification, amplifier, amplify.



16-mashq. Toping:

a) sinonim

rapidly, sophisticated, to conduct, demand, almost, quickly, to carry out, approximately, opportunity, requirement, also, use, to fulfill, complex, as well, to realize, application, possibility;

b) antonim

further, integrate, cooling, outside, powerless, uncontrolled, limited, disintegrate, nearer, capable, limitless, controlled, incapable, powerful, heating, inside.



17-mashq. Take va light so'zlarining turli ma'nolariniga e'tibor berib, tarjima qiling:

What makes a soap bubble (sovun ko'pigi) rise and fall. If a soap bubble does not break at once, it will begin to fall. Why? To explain this, we must remember a balloon which is filled with hot air. It rises for some time and then it falls again. A balloon rises because the hot air inside it is lighter than the air round it, and as it is lighter, it must rise. When the air inside a balloon cools, the weight of the balloon itself makes it fall. A soap bubble is really a little balloon filled with hot air. This air is much lighter than the air outside. It can carry the weight of the water which makes the skin of the soap bubble. But this cannot last for a long time, because the skin of the soap bubble is very thin. The bubble becomes as cool as the air around it and it begins to fall. It is interesting to know that the early experiments with balloons were based on soap bubbles.



18-mashq. Tarjima qiling:

There is a large garage on Seventh Street that provides work for eleven men. There is one man who meets the customers. There are two other men who take care of batteries. There is another man who washes cars. There are three other

men who sell gas and oil. There is another man who repairs timers. There are two men who work with engines and there is one man who sells tires. There is no better place for automobile service.



19-mashq. Nuqtalar o'rniga to be fe'lining kerakli shakllarini qo'ying:

I ... now in the garage on Seventh Street. There ... three cars here. One ... a Ford. There ... a man in it. He ... buying a tire. One car ... a Buick. There ... five people in it. There ... a third car. A man and his wife ... in it. Their battery ... dead. The two battery men ... looking at it. «I... sure you will have to rent a battery», one man says. «We ... a long way from home», the man in the car answers. «We ... not here often. We must buy a battery. There ... nothing else to do».



20-mashq. Fe'llarni kerakli formada qo'ying, eslab qoling:

chosen, fed, costing, put, overcome, coming, made.



21-mashq. O'qing va lug'atsiz tarjima qiling:

To understand why light from the laser is so concentrated, you must know that light travels in waves. Ordinary white light is made up of many wavelengths travelling in every direction. Laser light is essentially of one wavelength, with all the waves moving in one direction. Because the laser wavelengths intensify each other, they can remain in an unbelievably straight beam for a long distance. Almost any substance can be forced to «lase» if you work hard enough with it. Gas lasers give off continuous beams of light. Tiny semiconductor lasers may be especially useful in computers for transmitting signals to replace the use of cables. Many lasers can give off invisible radiation, either infrared or ultraviolet.

CONVERSATION



Exercise 1. Answer the questions.

What is a laser? (a device producing an intensive beam of light) 2. What is its principle of operation? (light amplification by stimulated emission of radiation) 3. What light is produced by a laser? (light of pure single colour) 4. What can be done by means of a laser? (vaporizing the hardest materials) 5. What materials can be treated with a laser? (practically any material and any substance)

What is the most promising use of lasers? (the use in all kinds of communication) 7. What prevents putting into effect the projects to use lasers more widely in space? (great technological difficulties and great cost involved)



Exercise 2. Make a sentence out of the two parts.

1. A laser can find
2. It is very interesting to combine
3. There is an idea
4. In this case a laser beam
5. The light capacity in a laser installation should be dozens of times greater
6. To develop such a laser system in practice
7. Scientists and engineers must work

1. must heat the fuel to the required temperature very quickly.
2. very wide application.
3. hard to overcome numerous technological difficulties.
4. is not an easy task.
5. to use a laser for solving the problem of controlled thermonuclear reaction.
6. laser and thermonuclear reaction to produce a limitless source of energy.
7. than the capacity of all the world's power plants.



Exercise 3. A. Read and learn

I Want to Read Faster

Mary: I've read a detective story. It wasn't very good so I wasted (vaqt yo'qotish) much time.

Jane: Oh, it takes me now not more than an hour to read a novel.

M.: Really?

J.: Two months ago it would have taken me about two days. It is a pity you didn't join me when I was taking speed-reading course.

M.: Two things hold me back. Doubts that any system could radically and permanently increase my speed. And money for the courses.

J.: But I thought that if I could double my speed, the sum wouldn't be so much.

M.: Sure, you are right. By the way, some authorities say it isn't reading. Though a lot of unread newspapers, books and magazines about the house might fall on me. My present work day reading is 200 words per minute, it is very slow. How are those speed reading courses?

J.: Great, today 50,000 students a year take these courses.

M.: How long does this course last?

J.: Eight weeks, a 2,5 hour session a week plus an hour a day drill.

M.: What is your speed now?

J.: The final test showed that my speed was 1520 w.p.m. The book was the same we have used for our entrance exam.

M.: But you can lose the technique.

J.: It is another question. The only wide survey (so'rov) of ex-students — 1800 of them — showed that after a year one third of the people weren't using the method at all. Another third said they use it sometimes and that probably they have kept speed. But the rest of the students said they were reading faster than a year later.

B. Answer the following questions:

Are you a fast or a slow reader?

In what situations can fast reading be useful in your opinion?

Would you like to improve your reading speed? Why?

Can all books be read quickly? Why (not)?



Exercise 4. Comment on the following statement.

Every student ought to be able to read very fast.

One point of view: Reading requires thought; one needs time for thinking, reading ought to be a kind of dialogue with the author — this requires time; quality is more important than quantity.

A contrary point of view : Fast reading does not mean careless reading, nothing is left out, thinking can be very fast, fast reading is reading for meaning, it saves time (iqtisod qilmoq, asramoq) also for thinking, it is very important for a person to get a great deal of information in as little time as possible.



Exercise 5. Conduct a scientific meeting on: «Laser and its applications».

Use texts 10A, 10B, and IOC as a basis for the preparation of an oral talk (og'zaki xabar), short abstracts (qisqacha tushuntirish), summary (referat) of the presentation and for the discussion of the theme (mavzu).

Useful Words and Phrases of Scientific Communication at a scientific meeting, conference, round-table discussion, symposium, colloquium, seminar, session, congress, etc.

Stages of a meeting	Phrases
	Chairman
Opening a meeting	I declare the meeting open. Right, can we start? Ladies and Gentlemen, are we ready to begin? OK then, perhaps we could make a start?
Introducing a speaker	I have a great pleasure to introduce Dr. (Prof.) Baker, an expert in ... Our first speaker, Dr Baker, will speak on...
Interrupting a speaker	May I draw your attention to the fact that this point will be discussed later?
Opening a discussion	And now I'd like to open the discussion on the presentation given by Dr Baker. Are there any questions to Dr Baker?
Ending a discussion	May I propose that we stop there?
Thanking	Pm sure Pm speaking for everyone when I say how grateful we are to Dr Baker for his informative (excellent) presentation, (talk, speech, lecture). Pd like to thank everybody here.
Ending a meeting	I declare the meeting closed. Speaker
Introducing the report	Mr. Chairman, Ladies and Gentlemen, it is a great honour to address this meeting (conference); Pd like to talk in my report about ... First of all (in the first place) Pd like to name the main points of my paper.

While reporting

**Now, let us turn to the point ...
The second point is ...
Moving to point three ...And finally ...
So much about ...
Pd like to attract your attention to ...
Allow me to call your attention to ...
I should like to note (emphasize) ...**

**If you look at this diagram ...
Have a look at ...**

**If you remember. I mentioned ...
As I've already mentioned ...**

**Do you see what I mean ...
Do you follow me...
As far as I know ...
Sorry, I got lost ...**

Ending the report

In conclusion Pd like to stress the importance ... Thank you for your attention.

Introducing oneself

Questions

Audience

**Introducing oneself My question is as follows ...
...
I have a question to ask ...
One question is, the second question is ...
Pd like to ask a question in this connection...
There is a practical question which ...
Pd like to ask a question concerning ...
May I address a question to Dr. B.? Is it possible to describe simply, how...**

**I think you are entirely right speaking about...
Pd like to express agreement with the speaker**

**But I am not sure you are right.
I am very sorry to have to say that I don't agree with Dr. B.**

<p>Agreement with the speaker</p>	<p>Unfortunately, I cannot agree with your final statement. I wish I could agree with you but... We are not yet certain....</p>
<p>Disagreement</p>	
<p>Making remarks</p>	<p>This is an interesting work but it has a lack... It is surprising... It is unbelievable... I'm not surprised that it is possible... I find it hard to believe... I'd like to make a comment of general nature... I'd like to make two more remarks... I have a few points to make... I have just a small point, but it may make things much clearer a bit. Excuse me, but I'd just like to point out...</p>
<p>Making contribution to the discussion</p>	<p>I'd like to add in connection with... In addition, I'd like to mention... Let me put some more questions...</p>



Exercise 6. Read and smile.

A Story Too Terrible To Tell

Three men came to New York for the first time. They took a room in a hotel. In the evening they went sight-seeing and did not come back till nearly three in the morning. The room they had taken was on the 43rd floor. «I am sorry, gentlemen», said the porter, «but the elevator does not work, there is something wrong with it. You will have to walk up to your room». This was too bad, but the men agreed to tell stories on the way up in order to kill the time.

By the time the first one had told his story, they had climbed up to the 11th floor. The next story kept them amused till they had reached the 31st floor. At last it was time for the third man to tell his story, but he refused. He said the story he had in mind was too terrible, he simply couldn't tell it. They continued climbing and all the time the two asked him to begin. At last they stopped and refused to go on unless he told them his terrible story. «The story I have to tell you is a short one», he said at last, «we have left the key to our room downstairs with the porter».

Text 10B

Matnni o'qing va aloqa texnikalarida optikadan foydalanish haqida ma'lunit toping. Optik aloqaga nima asos bo'lganini aniqlang, optik texnologiyani amalda qo'llanilishi haqida gapiring. 1960, 1970, 1982 yillar bilan bog'liq ma'lumotlarni solishtiring:

Optical Technology

One of the most interesting developments in telecommunication is the rapid progress of optical communication where optical fibers are replacing conventional telephone wires and cables. Just as digital technologies greatly improved the telephone system, optical communication promises a considerable increase in capacity, quality, performance and reliability of the global telecommunication network. New technologies such as optical fibers will increase the speed of telecommunication and provide new, specialized information service. Voice, computer data, even video images, will be increasingly integrated into a single digital communication network capable of processing and transmitting virtually any kind of information.

It is a result of combining two technologies: the laser, first demonstrated in 1960, and the fabrication 10 years later of ultra-thin silicon fibres which can serve as light wave conductors. With the further development of very efficient lasers plus continually improved techniques to produce thin silica fibres of incredible transparency, optical systems can transmit pulses of light as far as 135 kilometers without the need for amplification or regeneration.

At present high-capacity optical transmission systems are being installed between many major US cities at a rapid rate. The system most widely used now operates at 147 megabits (thousand bits) per second and accommodates 6,000 circuits over a single pair of glass fibres (one for each direction of transmission). This system will soon be improved to operate at 1.7 gigabits (thousand million bits) per second and handle 24,000 telephone channels simultaneously.

A revolution in information storage is underway with optical disk technology.

The first digital optical disks were produced in 1982 as compact disks for music. They were further developed as a storage medium for computers. The disks are made of plastics coated with aluminium. The information is recorded by using a powerful laser to imprint bubbles on the surface of the disk. A less powerful laser reads back the pictures, sound or information. An optical disk is almost indestructible and can store about 1000 times more information than a plastic disk of the same size.

One CD-ROM disk (650 MB) can replace 300,000 pages of text (about 500 floppies), which represents a lot of savings in databases.

The future of optical storage is called DVD (digital versatile disk). A DVD-ROM can hold up to 17 GB, about 25 times an ordinary CD-ROM. For this reason, it can store a large amount of multimedia software and complete full-screen Hollywood movies in different languages. However, DVD-ROMs are «read-only» devices. To avoid this limitation, companies also produce DVD rewritable drives.

Besides, it is reported that an optical equivalent of a transistor has been produced and intensive research on optical electronic computers is underway at a number of US companies as well as in countries around the world.

It is found that optical technology is cost-effective and versatile. It finds new applications every day — from connecting communication equipment or computers within the same building or room to long-distance transcontinental, transoceanic and space communications.

Text 10C

Matnni o'qing va lazerlarni amalda qo'llanishi haqida gapiring.

An Encyclopedia on a Tiny Crystal

Scientists have discovered that a laser beam can be effectively used to record alphanumeric data and sound on crystals. According to Russian researchers a method for recording information on crystals by means of a laser has already been developed, but advanced technologies are needed to make it commercially applicable.

At present researchers are looking for the most suitable chemical compounds to be used as data storages and trying to determine optimum recording conditions. Theoretically, the entire «Great Soviet Encyclopedia» can be recorded on a single tiny crystal.

As far back as 1845, Michael Faraday discovered that a light beam reverses its polarization as it passes through a magnetized crystal. Scientists of our day have used this phenomenon to identify crystalline materials capable of storing information. Lasers have been successfully employed to record information on and read it off.

No ideal data storage crystal has yet been found, but it is obvious now that the future of computer engineering lies in lasers and optoelectronics.

Text 10D

Matnni o'qing va rivojlanayotgan xalqaro hamkorlik haqida gapiring.

Nima uchun bunday hamkorlik zarur?

Shunday hamkorlik tashkilotlariga a'zo davlatlar haqida gapiring.

Davlatlar nomlari talaffuzini esda saqlang.

Science and International Cooperation

One of the most striking features of modern science is the increasing tendency towards closer cooperation between scientists and scientific organizations (institutions) all over the world. In fact, it is becoming more and more evident that many of the problems that affect the world today cannot be solved without joining scientific efforts and material resources on a world-wide scale. The exploration of space, world finance, global environment protection problems and the development of new sources of power are the examples of areas of scientific research which are so costly and complicated that it is difficult for a single country to solve them efficiently and in a short period of time. The renewal of international scientific cooperation was demonstrated in the sharing of data which were obtained by Russian, Japanese and European space probes in 1986 on Hailey's comet.

Many countries were successfully cooperating on a programme called Intercosmos in launching a large number of vertical geophysical rockets and satellites. Space exploration programmes were being conducted between Russia and Austria, India, France, Sweden and other countries. Joint manned flights by Russian and foreign cosmonauts included citizens from numerous countries. Many international crews have worked on orbit and carried out a lot of scientific experiments.

Russian and the U.S. engineers are now working side by side on the International Space Station, the largest peacetime engineering project in history. Launched from opposite sides of the world, the first International Space Station components Zarya and Unity have begun a new era of exploration as 16 nations joined their scientific and technological resources in the first truly international space program to improve life on Earth. Even before its launch, the International Space Station has opened new spheres of research on Earth by overcoming barriers of language, culture and technological differences worldwide.

Indeed, it represents unprecedented (favqulodda) global cooperation and trust. There is no doubt that it is the first step towards a unified «planetary civilization» that will explore space as citizens of Earth, not of individual nations.

QO'SHIMCHA TOPSHIRIQLAR



1-mashq. A. 10A matnidan so'z birikmalarini o'qing va ajratib ko'rsatilgan so'zlarning ma'nosini topishga harakat qiling:

time to disintegrate

the duration of the pulse

to be encountered

in just a fraction of a second

B. A qismdagi ajratib ko'rsatilgan har bir so'zga ma'nosi bo'yicha to'g'ri keladigan so'z toping:

to meet unexpectedly

only, merely

break up into small parts

time during which smth lasts or exists



2-mashq. Matnni o'qing va off-the-shelf item so'zining ma'nosini tushunishga harakat qiling. Ushbu termning tushuncha bering:

Laser Propulsion

Another approach is to absorb laser light in a plasma «flame» sustained by laser light focused in the center of a flowing stream of propellant gas. Thrust levels as high as 10,000 N with a specific impulse (impuls) of 1,000 sec appear achievable using hydrogen as the propellant gas. Laser power as low as 1 MW would be useful for low Earth orbit launching without relay optics. 10—100 MW lasers can launch small payloads from the ground. With up to 100 launches a day, a 20 MW launcher weighing 20 kg could place several hundred tons in orbit per year. Low-gigawatt lasers could launch multi-ton spacecraft with the same ease that present multi-gigawatt chemical rockets do. Laser rockets will have much better payload fraction since the heavy power plant is left on the ground and the higher specific impulse results in lower propellant fraction. Although gigawatt lasers are not off-the-shelf items, there is no doubt they could be built if the need were strong enough.

B. Ajratib ko'rsatilgan so'zlarga A matnidan to'g'ri keladiganini toping:

approach

coming near to

approximation, a way to solve a problem

way, path, road

sustain

enable to keep up, maintain

suffer, undergo

keep from falling

relay

supply of fresh horses to take the place of tired ones

device which receives signals and transmits them with greater strength, thus increasing the distance over which they are carried

place from which radio programs are broadcast after being received from another station

payload

passengers and cargo, but not fuel

bomb in a missile

crew and instruments of a spaceship item

each single thing, part or object in a list

detail or paragraph (of news)

number of a program off-the-shelf

commercially available

ready to use

possible or likely



3-mashq. Nuqtalr o'rnini to'ldiring:

A.

Capacity as well laser information light existing advantage space doubt amplified cost conventional heat treatment distance melt identify beams vaporize displays light communication.

Optical fibres are made of glass and use (1) ... (usually from a (2) ...) to transmit messages. There is no (3) ... optical fibre systems have enormous (4) ... over (5) ... transmission systems. They have a much higher (6) ... than copper wires, can carry much more (7) ... and have a potentially lower material (8) ... Besides, optical fibres occupy far less (9) ... The quality of transmission is high (10) ... The signal does not need to be (11)... as often as with (12)... cables. Optical fibres do not suffer from interference.

B.

Heat treatment distance melt identify beams vaporize displays light communication.

Nowadays, lasers are used to (1) ... targets in military uses. In engineering,

powerful laser (2) ... can be focused on a small area. They can (3) ..., (4) ..., or (5) ... material in a very precise way. Lasers are ideal for (6) ... in space. Laser light can travel long (7) ... without losing signal strength. In medicine, laser beams can be used for the (8) ... of damaged tissue (ткань) in a fraction of a second without causing harm (вреда) to healthy tissue. In the arts, lasers can provide fantastic displays of (9) ... Pop concerts are often accompanied by laser (10) ...



4-mashq. A tomondagi fe'llar va B tomondagi otlardan gaplar tuzing:

A
1. come to
2. overcome / encounter
3. record / store / carry
4. realize
5. place

B
a. information, data, sound
b. into orbit
c. a project
d. reality
e. difficulties, differences



5-mashq. Jadvalni to'ldiring:

Verb	Noun	Adjective
identify	...	• ♦ •
...	...	vaporous
amplify	„	—
...	idealization	• • •
...	. • •	strong
...	variety	...
...	...	limitless
...	precision	...
treat	...	



6-mashq. A. «Laser applications» mavzusida 10-15 ta kalit so'z ayting.

B. Speak about:

Laser as a means of propulsion.

LESSON 11

either, neither so'zlarining ma'nolari

Text 11A.Superconductivity Text 11B.

Text 11C.New Hope for Energy

Text 11D.Massachusetts Institute of Technology

MATN OLDI MASHQLARI



1-mashq. Murakkab to'ldiruvchili gaplarni tarjima qiing:

1. We know Morse to have been a painter by profession.
2. Scientists expect lasers to solve the problem of controlled thermonuclear reaction.
3. M. Faraday supposed a beam of light to reverse its polarization as it passed through a magnetized crystal.
4. Designers expect dirigibles to be used for exploration of new territories.
5. Japanese designers believe a new ceramic engine to replace the conventional one.
- 6 Engineers suppose a new «night vision» system to enable drivers to see better after dark.
7. Scientists believe new laser devices to be widely used in medicine.
8. We know the first digital optical disks to have been produced as disks for music.
9. They believed him to be capable.



2-mashq. Gaplarda infinitivni toping, tarjima qiling:

- A.**
1. Hundreds of radio navigation stations watch the airplanes find their destination and land safely.
 2. Twice a year people see birds fly south and north, but we don't know how they find their way.
 3. At the Paris Exhibition people watched the cargo airplane «Ruslan» carry a great amount of cargo.
 4. When you stand near a working engine you feel it vibrate.

5. Making experiments with electric telegraph Morse noticed a pencil make a wavy line when connected to an electric wire.

6. Nowadays people watch on television cosmonauts work in space, «Lunokhod» move on the surface of the Moon and Olympic games take place on the other side of the globe.

B. 1. A force applied to a body causes it to move in a straight line.

2. The unsatisfactory results of Bell's experiments forced him to change the method of testing.

3. The excellent properties of Damascus steel made metallurgists of the whole world look for the lost secret of the steel.

4. Very high temperatures often cause certain materials to break.

5. Bad weather conditions make pilots switch over to automatic control.



3-mashq. for predlogi bilan kelgan infinitive oborotga e'tibor berib, tarjima qiling:

1. It was the only thing for us to do.

2. The students were waiting for the lecturer to describe the properties of a new composite material.

3. It is for you to decide which of the two methods to use.

4. It is necessary for the students to know the properties of various alloys.

5. A system of satellites is provided for people to watch the central TV program.



4-mashq. A. Murakkab ergash gaplarni tarjima qiling:

1. Students of Cambridge are supposed to wear gowns at lectures.

2. The first pocket-size colour television sets were reported to have been developed.

3. Today's aircraft is expected to be replaced by a new model of hypersonic aircraft in a few years.

4. Intensive research on optical-electronic computer is said to be going on in a number of US companies.

5. A method for recording information on crystal by means of a laser is known to have been developed by a Russian researcher.

6. The annual output of personal computers is expected to reach millions in the near future.

7. The laser is known to be a device producing an intensive beam of light by amplifying radiation.

8. Optical technology has been found to be cost-effective.

9. The optical equivalent of a transistor is reported to have been produced.

B.1. Our present-day life seems to be quite impossible without telephone, radio, and television.

2. Nowadays the principle of radio operation seems to be quite simple.

3. The term «radar» is known to be composed of the first letters of «radio, detection and ranging». It happens to reflect its basic principle, that is, the location of an object at a distance.

4. About 50 per cent of Lake Baikal water proved to have been polluted since the Baikal plant has begun its work.

5. Lasers appeared to be highly useful for solving the problem of controlled thermonuclear reaction and communication.

6. A system of Earth satellites appears to have solved the problem of transmitting the central TV program to any part of the world.

7. Electricity proved to be able to travel instantly over a long piece of wire.

C. 1. Dirigibles are likely to be used for taking tourists to distant and beautiful places.

2. Lasers are unlikely to be used in our everyday life soon.

3. Superconductivity is certain to bring about new discoveries in science and technology.



5-mashq. O'qing, ajratib ko'rsatilgan so'zlarni eslab qoling:

: Do you know what the words either and neither mean?

: Yes, I do. Either means *har bir, har qaysi*, while neither stands for бирортасихам.

: That's correct. Can you give examples?

: Yes I can. For example: There is a number of lecture rooms on either side of the corridor. Which of these dictionaries can be used for translating a technical article? You may use either.

: And in what way is either translated when it is used with or? For instance: «Please, bring some dictionaries either from the library or from the reading room.»

: Either ... or... means *yoki ... yoki, yoki... yoki*.

: Now let us speak about neither, it is the negative form of either, meaning *unisi ham...bunisi ham*. For instance: I was offered two books, but I took neither of them, as I did not like them.

: And neither connected with nor means ... , for example: These problems seemed difficult neither to my friend, nor to me.

: Are these words used in any other way?

: Yes, they may be used in short negative sentences such as: «I don't like

this book», said Peter. «Neither do I», said Ann, which means *menga ham* (yoqmayapdi). I shall not go to the library tomorrow. He won't go either. *U ham* (bo'lmaydi, to'g'ri kelmaydi).



6-mashq. Tore va much so'zlarining har xil ma'nolariga e'tibor berib, tarjima qiling:

1. One more present-day complicated problem to be solved is that of combining laser and thermonuclear reaction to produce a practically limitless source of energy.

2. A Japanese company is planning to install several more electronic devices on the car instrument panel.

3. The Voice Warning System is one more electronic device.

4. If you make half-hour breaks while getting ready for your exams, your brain will work much more efficiently.

5. Aerodynamics is one more problem to be taken into consideration when designing a hypersonic craft.

6. The wheel-computerized system is much more efficient than those used previously.

7. Cryogenic fuels used both as coolant and propellant make the solution of the superliner surface cooling problem much easier to solve.

8. The fact that dirigibles are much larger in size and their staying power is much longer than those of an aircraft makes them ideally suited for exploration.



7-mashq. O'zbekcha ekvivalentlarini toping:

the physics discoveries, discoveries that led to, the scientific advantage, advantage could well come to nation, to bring the mankind to, mercury wire, unexpected phenomenon, to return to normal state, by passing electric current, by applying magnetic field, to make a great contribution, they introduced a model, a model proved to be useful, a theory won for them the Nobel Prize, research in superconductivity, research became especially active, the achieved record of 23 K.

tadqiqotlar juda jadallashdi, o'ta o'tkazgichlar ustida tadqiqot, ularga Nobel mukofotini olib kelgan nazariya, insoniyatni...ga olib kelmoq, fan imkoniyati, fizika sohasidagi kashfiyot, 23 K-ga oin kelgan record, ...ga olib kelgan kashfiyotlar, millat (mamlakat) imkoniyat olishi mumkin, simob g'altagi, odatiy holatga qaytish, elektr tokini o'tkazib, katta hissa qo'sjmoq, kutilmagan holat, ular yangi modelni taklif qilishdi, magnit maydoni hosil qilib, model samarali bo'lib chiqdi.



8-mashq. Internasional so'zlarni o'qing va eslab qoling:

prestige [pres'ti:ʒ], nation ['neiʃən], Nobel prize [nau'bel praiz], absolute zero [ˈæbsəlu:t ˈziərəʊ], phenomenon [fi'nɒmɪnən], normal, magnetic, electromagnetic, theory ['Giəri], theorists ['Giəristz], fundamental theory, physics, physicist, model ['mɒdi], metallic [mi'taelik], ceramic [si'raemik], colleagues ['kɒli:gz], laboratory, critical temperature, fabricate, extremely [iks'tri:mli], process ['preuses].



9-mashq. So'zlarni o'qing va talaffuzini eslab qoling:

latest ['leitist], spectacular [spek'tækjula], breakthrough ['breik'Qru:], compare [kam'peə], award [a'wo:d], research [ri'saɪtf], mercury ['ma:kjuri], wire ['waia], below [biləʊ], 5 °C ['faiv di'gri:z 'sentigreid], completely [kam'pli:tli], return [ri'ta:n], either ['aɪde], finally ['faɪnəli], Zurich ['zjuəri:k], previously ['pri:vjəslɪ], throughout [θru:'aʊt], liquid ['likwid], nitrogen ['naitradʒən], lose [lu:z], moreover [mo:'raʊvə], lack [læk].

ESLAB QOLING

achievement *n* — muvaffaqiyat

below *adv* — pastda

benefit *n* — foyda

boil *v* — qaynamoq

continue *v* — davom ettirmoq

cool *v* — sovutmoq

current *n* — elektr toki

discover *v* — ochmoq, kashf etmoq

finally *adv* — nihoyat

introduce *v* — kiritmoq

lack *v* — muxtoj bo'lmoq

lose *v* — yo'qotmoq

master *v* — egalik qilmoq

moreover *adv* — kattaroq, ko'proq

pass *v* — o'tkazmoq

present *v* — taqdim qilmoq

previously *adv* — oldindan

prominent *a* — mashhur, taniqli

random *a* — tasodifan, favqulodda

resistivity *n* — qarshilik

return *v* — qaytmoq

satisfactory *a* — qoniqarli

suddenly *adv* — birdaniga, to'satdan

sufficiently *adv* — yetarli

tend *v* — intimoq

wire *n* — o'tkazish

Text 11A

Matnni o'qing. O'ta o'tkazuvchanlik etaplari va bu sohada katta ishlar qilgan olimlar haqida gapiring:

Superconductivity

According to the prominent scientist in this country V.L. Ginzburg the latest world achievements in the field of superconductivity mean a revolution in technology and industry. Recent spectacular breakthroughs¹ in superconductors may be compared with the physics discoveries that led to electronics and nuclear power. They are likely to bring the mankind to the threshold of a new technological age. Prestige, economic and military benefits could well come to the nation that first will master this new field of physics. Superconductors were once thought to be physically impossible. But in 1911 superconductivity was discovered by a Dutch physicist K. Onnes, who was awarded the Nobel Prize in 1913 for his low- temperature research. He found the electrical resistivity of a mercury wire to disappear suddenly when cooled below a temperature of 4 Kelvin ($-269\text{ }^{\circ}\text{C}$). Absolute zero is known to be 0 K. This discovery was a completely unexpected phenomenon. He also discovered that a superconducting material can be returned to the normal state either by passing a sufficiently large current through it or by applying a sufficiently strong magnetic field to it. But at that time there was no theory to explain this.

For almost 50 years after K. Onnes' discovery theorists were unable to develop a fundamental theory of superconductivity. In 1950 physicists Landau and Ginzburg made a great contribution to the development of superconductivity theory. They introduced a model which proved to be useful in understanding electromagnetic properties of superconductors. Finally, in 1957 a satisfactory theory was presented by American physicists, which won for them in 1972 the Nobel Prize in physics. Research in superconductors became especially active since a discovery made in 1986 by IBM² scientists in Zurich. They found a metallic ceramic compound to become a superconductor at a temperature well above³ the previously achieved record of 23 K.

It was difficult to believe it. However, in 1987 American physicist Paul Chu informed about a much more sensational discovery: he and his colleagues produced superconductivity at an unbelievable before temperature 98 K in a special ceramic material. At once in all leading laboratories throughout the world superconductors of critical temperature 100 K and higher (that is, above the boiling temperature of liquid nitrogen) were obtained. Thus, potential technical uses of high temperature superconductivity seemed to be possible and

practical. Scientists have found a ceramic material that works at room temperature. But getting superconductors from the laboratory into production will be no easy task. While the new superconductors are easily made, their quality is often uneven. Some tend to break when produced, others lose their superconductivity within minutes or hours. All are extremely difficult to fabricate into wires. Moreover, scientists lack a full understanding of how ceramics become superconductors. This fact makes developing new substances largely a random process. This is likely to continue until theorists give a fuller explanation of how superconductivity is produced in new materials.

Notes to the Text

spectacular breakthroughs — olamshumul kashfiyot
IBM — ABM kompaniyasi
well above — biroz yuqori

MASHQLAR



10-mashq. 11A matni o'qing va quyidagi savollarga javob bering:

1. What is this text about?
2. What is the phenomenon of superconductivity?
3. Who was the first to discover the phenomenon?
4. What scientists do you know who have worked in the field of superconductivity?
5. What materials are the best superconductors?
6. Is it possible to return superconducting materials to the normal state?
7. How can it be done?
8. In what fields of science and technology can the phenomenon of superconductivity be used?



11-mashq. Qaysi ta'kidlar 11A matniga mos keladi. Mos kelmaganlarini tushuntiring:

1. The latest achievements in superconductivity mean a revolution in technology and industry.
2. Superconductors were once thought to be physically impossible.
3. The achievements in superconductivity cannot be compared with the discoveries that led to electronics and nuclear power.
4. The electrical resistivity of a mercury wire disappears when cooled below 4K.

5. A superconducting material cannot be returned to the normal state.
6. Landau and Ginzburg introduced a model which was useful in understanding electromagnetic properties of superconductors.
7. Scientists from IBM found a ceramic material that became a superconductor at a temperature of 23 K.
8. Potential technical uses of high temperature superconductivity are unlikely to be possible and practical.



12-mashq. 11A matnidan infinitive konstruksiyatni toping:



13-mashq. Gaplarni taqqoslang, tarjima qiling:

1. Designers report a new manned craft to be able to submerge to the depth of 21,000 feet. A new manned craft is reported to be able to submerge to the depth of 21,000 feet.
2. We know radio navigation stations to be located at different places around the world to guide the pilots. Radio navigation stations are known to be located all over the world to guide the pilots.
3. People considered dirigibles to be too slow and unreliable, that is why they were not used for a long time. Dirigibles were considered to be slow and unreliable.
4. Experts expect the new submersible craft to move round the ocean floor like a sports car. The new submersible craft is expected to move round the ocean floor like a sports car.
5. Scientists in many countries consider propeller engines to be much more economical. Propeller engines are considered to be much more economical.
6. We know propeller planes to fly slower than jet planes, therefore, a new ventilator engine with a propeller has been built. But as propeller planes are known to fly slower than jet planes a new ventilator engine with a propeller has been built.



14-mashq. Murakkab ergash gaplarni toping, tarjima qiling:

1. The phenomenon of superconductivity appears to have been discovered as early as 1911.
2. Before 1911 superconductivity was assumed to be impossible.
3. Recent discoveries in superconductivity made scientists look for new conducting materials and for practical applications of the phenomenon.
4. The latest achievements in the field of superconductivity are certain to make a

revolution in technology and industry.

5. Recommendations from physicists will allow the necessary measures to be taken to protect the air from pollution.

6. Lasers are sure to do some jobs better and at much lower cost than other devices.

7. M. Faraday supposed a light beam to reverse its polarisation as it passed through a magnetised crystal.

8. Superconductors are likely to find applications we don't even think of at present.

9. A Dutch physicist found a superconducting material to return to normal state when a strong magnetic field was applied.

10. Properties of materials obtained in space prove to be much better than those produced on Earth.

11. There are prospects for lasers to be used in long distance communication and for transmission of energy to space stations.

12. The electrical resistivity of a mercury wire was found to disappear when cooled to $-269\text{ }^{\circ}\text{C}$.

13. Additional radio transmitters let the pilot make his approach to an airport by watching his flight instruments.

14. There seems to be a lot of alloys and compounds that become superconductors under certain conditions.

MUSTAQIL ISHLASH UCHUN MASHQLAR



15-mashq. Aniqang, so'zlar qaysi so'z turkuniga kiradi?

resistant, resist, resistance, resistor, resistivity; superconductivity, superconductive, superconductor, superconducting; theory, theorist, theoretical, theorize; physics, physicist, physical, physically; explain, explainable, explanation; store, storage, storable.



16-mashq. O'zbekcha so'zlarga mos keladiganini toping:

elektron — electronics, electronic, electron;

oson, yengil — easily, easy, easier;

qoniqtirmoq — satisfy, satisfactory, satisfaction;

haqiqatda, haqiqatan ham — reality, realise, really.

 **17-mashq. Yo'nalishni bildiradigan -ward (-wards) suffiksi bilan kelgan so'zlarni tarjima qiling:**

toward(s), forward(s), backward(s), afterward(s), downward(s), outward(s), northward(s), southward(s), rearward(s), homeward[^]), sideward(s), windward(s), upward(s).

 **18-mashq. Ko'plik shaklni nostandart berilishini toping:**

There are a few words taken over from Latin and Greek that still retain their original plurals in English. In some cases we can use either. *Formula* is seen more often than *formulae*. *Antenna* — *antennae* (pi). Many think that *media*, *strata* and *phenomena* are all singular. They aren't. *Data*, a plural, is used both ways.

Here are some foreign singular and plural forms of words often used in English.

Latin: *medium* (a means of mass communication)

media, *nucleus* (atom yadrosi) — *nuclei*; Greek: *analysis* — *analyses*; *axis* — *axes*; *crisis* — *crises*; *hypothesis* — *hypotheses*; *phenomenon* — *phenomena*.

 **19-mashq. Sinonim va antonimlarni toping:**

below — above; useful — useless; easy — difficult; field — sphere; to meet demands — to meet requirements (needs); full — complete; to use — to apply; to get — to obtain; moreover — besides; sufficient — enough; likely — unlikely; to continue — to discontinue; conductivity — nonconductivity; to vary — to change; to lead to — to result in; recent — latest; advantage — disadvantage; low — high; believable — unbelievable; to lose — to find; tiny — huge; liquid — solid; unexpected — expected; common — ordinary.

 **20-mashq. Ajratib ko'rsatilgan so'z va so'z birikmalarini eslab qoling:**

1. The climate in this part of the world is the most suitable for people to live in. It is *neither* too hot, *nor* too cold.
2. Many lasers give off invisible radiation *either* infrared *or* ultraviolet.
3. There is the tropical zone on *either* side of the Equator.
4. It is possible to divide all countries into classes: developed and developing countries. Various criteria may be used to include a particular country in *either* of the two categories.
5. The numbers are *either* odd *or* even.
6. Such satellites can contain *either* television cameras *or* photographic equipment for transmitting pictures to Earth.

«I see you are not a scientific person, my friend».
«Why do you say that?»
«You do not take good care of your car. You have no water in your radiator».
«I thought that I had plenty of water».
«You have no oil either. You will ruin your car if you run it without oil».
«Have I plenty of water in the storage battery?»
«No, you haven't a drop».
«I haven't any air in my spare tire, either».
«Have you any extra tubes?»
«No, I haven't, but I have a good tube in the spare tire. I had four new tubes when I met a man who was having tire trouble. He hadn't an extra tube. I let him have my tubes. I suppose he was not a scientific person either. His car was in a worse condition than mine is.»

How Did It All Begin?

Do you ever wonder why people do or wear, or say certain things? Why do they shake hands when they meet? Many things you say and do could have reasons that date back thousands of years.

For example, it is very strange to think that shaking hands — a friendly custom (odat, an'ana) today — was originally a means of keeping a stranger's (notanish kishi) weapon hand where it could do no harm.

In primitive times, man never went about without some weapon of defence — usually a club (katak). Upon meeting a stranger a man could either stand and fight or turn away before discovering if the stranger was a friend or an enemy, or greet the stranger and possibly become friends.

But how could he be sure the stranger would be friendly and how could the stranger trust in return? There was only one way to show friendly intentions and that was for both men to lay down their weapons and hold out empty hands. For added insurance, each would reach for the other's right hand. As long as both men's hands were safely clasped, neither could harm the other. Therefore, a handshake originally was a means of self-defence.



21-mashq. Fe'llarni to'ldiring va eslab qoling:
teach, fighting, wore, frozen, letting, carried on, laid down.



22-mashq. Matnni o'qing va lug'atsiz tarjima qiling:

The ancient Greeks are known to have been great watchers of the sky and also great thinkers. As they watched the sky night after night, it was natural for them to think that the Earth stood and the stars, planets, sun and moon were moving round the earth in space. They thought the sun to be between Venus and Mars. To explain the movement of the planets, however, was very difficult. Then one day a young scientist named Copernicus at Krakow University in Poland supposed that the sun and not the Earth should be the centre of everything. He was the first to explain properly our solar system. The ancient Greeks had made the mistake of thinking that because the stars and planets seemed to move as they looked at the sky, the Earth must stand. If you sat in a train and looked out at the trees, it would be easy to understand their mistake. The trees seem to be moving backwards, but really it is the train that is moving forwards.

CONVERSATION



Exercise 1. Answer the questions.

1. What field of science studies the phenomenon of superconductivity? (physics)
2. What can a nation have if it is the first to master this new field of science? (prestige, scientific advantage, economic and military benefits)
3. What is superconductivity? (the loss of electrical resistivity by a material on being cooled to temperatures near absolute zero)
4. What is absolute zero? (0 Kelvin or -273°C)
5. What scientists worked in the field of superconductivity research? (Dutch physicist K. Onnes, Russian physicists L. Landau and V. Ginzburg, and a number of American scientists)
6. What materials are the best superconductors? (ceramic materials)
7. What are the potential technical uses of superconductivity? (nuclear research, power generation, electronics, etc.)



Exercise 2. Make a sentence out of the two parts.

1. Recent achievements in superconductivity research are
2. They may be compared with
3. Superconductivity is known to
4. While carrying out his low temperature research he
5. For 50 years after the discovery there was no
6. In the 1950s Russian and American physicists made a great contribution
7. Research in the field of superconductivity became especially active

1. fundamental theory to explain this unexpected phenomenon.
2. found the electrical resistivity of mercury to disappear when cooled to the temperature of 4 Kelvin.
3. to the development of superconductivity theory.
4. have been discovered by a Dutch physicist.
5. of great importance for science and technology.
6. since the discovery of a superconductive metallic ceramics.
7. physics discoveries that led to the development of electronics and nuclear power.



Exercise 3. Read and learn.

Professor Brown: Hello, glad to meet you, prof. Smith, haven't seen you for ages, since I left the University.

Prof. Smith: How do you do, prof. Brown, I haven't expected to see you here. Are you interested in superconductivity problems? By the way, how are you making your living? I haven't heard anything about your work lately. I spent the last two years in Geneva as a member of a special UN committee.

Pr. B.: I am with Bell Telephone company. It is a global leader in electrical engineering. And I deal with new technologies.

Pr. S.: Oh, your work is so important nowadays. Mankind needs energy for producing light, heat and transportation. This is the basis of our civilization.

Pr. B.: Sure, that's so. And as the population grows, so does the demand for better quality of life. Energy consumption increases daily.

Pr. S.: But with it the threat to clean air, pure water and soil increases too. These natural resources are not inexhaustible.

Pr. B.: Of course. We are developing new industrial systems to improve

productivity, reducing the amount of raw materials and energy required. Our new advanced systems help to conserve energy too.

Pr. S.: In Geneva one of the problems I studied was the problem to generate, transmit and distribute energy with great efficiency. I think Doctor Carter's work in this field is the most promising. From the Agenda (kun tartibi) we have all just received you can see that Dr. Carter will speak on his work tomorrow.

Pr. B.: I have already seen this paper on the program. I won't miss (o'tkazib yubormoq) it. Have you attended the morning session?

Pr. S.: The most interesting was the discussion on the problems of the balance between the needs of mankind and the conservation of the natural resources.

Pr. B.: Have you taken part in it?

Pr. S.: Certainly. I've spoken about clean and efficient technology in the field of electrical engineering.



Exercise 4. Comment on the following statement.

The teaching routine procedures (qabul qilingan tartib) ought to be the main aim of education.

One point of view: Routine makes life and experiments easier, it saves energy; experience of past generations takes on the form of routine; routine helps us to avoid risks; thanks to routine we don't have to rediscover things; routine ensures efficiency while experimenting, it enables us to achieve a high level of predictability.

A contrary point of view : Routine kills invention and discovery, it is opposite to creativity; it is necessary to avoid routine so that the world can be changed for the better; young people ought to develop their imagination, but not learn routine; routine is the exact opposite of youthfulness; routine is boring; the best idea would be to combine routine with improvisation.



Exercise 5. Conduct a round-table discussion on «Superconductivity Research».

Use texts 11 A, B, C as a basis for the preparation of oral talks and discussion. Useful words and phrases of scientific communication are given in exercise 5 (see Lesson 10 «Conversation»).



Exercise 6. Read and smile.

For a long time Edison's visitors wondered (hayron qoldilar) why the gate to his

garden was so difficult to open.

Once his friend said: «The gate to your garden is so heavy. I have to use all my strength to open it. I cannot understand this. You are such a brilliant man. You can invent something better». «The gate seems to be all right», Edison answered with a smile. «The fact is that it is a brilliant invention.» «You are laughing at me, sir!» «No, I am not. The gate is connected to a pump. Everybody who comes in pumps twenty litres of water out of the well (quduq).»

An absent-minded (o'ychan) professor was once travelling by electric train, and when the conductor came the professor couldn't find his ticket.

«It's all right, sir», said the conductor who knew the professor very well, «I'll come at the next station».

But at the next station there was the same difficulty, the professor couldn't find his ticket anywhere.

«It's all right, sir, it doesn't matter (ahamiyati yo'q)», said the conductor. «No, no I must find the ticket, I must know where I'm going to!»

Text 11B

Matnni o'qing va unga sarlavha qo'ying.

Superconductivity is a state of matter that chemical elements, compounds and alloys assume on being cooled to temperatures near to absolute zero. Hence, a superconductor is a solid material that abruptly loses all resistance to the flow of electric current when cooled below a characteristic temperature. This temperature differs for different materials but generally is within the absolute zero ($-273\text{ }^{\circ}\text{C}$). Superconductors have thermal, electric and magnetic properties that differ from their properties at higher temperatures and from properties of nonsuperconductive materials.

Now hundreds of materials are known to become superconductors at low temperature. Approximately 26 of the chemical elements are superconductors. Among these are commonly known metals such as aluminium, tin, lead and mercury and several less common ones.

Most of the known superconductors are alloys or compounds.

It is possible for a compound to be superconducting even if the chemical elements constituting it are not.

Text 11C

Matnni o'qing va kelajakda o'ta o'tkazgichlarning ishlatilishi haqida ma'lunot toping.

Matn mazmunini ingliz tilida qisqacha so'zlab bering:

New Hope for Energy

Recently some ceramic materials have been found to be superconductors. Superconducting ceramics are substances which can transmit electric currents with no loss of energy at temperatures much higher than conventional superconductors (that is, at the temperature of liquid nitrogen).

One use for the new superconductors would be to replace those that need the extreme cold of liquid helium — huge superconducting electromagnets used in nuclear magnetic resonance research, atomic particle acceleration and research reactors.

Other types of electromagnets made with superconductors could be used to lower the cost of electric generation and storage. Such uses may take 10 years of research, a quicker use will probably be in electronics.

Researchers now estimate that tiny but immensely powerful highspeed computers using superconductors may be three to five years away. Further off are 300 m.p.h. trains that float on magnetic cushions which now exist as prototypes but may take at least a decade to perfect. Power lines that can meet a city's electric needs with superconductor cables may be even further in the future.

Meanwhile, scientists around the world are trying to turn the new materials into useful products. Among the most notable is a micron-thin film to transmit useful amounts of electric current without losing superconductivity. The film could be used in the microscopic circuitry of advanced computers as high-speed pathway (yo'nalish) between computer chips.

Several nations are known to be very active in superconductor research. For example, the United States is spending millions of dollars on such research, much of it for military uses: projectile accelerators, lasers, ship and submarine propulsion.

Text 11 D

Matnni o'qing. Masachusets texnologiya institutit haqida ingliz tilida gapirib bering:

Massachusetts Institute of Technology

MIT is an independent university located in Boston area. It was founded in 1861 by William Barton Rogers, a distinguished natural scientist, who believed professional competence to be best fostered (tarbiya qilmoq) by the combining of teaching, research, and the application of knowledge to real-world problems. MIT held its first classes in 1865 after having delayed opening because of the Civil War. There were approximately 15 students enrolled at that time.

Today MIT has about 9,700 students, a faculty (professor-o'qituvchilar tarkibi) of approximately 1,000 and several thousand research staff. The total teaching staff numbers more than 1,800. The institute is broadly organized into five academic Schools — Architecture and Planning, Engineering, Humanities and Social Science, Management and Science — and a large number of interdisciplinary programs, laboratories, and centers, including the Whitaker College of Health Science, Technology and Management. A unique feature of MIT is that undergraduates join with graduate students, faculty, and staff to work on research projects throughout the institute.

Most academic activities take place in a group of interconnected buildings designed to permit easy communication among the Schools and their 22 departments. Across the street from this set of buildings there are athletic fields, the student center, and many of the dormitories.

The main purpose of the academic program at MIT is to give students a sound command (mustaxkam o'zlashtirish) of basic principles, the habit of continued learning and the confidence that comes from a thorough and systematic approach to learning. This results in continued professional and personal growth, especially in today's rapidly changing world.

The two essential parts of all MIT educational programs are teaching and research. Both of these activities carried on together have greater potential than either performed alone. They provide experience in theory and experiment for both students and teaching staff.

Each student pursues a degree (ilmiy daraja olishga harakat qiladi) in one of the departments.. Undergraduate courses at MIT lead to the degree of Bachelor of Science (S.B.). The academic programs require four years of full-

time study for the Bachelor of Science. Degrees are awarded on the basis of satisfactory completion of general institute and departmental requirements (umuminstitut va kafedra talablari) in each program.

There is enough flexibility, however, to allow each student, in collaboration with the adviser, to develop an individual program in accordance with his or her own interests and preparation.

QO'SHIMCHA TOPSHIRIQLAR



1-mashq. A. Tarjima qiling:

the threshold of a new technological age

who was awarded the Noble Prize

which won for them the Noble Prize

their quality is often uneven

B. A tomondagi har bir ajratib ko'rsatilgan so'zga ma'nosi to'g'ri keladigan so'z toping:

give or grant (by official decision)

irregular, changing

start, beginning

get by means of hard work or struggle as a result of competition


If a current is induced by a magnetic field in a ring of superconducting material, it will continue to circulate when the magnetic field is removed. In theory this could be made use of in the memory cells of computers. Memory cells made of superconducting material could store information indefinitely. Because of the zero resistivity of the cells, the information could be retrieved quickly, as fast as 10^{-8} seconds. 90 per cent of the total losses in modern transformers is due to the resistance of the windings. Transformers could be made with windings cooled to the low temperature at which superconductivity occurs. The resistance would be zero and the transformer would be almost ideal. Similarly, a 100 % efficient electric motor has been proposed using the magnetic field of superconducting coils.

 **2-mashq. Jadvalni to'ldiring:**

Verb	Noun	Adjective
••• define *>•• apply ... present	retrieval ••• ... belief introduction	removable ••• resistant ••» conductive ... explanatory ••• ...

 **3-mashq. Nuqtalar o'rniga conduct, superconductivity, superconductor, superconductive so'zlaridan to'g'ri keladiganini qo'ying:**

- 1.... at high temperatures was almost discovered in 1979.
2. The Russian scientists found an oxide of metal they were experimenting with to ... electric current. Moreover, the lower the temperature, the less resistance the material had.
3. The resistance continued to fall in liquefied nitrogen. To continue the experiments, they needed liquid helium. To obtain it was quite a problem at that time. So the experiments were stopped.
4. But it was this compound of copper, lanthanum and oxygen that proved to be a ... for which the Swiss physicists were honoured with a Noble Prize in 1987.
5. Later neither efforts nor money were spared (iqtisod qilmoq) for the study of the ... materials. Moreover, there were no longer any problems with helium.

 **4-mashq. A. «Superconductivity research» mavzusida 10-15 ta kalit so'z ayting.**

B. Speak about:

Latest achievements in conductivity research.

LESSON 12

Istak mayli

should, would fe'llarining funksiyaari

passiv formali nisbatning o'ziga xos xususiyatlari

to involve, result in, result from fe'llari

Text 12A. The International Space Station

Text 12B. Benefits of Building the ISS

Text 12C. Living Aboard the Space Shuttle and the ISS

Text 12D. Time Travel and New Universes

MATN OLDI MASHQLARI



1-mashq. A. fe'l-kesim bilan kelgan gaplarni tarjima qiling:

1. Would you like to come with us?
2. Would you be so kind as to tell me how to get to the Red Square?
3. Could you tell me the way to the main building of the University?
4. Would you mind giving me your dictionary for a minute?
5. Would you be kind enough to pass me the text-book?
6. I'd like to thank you for your help.
7. He'd like to meet you.

B.1. You are the only person she would listen to.

2. The material in that book is very much out of date. The book must have been written a long time ago.
3. He speaks English well. He must have lived in the United States for a long time.
4. You could have done it in a different way.
5. It's strange he is not here. However, he might have forgotten all about it. Or he might have come while I was out.
6. For long journeys in private cars one could use automatic guidance systems.
7. One laser beam could carry all the radio, TV and telephone messages simultaneously.

C. 1. Mary wishes she could drive a car.

2. I wish that, for just a day, I were President of the United States.
3. I wish I had not spent so much money yesterday.
4. I wish when a boy I had studied French instead of English.

5. John wishes he had been a mechanical engineer.
 6. I wish I had a car.
 7. I wish you had mentioned this fact to me before.
- D.1.** If he were better educated, he would get the job.
2. Were I you, I should speak to him about it.
 3. I would have called you if I had had your telephone number.
 4. Had she felt better, she would have gone with them.
 5. If you watched a laser operate, you might be surprised at the simplicity of a device capable of such power.
 6. «If I had had a chance to live my life again, I should have tried to combine the study of the history of art, philosophy and science.» «But then you wouldn't be good at either.» «No, you are probably right, I'd be a dilettante.»
- E.1.** K. Onnes found that it was necessary that a mercury wire be cooled to — 265 °C for electrical resistivity to disappear.
2. Tsiolkovsky proposed that liquid propellants should be used for space travel.
 3. Recently it has been improbable that superconductivity should appear at an unbelievable temperature of 98 K in a special ceramic material.
 4. The great speeds and high resistance of air demand that new hyperliners be built without windows.
 5. It is essential that a superconductor should be a solid material and it is necessary that it should be cooled to —273 °C.
 6. It was natural for the ancient Greeks to suppose that the stars, planets, the sun and the moon move round the Earth in space.
 7. It is possible that a compound should become a superconductor even if the chemical elements constituting it are not.
 8. Copernicus suggested that the Sun and not the Earth should be at the centre of everything.



2-mashq. in order that, so that, lest-bog'lovchilariga e'tibor berib, tarjima qiling:

1. A special system is being developed so that drivers could see after dark.
2. Aircraft designers tend to replace conventional metal alloys by new composite materials in order that an aircraft structure should be lighter.
3. Some materials are cooled almost to —273 °C so that they should become superconductors.
4. Great attention is paid to ecological problems all over the world so that air in supercities should be clean.
5. You must put down this formula lest you should forget it.

6. Metal parts are tested for defects lest they should fail in operation.
7. Students must work hard lest they should fail at examinations.
8. All kinds of safety devices for motor cars are being developed lest accidents should occur.
9. A hypersonic craft will require complicated cooling measures lest it should burn.



3-mashq. Fe'l nisbatiga e'tibor berib, gaplarni tarjima qiling:

1. International cooperation, especially in the field of space and science, may be spoken of as a long-standing tradition.
2. The «night vision» system is being worked at in many design bureaus.
3. The invention of an internal combustion engine was followed by the appearance of a motor car as we know it today.
4. Any flying vehicle is acted upon by aerodynamic forces.
5. The improvement of our working conditions and life is influenced by the achievements of scientific and technological progress.
6. New developments in the field of superconductivity are much written about at present.
7. The invention of a steam engine was followed by the first industrial revolution.
8. The neutron is not influenced by a magnetic field.
9. The appearance of a jet engine was followed by a tremendous increase of aircraft speeds.
10. The problems of interplanetary flight are dealt with in the latest magazine.



4-mashq. to involve fe'li bilan kelgan gaplarni tarjima qiling: (band bo'lmoq, jalb qilmoq, bu bian bog'liq).

1. While on their last space flight French cosmonauts were mostly involved in carrying out scientific experiments.
2. A program to establish an International Lunar Base may involve many nations.
3. The struggle for the protection of Lake Baikal has shown the true position of the organizations involved.
4. To understand the operation of computers one must understand the principles involved.

SO'Z YASALISHI

5-mashq. Yasalغان so'zlarni namuna bo'yicha tarjima qiling:

prefiks multi- (кўп-) multi-room — ko'p o'ronli, multi-national — kop millati
 multi-stage rocket, multi-purpose, multi-functional, multi-lateral, multiplex,
 multimedia, multi-ton vehicle.



6-mashq. Internasional so'zlarni o'qing va tarjima qiling:

international station [ˌɪntəˈnæʃənəl ˈsteɪʃən], civilization [ˌsɪvɪlaɪˈzeɪʃən], orbit
 [ˈoːbɪt], assembly [əˈsembli], shuttle [ˈʃʌtl], routine [ruːˈtiːn], partner [ˈpɑːtnə],
 multi-national [ˈmʌlti-ˈnæʃənəl], majority [məˈdʒɔːrɪti], astronaut [ˈæstrənɔːt],
 mission [ˈmɪʃən], official [əˈfɪʃəl], object [ˈɒbdʒekt], visible [ˈvɪzɪbl], module
 [ˈmɒdjuːl], process [ˈpreʊses], ambitious [æmˈbɪʃəs], project [ˈprɒdʒeɪkt], control
 [kənˈtrɔːl], commercial [kəˈmɜːʃəl], biotechnology [ˌbaɪəʊˈtɛkˌnɒlədʒi].



7-mashq. So'zlarni o'qing va talaffuzini eslab qoling:

launch [lɔːnʃ], extension [ɪksˈtɛnʃən], research [rɪˈsɜːtʃ], facility [fəˈsɪlɪti], crew
 [kruː], alternately [ɔːlˈtɛːnətli], expectancy [ɪksˈpektənsi], Venus [ˈviːnəs],
 awesome [ˈɔːsəm], Canada [ˈkænədə], Japan [dʒəˈpæn], Brazil [brəˈzɪl], European
 [juːrɒˈpiːən], behave [bɪˈheɪv], trouble [ˈtrʌbl], citizen [ˈsɪtɪzən], dozen [ˈdɒzən],
 opportunity [ˌɒpɔːˈtjuːnɪti], basic [ˈbeɪsɪk], purpose [ˈpʊːpəs], investigation
 [ɪnˌvestɪˈgeɪʃən], adventure [ədˈvɛntʃər], promote [praˈmeɪt], require [rɪˈkwaɪə],
 billion [ˈbɪljən], enterprise [ˈentɜːpraɪz], advertise [ˈædvətaɪz].

ЭСЛАБ ҚОЛИНИҒ

addV — qo'shmoq
 advertisev — ko'z-ko'z qilmoq
 attract v — jalb qilmoq
 behave v — o'zini
 tutmoq, ishlamoq
 broad a — keng
 deliver v — yetkazib bermoq
 enterprise n — korxonona
 establish v — ta'sis etmoq,
 tashkil qilmoq
 explorev — o'rganmoq, tadqiq
 qilmoq
 facility n — qurilma
 fitv — birlashtirmoq,
 qo'shmoq
 flight n — parvoz
 follow v — (ga) eergashmoq

Implementation n — bajarish,
 amalga oshirish
 Investigation n — tadqiqot
 last v — saqanmoq, cho'zilmoq
 launch v — yoqmoq (biror
 apparatni)
 maintain v — xizmat ko'rsatmoq
 mission n — vazifa
 note v — belgilamoq
 opportunity n — qulay imkoniyat
 predict v — bashorat
 promote v — qo'lab
 yubormoq
 properly adv — kerakli tarzda
 space n — bo'shliq, kosmos
 stay v — qolmoq, yashamoq
 supply v — ta'minlamoq
 trouble n — nosozlik

alternately — navbati bilan
at least — hech bo'lmaganda

Text 12A

Xalqaro kosmik stansiyasi haqida nimalarni bilasiz? Hozirgi paytda u yerda qanday ishlar amalga oshirilyapti? Matnni o'qing, javoblaringizni tekshirib ko'ring, tarjima qiling:

The International Space Station

The International Space Station (ISS), the most complex and expensive structure that has ever been launched and built in space, is expected to be a permanent off-planet extension¹ of human civilization. When completed, it will be a multi-room hotel and research facility orbiting the Earth every 90 minutes. By that time, resupply and assembly flight by shuttles or rockets will have become routine.

The Russians and Americans are partners in this international enterprise. The three-person multi-national crews will be alternately composed of two Americans and one Russian followed by a Russian majority. Later a six or seven-person crew will occupy the station. Some astronauts may stay on the ISS up to 187 days, but there are no plans yet for longer missions. The official life expectancy of the station itself is 10 years, but it should last much longer.

Five times the size of the Russian space station Mir, the ISS will be one of the biggest objects in the night sky, looking like a supersize Lego set², almost as long as a football field. Only the Moon and Venus will be bigger and more visible.

The fifth-generation station's complexity is as awesome³ as its size. Built by a partnership of 16 nations, the ISS will consist of 36 modules and hundreds of individual elements that come from all over the world. The station involves the most technologically advanced nations — Russia, the United States, Canada, Japan, Brazil, and 11 European nations. There will be many interconnected parts from so many countries that it would be impossible to predict how they would interact.

Hence, it is very important that all of these elements made by different suppliers should fit together properly and work exactly as planned. But even if all the parts fitted perfectly, the assembly process itself in orbit would be risky. The space station is flown while it is being constructed and each new building block added might change the way the station behaves in flight, which could

result in serious trouble.

The ISS may be the world's most ambitious engineering project in history, but it could not have been realized without previous extensive experience in operating the Russian Mir space station. Mir was a great achievement. Russia learned how to build and maintain complex structures in space. Mir also gave citizens of more than a dozen countries their first opportunity to explore space. It should be noted that Mir has proved to be the perfect training ground for the ISS. For more than a decade, at least two humans were always in low Earth orbit. That is why it was planned that Russia would supply and deliver 12 modules for the future station, each being a key module among its 36 ones. They are: the basic power module, the control, the life support, the service modules and others.

What is the purpose of the ISS? It is a political program as well as a science program. This program is no longer only about conducting scientific investigations in the absence of gravity, or about learning how to build a massive project weighing 400 tons in orbit, or about establishing the base for a future trip to Mars. The ISS is more than merely the next great adventure of the space age. It is also about promoting international cooperation and creating thousands of peacetime jobs for highly skilled workers and engineers.

The implementation of the broad international program would require more than \$40 billion. Some space experts would like to attract commercial users such as, e.g., biotechnology companies in order that the cost of the station should be lowered. And some specialists have even suggested that the station be used for advertising and Hollywood filmmaking.

Notes to the Text

off-planet extension — sayyoradan tashqari davomiylik

Lego set —Lego konstruktori

is awesome — lol qoldiradi

MASHQLAR



8-mashq. should fe'ining funksiyalarini aniqlang, tarjima qiing:

1. It should be said that the importance of Mars studies is acknowledged by all.
2. Reliability of every vehicle should be paid great attention to during the production process.
3. It is required that an airplane should be well balanced dynamically.

4. Should there be even a small deviation (og'ish) in the velocity, the space vehicle would pass the planet.
5. K.E. Tsiolkovsky suggested that man-made rockets for the future space flights should use liquid-propellant engines.
6. We were told that we should take part in the discussion.
7. One should not forget that electricity is the most important source of energy at present.



9-mashq. would fe'ining funksiyalarini aniqlang, tarjima qiling:

1. Some materials cooled to proper temperature would conduct electricity practically without any resistance.
2. In the future it may be possible to build a dirigible with a metal hull that would carry hundreds of passengers round the world.
3. In 1883 Tsiolkovsky wrote that rocket would be the only means able to reach outer space.
4. Popov would make his experiments with radio although the government was not interested in the work.
5. We tried to start the car, but it would not go.
6. We know that a body in motion would continue to travel in a straight line unless some force were applied.
7. Without gravity we would not be able to walk in an upright position.
8. Non-equatorial regions of Mars would be difficult and expensive to reach and explore.



10-mashq. should fe'li modal fe'l bo'ib kelgan gaplarni toping:

1. It is essential that international cooperation should be as productive as possible.
2. Research and technology should provide the basis for a better life.
3. Military uses of a space station could complicate international cooperation since there are several neutral countries among the participants.
4. It is desirable that international space cooperation should give significant economic advantage for the countries involved.
5. NASA agreed that Canada would develop a remote manipulation system for the space Shuttle.
6. It should be pointed out that Japan space programmes are based on close government-industry cooperation.
7. The craft to be launched would essentially be used as a service module for space stations.

8. Typical missions of a new system might include the assembly of space structures.
9. Exploring Phobos would be a difficult problem because of its small gravity field. If an astronaut threw a stone right ahead, it would orbit the entire moon and hit him in the back of the head.
10. Such a vehicle could be operational by the beginning of the next century.
11. One should know that the broader the basis for utilizing a space station is, the better the prospects for economic efficiency of developing it are.
12. After the Challenger tragedy the military experts insisted that a new Shuttle should be built.
13. It was reported that the appearance of photon computers could be expected.



11-mashq. Tarjima qiling:

1. In mechanics the study of kinematics is followed by the study of dynamics.
2. A gas may be looked upon as the vapour of a liquid with a very low boiling point or very great vapour pressure.
3. Lead is very slightly acted upon by the oxygen of the air.
4. The works of Tsiolkovsky were followed by a number of very important works in the field of astronautics.
5. The production of special metallurgical alloys is seldom influenced by gravity.
6. This article describes design characteristics which are followed by the description of the results of the experiments.
7. This description is followed by a discussion of nontechnical aspects of the lunar programme proposed.



12-mashq. Har xil predloglar bilan kelgan to result fe'lini tarjima qiling:

1. It is well known that automation results in higher labour productivity.
2. The first manned space flight has resulted from the great achievements in Russian science.
3. This experiment resulted in the discovery of several new properties of the composite material.
4. A release of atomic energy results from a very complex process.
5. World War II resulted in the victory of the USSR, the US and Great Britain.
6. Such experiments usually result in obtaining new information.
7. The motion of an electron results from a force acting upon it.
8. The growing intensity of air traffic has resulted in the automation of its control.

9. Newton's famous work «Principia» resulted from 40 years of experimental work.

MUSTAQIL ISHLASH UCHUN MASHQLAR



13-mashq. So'zlar qaysi so'z turkumiga kirishini aniqlang:

gravity, peaceful, permanent, consequence, subatomic, dominant, relative, relativity, flexible, apparently, celebrity, novelty, connection, complicate, desirable, significant, utilize, pressure, famous, involvement, significance, weightlessness, eaten, recorder, supression, useless, dense, density, depth, damage, shorten.



14-mashq. So'zlardan ot yasang:

appear, explore, prepare, prior, important, implement, transit, propose, create, lighten, encode, structural, useful, discuss, grow, store, differ, electronic.



15-mashq. Toping:

a) sinonimlar

spacecraft, to call, artificial, significance, area, man-made, satellite, purpose, complicated, importance, space vehicle, explorer, aim, to guide, to offer, researcher, investigation, to incorporate, sophisticated, to propose, to determine, exploration, to define, to gather, to control, to collect, to name, to include, district, moon;

b) antonimlar

special, upper, unmanned, natural, last, manned, unequal, conventional, distant, first, lower, civil, equal, inefficient, military, near, efficient, artificial.



16-mashq. to involve fe'I undan yasalgan fe'llar bilan kelgan gaplarni tarjima qiling:

1. NASA began looking for the way to involve other countries in its post-Apollo space programme.
2. International involvement in the space programme raises a number of questions.
3. The international programme has involved Russia, Canada, Japan and some developing countries, as well as both individual European countries and various European space organizations.
4. There exists a clear trend towards increased international involvement in those uses of space which could be economically beneficial.

5. The aim of the experiment involving dogs, monkeys and other animals aboard Kosmos satellite was to study the way zero gravitation affects the living organisms.
6. An efficient radiator is capable of warming a large room, the process involved is called convection.
7. Work with computers and other sophisticated electronic devices involves two different types of construction: hardware and software.



17-mashq. Only so'zining funksiyalariga e'tibor berib, tarjima qiling:

1. You are the only person who could help us in solving this problem.
2. The International Academy of Astronautics including nearly one thousand scientists and engineers from 50 countries is the only organization which can plan technical efforts on an international scale.
3. Only through cooperation on a world-wide scale could space technology be improved.
4. Effective communication across national borders appeared to be the only way for space science to develop successfully.



18-mashq. Fe'l-kesimni toping, tarjima qiling:

Dolly Madison was born in South Carolina while her parents were visiting there. She was soon taken to Virginia where she was educated. She was taught by her Quaker parents to say «thee» and «thou» for «you». Dolly was married to John Payne who died a short time afterwards from yellow fever. Several years later she was married to James Madison, a brilliant lawyer. When Thomas Jefferson was elected President of the US, James Madison became Secretary of State. Mr. Jefferson was a widower, so Dolly was often invited to preside at the White House. When James Madison was elected president, Mrs. Madison was the hostess of the White House on all occasions. People from everywhere were impressed with her sincerity and her love for humanity.



19-mashq. Fe'llarni to'ldiring, eslab qoling:

beaten, steal, carrying out, learnt, ate, slept, fly.



20-mashq. Matni o'qing va lug'atsiz tarjima qiling:

Exploration experts suggest that the tiny moon Phobos should be used as a perfect place for gas refilling station. Some scientists think Phobos rocks to

contain crystalline ice. If one heats them, it will be possible to produce water. The latter could be divided into hydrogen and oxygen which are necessary components for rocket propulsion. Such a fuel supply would greatly reduce the amount of weight that must be delivered from the Earth for manned missions to Mars. Thus, it might be possible for spacecrafts to leave the Earth for Mars carrying no return fuel. To get home, they should simply fill up at Phobos.

CONVERSATION



Exercise 1. Answer the questions.

1. What is the ISS? (the most complex and expensive structure in space and research facility orbiting the Earth)
2. What will it look like when completed? (a supersize Lego set, almost as long as a football field)
3. What is its size compared with Russian-built Mir space station? (five times the Mir station size)
4. What modules is it expected to consist of? (36 modules)
5. How many countries are involved in the project? (16 countries)
6. What methodology is being used to build the ISS? (the same methodology as for Mir but on a larger scale)
7. What is the purpose of the ISS? (to promote international cooperation and create peacetime jobs for highly skilled workers and engineers)



Exercise 2. Make a sentence out of the two parts

1. The Russians and Americans are equal partners

2. It is suggested that

3. It is very important

4. The multi-national crew will occupy

5. Space experts expect

6. The cost of the station is likely

7. The ISS is more

1. to be more than \$40 billion.

2. that all individual elements coming from different suppliers all over the world should fit together properly.

3. Russia deliver 12 key modules for the station.

4. the official life of the station to be 10 years.

5. the station and stay on it up to 187 days.

6. than merely the next great adventure of the space age: it is a political program as well as a science program.

7. in the implementation of this massive engineering project weighing 400 tons



Exercise 3. Read and learn.

Satellites

Peter: Hello, Ann. How did you happen to come to California?

Ann.: Hello, Peter. How are you? My father got a job here. It is so exciting to meet you here. I've not seen you since you graduated from the University.

P.: I'm working on a newspaper. I cover the space research problems. Now I study the application of space satellites for scientific purposes.

A.: I think that the best application of satellites is for military purposes.

P.: You are absolutely wrong. The most promising field of application of satellites is the scientific one.

A.: Oh, Yes, I know satellites look down on everything: the clouds, forests and oceans, the winds, ice on the sea. But don't forget spy (жюцыс) satellites.

P.: Spy and weather satellites gather data for forecasting. The Japanese have a satellite studying the ocean; European and Russian satellites produce radar images of the ground; an American satellite is studying the upper atmosphere.

A.: It seems to me that the era of satellites has passed. You see, the Japanese

have already delayed the launch of their earth observing mission.

P.: Yes, they did, because of cost. The most effective way to gather data is not always with a big satellite.

A.: Have you met my elder brother Mike?

P.: Of course, I have. We played in the same football team at the college, though he is about three years older than me.

A.: He is five years older than you. He takes part in the research programme at the Goddard Institute for Space Studies. They are developing now a small cheap satellite. It would carry three simple instruments to measure clouds, water vapour and surface temperature.

P.: Oh, really. I think, that such researches make sense, and help develop a single Global Climate Observing System.

A.: Such a system could change the world or at least see the world changing.

Exercise 4. Comment on the following statement.

Space exploration ought to be abandoned (йиҒилмоқ) until more important problems of mankind have been solved.

One point of view : Space exploration is very expensive; food production is far more important than Mars studies or Moon walks; it is immoral to spend huge sums of money on space exploration while millions of people suffer hunger (ochlik); space exploration is useless anyway because we can't colonize other planets; it would be much better to colonize, for example, the Sahara before trying to colonize the Moon or Mars; mankind must not waste its resources.

A contrary point of view : Space exploration is of great significance for scientific and technological development; space exploration gives man new knowledge that he can use for other purposes; we may find 10,000 things to do on the ISS that nobody has thought of or even imagined.



Exercise 5. Conduct a scientific conference on: «The potential of space exploration for peaceful purposes».

Use texts 12 A, B, C, exercise 3 (Satellites) as a basis for the preparation of oral talks and discussion. Useful words and phrases of scientific communication are given in exercise 5 (see Lesson 10 «Conversation»).

Exercise 6. Read and smile

The Farmer and the Apple Tree

A farmer once had a friend who was famous for wonderful apple trees which he grew. One day this friend gave the farmer a fine young tree and told him to take it home and plant it. The farmer was pleased with the gift, but when he got home he did not know how to plant it. If he planted it near the road, people might steal the fruit. If he planted it in his field, his neighbours might come at night and rob (talonchilik qilmoq) him. If he planted it near the house, his own children might steal the apples. Finally he planted the tree deep in the woods where no one could see it. But naturally the tree couldn't grow without sunlight and suitable soil. In time, it withered (qurib qolmoq) and died.

Later his friend was criticising him for planting the tree in such a poor place.

«What is the difference», the farmer said. «If I had planted the tree near the road, people would have stolen the fruit. If I had planted it in my field, my neighbours would have come at night and robbed me. If I had planted it near my house, my own children would have stolen the apples».

«Indeed! But at least someone could have enjoyed the fruit», said his friend. «Now you have robbed everyone of the apples, and you have destroyed a fine tree».

A farmer's wife spent most of her time wishing for things which she did not possess. She wished she were beautiful; she wished she were rich; she wished she had a handsome (chiroyli) husband. Therefore one day fairies (sehrgarlar) decided to give her three wishes as an experiment.

The farmer and his wife talked for a long time over what she would wish for. But the farmer's wife suddenly became a little hungry (och) and wished she had some sausages to eat. At once her plate was full of sausages. Then a heated argument began, because her husband said his wife had wasted one of the valuable wishes on such a cheap thing as sausages. The argument grew hotter, and finally the wife cried that she wished the sausages were hanging from her husband's nose. At once a row of sausages flew to her husband's nose and stayed there. Nor could they be removed.

Now there was the only one thing the poor woman could do.

She really loved her husband and so she had to spend her third wish removing the sausages from his nose. Thus, except for the few sausages, she got nothing from her three wishes.

Text 12B

Matnni o'qing va lug'atsiz tarjima qiling. Xalqaro kosmik stansiyadagi eng muhim tadqiqotlar haqida gapiring.

Benefits of Building the International Space Station

When studying sound, you go into a quiet room. When studying light, you go into a dark room. When studying the effects of gravity, you would like to go into an «anti-gravity» room. Since there is no such thing on Earth, we have the International Space Station.

By flying around Earth at about 17,500 mph the station and everything in it remain in orbit, a continuous free fall around the planet. In orbit, forces are balanced and the effects of gravity are essentially removed. The result is microgravity, one of the unique phenomena of the ISS environment that promises new discovery. Thus, the ISS allows long-term exposure to a world nearly unexplored.

Gravity affects everything. From our bodies to the materials we use to build cars and buildings, to the flames we use to heat our homes, our world is controlled by gravity. Even flames burn differently without gravity. Reduced gravity reduces convection currents, the currents that cause warm air or fluid to rise and cool air or fluid to descend on Earth. This absence of convection changes the flame shape in orbit and allows studies of the combustion process that are impossible on Earth. The absence of convection allows molten metals or other materials to be mixed more thoroughly in orbit than on Earth, opening the way to a whole new world of composite materials. Scientists plan to study this field, to create better metal alloys and more perfect materials for applications such as computer chips. Investigations that use lasers to cool atoms to near absolute zero may help us understand gravity itself.

While investigating our surroundings, we have been limited, until recently, to accepting gravity as a given factor in all our studies. History shows that changing what once was constant can lead to revolutionary discoveries.

The 19th century saw temperature and pressure become controlled in new ways to use steam power and revolutionize the way we live. The 21st century offers the hope of controlling gravity's effects to understand why things behave the way they do. Observing and understanding this behaviour is key to new discoveries in many scientific disciplines and using that knowledge is key to the improvement of life on Earth. The station will allow mankind to perform research that may result in new medicines, materials and industries on Earth and

will benefit people all over the world.

The Space Station Mir gave us a platform for long-term microgravity research, and important knowledge about how to live and work in space. Like all research, we must proceed one step at a time. As we open one door, answering one question, we are faced with the opportunity of more doors, more questions. The ISS is the next step in that journey of discovery, and represents a quantum leap in our capability to conduct research on orbit. In space, electrical power is key to the quantity and quality of research. When completed, the ISS's enormous solar panels will supply 60 times more power for science than did Mir. This and the large space available for experiments will provide scientists with unprecedented access to this unique environment.

Aboard the ISS scientists will explore basic questions in the fields of biotechnology, biomedical research, fluid physics, fundamental biology, physics, Earth science and space science. Observations of the Earth from orbit are expected to help the study of large-scale, long-term changes in the environment. The effects of air pollution, such as smog over cities; the cutting and burning of forests, and of water pollution are visible from space and can provide a global perspective unavailable from the ground.

Thanks to its research and technology the station is certain to serve as an absolutely essential step in preparation for future human space exploration.

Text 12C

Matnni o'qing va Shattl va Xalqaro kosmik stansiyaning yashash bo'linmalarini tasvirlab bering.

Living Aboard the Space Shuttle and the ISS

We often see the cosmonauts carry out their complicated work in space, but what do they do in their off-duty hours? What do they eat, where do they sleep?

One of the main features of the Shuttle is the relatively low forces of gravity during launch and reentry. These are about 3 g, that is within the limits that can be withstood by people.

Its living accommodation is relatively comfortable. The crew cabin is 71.5

m. There are two floors inside the cabin. On the top level, the commander and pilot monitor and control sophisticated equipment. Behind their seats is a work area where the crew can carry out experiments.

The bottom level is the living area. It contains facilities for sleeping, eating and waste disposal.

Living in such a kind of cabin requires only ordinary clothing. Air pressure is the same as the Earth's at sea level. This air is made of 80 % nitrogen and 20 % oxygen. The air is cleaner than the Earth's. Temperature can be regulated between 16 and 32 °C.

The Shuttle meals are eaten in a small dining area consisting of a table and restraints which function as chairs while eating in zero-gravity. Meals are served in a special tray which separates different food containers and keeps them from floating around in the weightless cabin. Most foods can be eaten with ordinary spoons and forks as long as there are no sudden starts and stops.

Just as on Earth recreation and sleep are important to good health in space. Different games, books and cassette-recorders to listen to music are available.

In zero-gravity there is no «up» position and the cosmonaut is oriented in the sleeping bag as if he or she were sleeping up. Now beds are built into the walls with an individual light, communications, fan, sound suppression, blanket and sheets. They even have pillows.

Experiences on the space shuttle have helped prepare astronauts for life aboard the International Space Station. Let's imagine the life at the station in several years.

Life-support systems on the ISS can supply cleaner air, purer water, better food and more sanitary toilet facilities than on the space shuttle. Life aboard the station may not be easy, but it is significantly healthier and more pleasant than in the past, allowing astronauts to focus on the scientific research and station maintenance that occupy them for about 9 hours a day.

The kitchen on the station, for the first time in space history, has refrigerators and freezers. It may not sound like much, but it is a giant step forward. For the first 30 years in space, all food was kept at room temperature. Only now, in the 21st century, can refrigerator allow NASA to supply milk to help with bone loss in space flight. A glass of nice cold milk was asked for years. And the refrigerator proved to be an easier solution than a lot of experiments to make good powdered (maydalangan) milk for a number of years. Later in the day, thanks to another kitchen appliance, cosmonauts will eat a frozen dinner just like the ones sold in supermarkets. The combination convection/microwave oven automatically thaws (eritmoq) your food (using

heat), than heats it with microwaves (just as they do on Earth).

The refrigerator, freezer, and oven mean that astronauts eat a healthier diet. The shuttle food was low in fiber. «The ISS food can overcome that with salads, fruit, vegetables, apples, oranges, etc.,» a space expert had predicted. Now, with these food delivered by the space shuttle a few times a year, you no longer have to take special tablets.

There is no dishwasher in the kitchen. Instead, you wash your magnetic silverware (oshxona asboblari) with antiseptic towelet-tes (salfetka). It does not seem very hygienic, but the shuttle astronauts just had to lick their silverware clean.

The empty food containers will be either ejected into space to burn up on re-entry to the atmosphere or returned to Earth on the shuttle.

The next step in life support will be a completely closed air- and-food cycle, with plants grown in space. Plants and microorganisms could even help remove contaminants from the water supply. It is that sort of research that will be necessary if people are ever to establish settlements far beyond Earth.

Biological approaches to supplying food, water, and air could not only save power aboard the station, but could also reduce the number of resupply trips required.

Maybe some day astronauts will have fresh bread on the station. But even with today's frozen dinners, they already spend 4 hours a day on meals and hygiene. Exercise takes 2 hours more a day. That leaves them just an hour of free time for the simple pleasures of life in space: The view of Earth through the window. A letter e-mailed from their family. Microwave popcorn with a movie. And the friendship of the crew members with whom they share this tiny world.

Text 12D

Matnni o'qing va uning mazmuni haqida fikringizni qyting:

Time Travel and New Universes

It is known that for a long time well before Albert Einstein scientists were studying the ideas that seemed strange. Consider a few of such ideas now accepted by the scientific community: clocks that tick slower when they are on rockets in outer space, black holes with the mass of a million stars compressed into a volume smaller than that of atom and subatomic particles whose behaviour depends on whether they are being watched.

But of all strange ideas in physics, perhaps, the strangest one is the hole in the structure of space and time, a tunnel to a distant part of the universe. American researchers have determined that it will apparently be possible in

principle for mankind to create an entirely new universe by using the idea of wormhole (chuvakchang yo'li) connection. Such a universe will automatically create its own wormhole, squeeze through it, and then close the hole after it.

Although to many people such an idea may seem useless and fantastic, it can help scientists to develop their imagination and explore how flexible the laws of physics are. It is such an idea that could give answers to some of the fundamental questions of cosmology: how the universe began, how it works and how it will end.

The idea of wormhole comes directly from the accepted concepts of general relativity. In that theory A.Einstein proved that very massive or dense objects distort space and time around them. One possible distortion is in the form of a tube that can lead anywhere in the universe — even to a place billions of light years away. The name «wormhole» comes about by analogy: imagine a fly on an apple. The only way the fly can reach the apple's other side is the long way over the fruit's surface. But a worm could make a tunnel through the apple and thus shorten the way considerably. A wormhole in space is the same kind of tunnel; it is a shortcut (eng qisqa masofa) from one part of the universe to another that reduces the travel time to about zero.

In fact, instantaneous travel leads to the idea of wormhole as time machine. If it were possible to move one end of a wormhole at nearly the speed of light, then, according to general relativity, time at that end would slow down and that part of the tunnel would be younger than the other end. Anything moving from the faster-aging end of the wormhole to the slower one would essentially go backward on time. The type of travel, however, could be nothing like the mechanical time machine described by H. Wells. It is difficult to imagine how a human being could move through a wormhole, since it would theoretically be narrower than an atom and it would tend to disappear the instant it formed.

QO'SHIMCHA TOPSHIRIQLAR



1-mashq. 12A matnni o'qing va ajratib ko'rsatilgan so'zlar ma'nosini tushunishga harakat qiling: машқА.

1. life expectancy
2. risky process
3. key module

1. life-support module
2. the next great adventure
3. merely

B. A tomondagi har bir ajratib ko'rsatilgan so'zga mos keladiganini toping:

- d. essential to
- e. activity full of risk, danger and excitement
- f. full of risk

- a. expected period during which smth. is active and useful
- b. only, simply
- c. equipment providing an environment astronauts may live in.



2-mashq. 12 A matnidan toping. Quyidagi -al, -ous и -ive suffikslari bilan kelgan sifatlarni toping:

between different countries

connected with one person or part of smth.

connected with one country

that supplies reliable information

of technology

of the state, government and politics

coming earlier in time

important because of possible danger

full of strong desire to be or to do smth.

broad, extending in various or all directions

high priced



3-mashq. A. matnni o'qing va quyidagilarni ifodalaydigan so'zlarni toping:

height, propelling force, wished, be greater than, pressing, what remains, force directed forward, remain in space at one place, spending or using, thrust without losses, braking, small (not serious or important).

Solar Sails

If we are going to open the solar system to rapid economic travel, we need to find advanced space propulsion systems. Solar sails may be among the keys to future interplanetary flights.

Solar sail propulsion uses large, lightweight reflectors attached to spacecraft that react to the light pressure from solar photons to obtain thrust. By tilting (egmoq) the sail to change the force direction, the light pressure can be used to increase the orbital speed of the spacecraft, sending it outward from the Sun, or decrease its orbital speed, allowing it to fall inward.

A new type of solar sail, called a solar photon thruster, has a large sail that always faces the Sun for maximum light collection. The collector sail has a slight curvature (qiyshiqlik) that focuses the sunlight down onto a much smaller sail, which redirects the sunlight to provide the net thrust vector desired. Besides being more efficient than a standard sail, a solar photon thruster can be launched at Shuttle altitudes. Standard sails can only operate above 1.0 km where the light pressure exceeds the atmospheric drag.

Were a solar sail made light enough, it could «hover» without orbiting, the light pressure from the solar photons balancing the gravity attraction of the Sun and/or Earth. Then it would be possible to use solar sails first for communication, broadcast, and weather satellites, second for scientific stations hovering over the Sun and the rest of the solar system, and third for transporting cargo to and from Earth, the planets, and asteroid belt — without an expenditure of fuel.

B. A tomondagi so'zlarga B tomondan antonimlar toping:

A
1. long
2. forward
3. increase
4. heavy
5. slow
6. invisible
7. changing
8. with
9. simplicity
10. rise
11. presence
12. outward

B
a. absence
b. permanent
c. rapid
d. short
e. lightweight
f. complexity
g. rearward
h. inward visible
j. without
k. decrease
l. fall



4-mashq. Nuqtalar o'rniga quyidagi so'zlardan mos keladiganini qo'ying:

aboard life-support key facilities assembly supply maintenance stays weightless tool

1 systems of the ISS are expected to be the most advanced, they can ... cleaner air, purer water, better food, and more sanitary toilet ... than on the space shuttle.

2. Life ... the station may not be easy, but it is significantly healthier and more pleasant than in the past, allowing astronauts to focus more on the scientific research and station ... that occupy them for about 9 hours a day.

3. Thanks to the long ... on Mir station researchers learned that bone loss did not lessen over time as previously thought.

4. In the ... environment of space, everyday activities present new challenges.

5. The Mobile Servicing System to be supplied by Canada is a four-piece robotic ... that will play a ... role in ... and maintenance of the ISS.



5-mashq. A. «The International Space Station» mavzusida 10-15 ta kalit so'z ayting.

B. Speak about:

Solar sail propulsion systems.

REVISION OF LESSONS 10-12



1-mashq. Infinitive, innfinitiv konstruksiyani takrorlang. Tarjima qiling:

1. The Internet is a great place to find and hear hit songs, movies and recorded interviews.
2. It is imperative that the experiment begin at once.
3. If I were you, I should stop the experiment.
4. He wished he were a cosmonaut.
5. A new car model was much spoken about.
6. Nobody saw the professor enter the laboratory.
7. It seems to be an interesting comparison.
8. His experience in the field of materials science can be relied upon.
9. This theory is hard to prove.
10. The new discovery was often referred to.
11. We expect this book to appear in bookshops very soon.
12. Scientists appear to know very little of this phenomenon yet.
13. The main problem is for the report to be published as soon as possible.
14. Materials to be brought back to Earth from space laboratories will have some stable properties.
15. It is unusual for a program to work correctly the first time it is tested.
16. Some experiments on the ISS could result in the development of clocks a thousand times more accurate than today's atomic clocks.
17. There are all kinds of life-supporting equipment aboard a spacecraft as it is essential that cosmonauts should feel themselves as comfortable as possible.
18. Lasers are supposed to be able to solve a number of very complicated problems connected with medicine.
19. One of the most important requirements for hypersonic craft is a sophisticated cooling system lest extreme temperatures should destroy the craft.
20. Educational system suggested by William Rodgers, the founder of MIT, proved to be very effective and to give a sound command of the basic principles of science and technology.
21. People always wished that there were a device that could vaporize the hardest and the most heat-resistant material.
22. A number of important innovations such as reducing the weight of airplanes and spacecrafts would have been impossible unless composite materials had been developed.
23. Scientists discovered superconductors to possess thermal, electric and

magnetic properties quite different from the non-conducting materials.

24. The cost of electricity generation has been influenced by the development of electromagnets made with superconductors.

25. To produce the superconductive effect, a Dutch physicist cooled a mercury wire below a temperature of -269°C .

26. We know optical disks to store much more information than a plastic disk of the same size.

27. Laser was dreamt of by mankind for centuries.

28. The applications of laser in industry and science are known to be numerous and varied.

29. The appearance of laser was followed by the fabrication of ultrathin silicon fibers capable of servicing as lightweight conductors.

30. Some metals and glasses to be cooled down to the point of solidification in space can be brought back to Earth.



2-mashq. Infinitive konstruksiyalarga e'tibor berib, matnni o'qing va tarjima qiling:

Programming Languages

The only language computers can understand directly is called machine code. It is known to consist of the Is and Os (binary code) that are processed by the CPU. However, machine code as a means of communication is very difficult to write. That is why it is necessary to use symbolic languages that are easier to understand. Then, by using a special program, these languages can be translated into machine code.

Basic languages, in which the program is similar to the machine code version, are known as low-level languages. In these languages, each instruction is equivalent to a single machine code instruction, and the program is converted into machine code by a special program called an assembler. These languages are considered to be still quite complex and restricted to particular computers.

To make the program easier to write and to overcome the problem of intercommunication between different types of machines, higher-level languages were developed such as BASIC, COBOL, FORTRAN, Pascal, Ada, C and others. A higher-level language is a problem oriented programming language, whereas a low-level language is machine oriented. This means that a high-level language is a convenient and simple means of describing the information structures and sequences of actions to be performed for a particular task.

A high-level language is independent of the architecture of the computer which supports it. This has two advantages. Firstly, the person writing the program does not have to know anything about the computer the program will be run on. Secondly, programs are portable, that is, the same program can (in theory) be run on different types of computer. Programs written in one of these languages should be converted by means of a compiler into a lower-level language or machine code so that the CPU could understand it.

C, a high-level programming language, seems to be very popular today because it is small, so it is not too hard to learn, it is very efficient and portable so one can use it with all kinds of computers. A lot of software engineers use C to write commercial applications programs for mini, micro and personal computers. There are also various versions of C — C++ and Objective C, which represent a new style of programming.

At present there is a tendency towards an even higher level of programming languages, which might be called specification languages, and an increasing use of software development tools.

People communicate instructions to the computer in symbolic languages and the easier this communication can be made, the wider the application of computers will be. Scientists are reported to be already working on Artificial Intelligence and the next generation of computers may be able to understand human languages.



3-mashq. A. 2 mashq matnini o'qing va nuqtalar o'rniga quyidagi so'zlardan mos keladiganini qo'ying:

programming compiler programmed program assembler language programmers portable low-level machine code

1. A computer ... is a set of instructions that tells the computer what to do.
2. Converting an algorithm into a sequence of instructions in a programming language is called
3. Most computer ... make a plan of the program before writing it.
4. Coding is the translation of the logical steps into a programming
5. In the next century computers will be ... in natural languages like English or French.
6. A ... is a special program that converts a program written in a high-level language into a program written in a lower level language.
7. It is difficult to use , which is the only language understood by the processor.
8. A special program called ... converts a program written in a low-level

language into machine code.

9. If the same program can be used for different computers, it is called

10. In a ... language each instruction has a corresponding machine code equivalent.

Speak about:

The new programming language you have heard of or read about.

SUPPLEMENTARY TEXTS

To be read after Lesson 1

Education

Most Americans start to school at the age of five when they enter kindergarten. Children do not really study at this time. They only attend for half the day and learn what school is like. Children attend elementary school for next six years. They learn to read and write and work with numbers. They also study the world and its people. After they leave elementary school, children go to junior high school for three years and senior high school for another three years. This is called secondary education. In some places the children go to elementary school for eight years and high school for four. At any rate, elementary and secondary education together take twelve years to complete excluding kindergarten.

In their secondary schooling children get more advanced knowledge and begin to concentrate on their special interests. They usually study further in history, geography, government and English language and literature.

They may choose to study foreign languages, advanced mathematics or science, such as physics or chemistry. Students who plan to go on to college or professional training must take some of these courses in order to enter college. Other students who do not intend to go on with school may take classes in accounting or typing or other subjects that will help them in the business world. Some senior high schools are vocational. Boys may learn to operate machines or do other work. Girls may learn cooking, sewing or office work. High schools have athletic teams which play against teams from other schools. Many boys enjoy playing football, basketball or baseball. These games take place after school hours. Girls are given physical education too, but they do not usually play teams from another schools.

In the most places in the US children must attend school until they are sixteen, or until they finish high school, usually at the age of seventeen or eighteen. Some children who are not good students drop out of school at the age of sixteen. This is a growing problem, for it is harder and harder for people to find work when they have not finished their high school education.

Public schools are free for all boys and girls, but some parents prefer to send their children to private schools. Some private schools are connected with churches and children receive religious instruction as well as their regular studies. Other private schools are not religious, but have small classes and very good teachers so that the parents think their children will get a better education

there than in the larger classes of the public schools. The private schools do not receive any tax money, so most of them must charge the students several hundred dollars a year to pay for the cost of the school. Boys and girls attend the public schools together, but many private schools are for girls only or for boys only.

To be read after Lesson 2

The Trees Fell — So Did the People

Early civilisations may have killed themselves off by plundering (yirtqichlarcha yo'q qilib tashlamoq) local plants and animals. New archeological findings suggest that far from living in perfect harmony with nature, prehistoric civilisation dealt major and sometimes fatal blow to natural surroundings. Many investigators now question the idea that environmental problems began only with the industrial revolution in the 19th century.

Long before the appearance of industrial civilization prehistoric societies were destroying (yo'q qilmoq) forests, plants, animals and farmland. Such destruction sometimes destroyed them in turn.

The mysterious disappearance of Anasasi Indians may be a dramatic example of this. In territories that are now New Mexico and Arizona the Indians built a complex of roads, irrigation systems and giant «houses» with 800 rooms and more. All were abruptly left by them around A.D. 1200. Until now, the majority of archeologists have believed that the reason was a prolonged drought (qurg'oqchilik), but by using an electron microscope to analyze the tree rings American scientists found that over two centuries or so the Indians were systematically deforesting the canyon where they lived until the forests' ability to replenish itself was destroyed.

Some Words About Words

With about 200,000 words in current usage English is generally regarded as the richest of the world's languages. Few other languages can match this word power. Chinese comes close. German has a vocabulary of only 184,000 words, and French has fewer than 100,0 words.

English owes its exceptionally large vocabulary to its ability to borrow and absorb words from outside. Atomic, jeans, khaki, sputnik, perestroika, glasnost are just a few of the many words that have come into use during this century. They have been taken or adopted from Italian, Hindi, Creek and

Russian. The process of borrowing words from other languages has been going on for more than 1,000 years. When the Normans crossed over from France to conquer England in 1066, most of the English spoke old English or Anglo-Saxon — a language of about 30,000 words. The Normans spoke a language which was a mixture of Latin and French. It took about three centuries for the language to become one that is the ancestor of the English they speak today. The Normans gave us words such as «city», and «palace». The Anglo-Saxon gave us «ring and town».

Latin and Greek have been a fruitful source of vocabulary since the 16th century. The Latin word «mini», its opposite «maxi» and the Greek word «micro» have become popular adjectives to describe everything from bikes to fashion.

To be read after Lesson 3 Nuclear Power? Well, Yes

Although nuclear reactors have generated electricity commercially for more than 40 years and nearly 400 now in operation, two major accidents — in the US in 1979 and Chernobyl in the USSR in 1986 — have put the industry under a radioactive cloud. In the popular imagination, reactors are nuclear bombs; even if they don't explode, they go on accumulating waste that will finally cause a global catastrophe.

As a result, an energy source once considered as the fuel of the future became questionable. But not everywhere. Nuclear power provides nearly a quarter of the electricity generated in the industrialized Western world by the 24-member countries of the Organization for Economic Cooperation and Development. In France more than 76 % of electric power is nuclear-generated, in Belgium — 62 %, Sweden — 50 %, Germany, Switzerland, Spain and Finland come in at one third, Japan — a little less; Britain, the US and Canada — under 20 %. Some countries have no nuclear power plants at all and don't want any.

Not only the strong emotions of fear have worked against nuclear power. Energy demand grew more slowly than expected in the past decade. Prices of oil and coal have reduced. However, energy prices can rise. Moreover, supplies of fossil fuel are limited, while energy needs and tide (suv ko'tarilishi) can't meet the increasing requirements. Besides, nuclear power doesn't add to global warming.

All this causes the people to believe that the world can't live and work without nuclear power.

To be read after Lesson 4

Telecommunication

A group of people enter a room, the lights go down, the screens come... the videoconference is under way.

Tomorrow's scientific fiction has become today's new technology -a daily reality for global companies who recognise the importance of regular communication between groups of people in different locations around the world.

Essentially the videoconference room resembles a usual conference room. Delegates sit along one side of a table facing their colleagues on screen on the other side. They can see, hear and talk to each other simultaneously and can present slides of diagrams, even pieces of equipment. The technology is relatively simple. A device called videocodec takes the picture, digitalizes it for transmission over a special network and reforms the picture at the other end.

The problem today is to manufacture codec to the new international standard and to improve picture quality through faster transmission speeds. Research and development is also focusing on mobile videoconferencing with broadcast quality pictures which enable to have instant communication with colleagues around the world.

There is no doubt about the effectiveness of videoconferencing, as the videoconference eliminates the working time lost through travel.

The First Travelling Post Office

The first travelling post office in the United States was Abraham Lincoln's hat. That was a strange place, indeed, for mail; but that is where it was kept. Lincoln was appointed postmaster of New Salem, a small Western town, about the year 1833. The postman visited the place once a week and brought the mail — a dozen letters, perhaps, and two or three newspapers — in his saddle (egar) bags. He was always met by Postmaster Lincoln who put the letters into his hat for safekeeping. Lincoln was also the clerk in the country store, so he had a good opportunity to distribute the mail. But if people did not come for it, he put on his hat and delivered it. So New Salem was the first town in the US to have rural free delivery, even though the postmaster received very small pay for his work. At that time, stamps and envelopes were not used. When the sender of a letter paid the postal charges, the postmaster wrote PAID in the large letters on the face of the letter. But the postal rates were so high that the sender seldom

paid them. Thus, the mailing charges were usually collected from the person who received the mail. The postmaster always held his postal receipts until a government representative came for them.

The Internet

The Internet is a magnificent global network with millions and millions of computers and people connected to one another where each day people worldwide exchange an immeasurable amount of information, electronic mail, news, resources and, more important, ideas.

It has grown at a surprising rate. Almost everyone has heard about it and an increasing number of people use it regularly. The current estimate is that over 70 million people are connected, in some way, to the Internet — whether they know it or not.

With a few touches at a keyboard a person can get access to materials in almost everywhere. One can have access to full-text newspapers, magazines, journals, reference works, and even books. The Web is one of the best resources for up-to-date information. It is a hypertext-based system by which you can navigate through the Internet. Hypertext is the text that contains links to other documents. A special program known as «browser» can help you find news, pictures, virtual museums, electronic magazines, etc. and print Web pages. You can also click on keywords or buttons that take you to other pages or other Web sites. This is possible because browsers understand hypertext markup language or code, a set of commands to indicate how a Web page is formatted and displayed.

Internet Video conferencing programs enable users to talk to and see each other, exchange textual and graphical information, and collaborate.

Internet TV sets allow you to surf the Web and have e-mail while you are watching TV, or vice versa. Imagine watching a film on TV and simultaneously accessing a Web site where you get information on the actors of the film. The next generation of Internet-enabled televisions will incorporate a smart-card for home shopping, banking and other interactive services. Internet-enabled TV means a TV set used as an Internet device.

The Internet is a good example of a wide area network (WAN). For long-distance or worldwide communications, computers are usually connected into a wide area network to form a single integrated network. Networks can be linked together by telephone lines or fibre-optic cables. Modern telecommunication systems use fibre-optic cables because they offer considerable advantages. The cables require little physical space, they are safe as they don't carry electricity,

and they avoid electromagnetic interference.

Networks on different continents can also be connected via satellites. Computers are connected by means of a modem to ordinary telephone lines or fibre-optic cables, which are linked to a dish aerial. Communication satellites receive and send signals on a transcontinental scale.

To be read after Lesson 5

Harnessing the Speed of Light

When American engineer Alan Huang revealed his plans to build an optical computer, most scientists considered this idea as hopeless. It was impractical, if not possible, they said, to create a general-purpose computer that could use pulses of light rather than electrical signals to process data. During one of the scientist's lectures on the subject, a third of the audience walked out. At another one, some of the scientists laughed, calling the researcher a dreamer. That was several years ago. Now the scientist demonstrated his experimental computing machine based on optics. It took him five years to develop it. The device — a collection of lasers, lenses and prisms — can serve as the basis for future optical computers 100 to 1.0 times as powerful as today's most advanced supercomputers. The potential applications are remarkable: robots that can see, computers that can design aircraft, processors that can convert spoken words into written text and vice versa. Such practical optical computers are still years away — some would say light-years.

Yet many scientists are predicting that the device will have an impact similar to that of the integrated circuit which made small personal computers possible.

Photons, the basic unit of light beams, can in theory be much better than electrons for moving signals through a computer. First of all, photons can travel about the times as fast as electrons. And while electrons react with one another, beams of photons, which have no mass or charge, can cross through one another without interference. Thus, photons can move in free space. This could open the door to radically new and different computer designs, including so-called parallel processors that could work on more than one problem at a time instead of one after another, as today's new generation computers do.

How Transistors Work

Microprocessors are essential to many of the products we use every day

such as TVs, cars, radios, home appliances and of course, computers. Transistors are the main components of microprocessors. At their most basic level, transistors may seem simple. But their development actually required many years of thorough research. Before transistors, computers relied on slow, inefficient vacuum tubes and mechanical switches to process information. In 1958, engineers put two transistors onto a silicon crystal and created the first integrated circuit that led to the microprocessor. Here on a tiny silicon chip there are millions of switches and pathways that help computers make important decisions and perform helpful tasks.

Transistors are miniature electronic switches. They are the building blocks of the microprocessor which is the brain of the computer. Similar to a basic light switch, transistors have two operating positions, on and off. This on/off function enables the processing of information in a computer.

The only information computers understand are electrical signals that are switched on and off. To understand how transistors work, it is necessary to have an understanding of how a switched electronic circuit works. Switched electronic circuits consist of several parts. One is the circuit pathway where the electrical current flows — typically through a wire. Another is the switch, a device that starts and stops the flow of electrical current by either completing or breaking the circuit's pathway. Transistors have no moving parts and are turned on and off by electrical signals. The on/off switching of transistors facilitates the work performed by microprocessors.

Something that has only two states, like a transistor, can be referred to as binary. The transistor's «on» state is represented by a 1 and the «off» state is represented by a 0. Specific sequences and patterns of 1's and 0's generated by multiple transistors can represent letters, numbers, colours and graphics. This is known as binary notation.

More complex information can be created such as graphics, audio and video using the binary, or on/off action of transistors.

Many materials, such as most metals, allow electrical current to flow through them. These are known as conductors. Materials that do not allow electrical current to flow through them are called insulators. Pure silicon, the base material of most transistors, is considered a semiconductor because its conductivity can be modulated by the introduction of impurities.

Adding certain types of impurities (aralashma) to the silicon in a transistor changes its crystalline structure and improves its ability to conduct electricity.

The binary function of transistors gives microprocessors the ability to perform many tasks; from simple word processing to video editing. Microprocessors have developed to a point where transistors can carry out

hundreds of millions of instructions per second on a single chip. Automobiles, medical devices, televisions, computers and even the Space Shuttle use microprocessors. They all rely on the flow of binary information made possible by the transistor.

To be read after Lesson 6

Ceramic Application

The application which has captured the imagination of engineers, as well as the general public, is certainly the ceramic engine, that is the adiabatic turbodiesel engine and the ceramic turbine for automotive use. There are some successful prototypes on the road, however, applications on a large scale have been held back by problems of cost and reliability. Steady progress is being made in the increase of the reliability of ceramics. But the cost factor is likely to remain a problem for some time.

One should mention here that the long-term reliability in service still needs to be defined for those applications where the material must withstand very high temperatures and dynamically changing mechanical and thermal loads in a chemically aggressive environment.

Ceramic engines and turbines are but the top of the pyramid with respect to applications. At lower levels of performance there are numerous other applications, in which the operating conditions are less severe, for example, ceramic heat exchangers for chemical plants. Ceramics finds application in bearings and engine parts because of its high hardness and high abrasion resistance.

There are three main materials used in making pipes: metal, rubber and plastic.

Metal is stronger than rubber and plastic. It is also heavier and more rigid than rubber and plastic. Metal is the strongest material, but it is also the heaviest, and the most rigid. It is also the most expensive of the three materials.

Rubber is weaker than metal or plastic. It is also more flexible than the other two materials. Rubber is the most flexible of the three materials, but it is the weakest.

Plastic is lighter than metal. It is also less expensive than steel or rubber. Plastic is the lightest material. It is also the least expensive of the three materials.

Glass is used for making windows because you can see through it, and it is very hard and therefore cannot be cut easily. But at the same time it is very

brittle and therefore it can break easily.

Wood is soft and therefore it can be cut easily. It can be used in fires because it is combustible.

Car tyres are made of rubber because rubber is flexible.

A car panel is made by three methods. First, sheet steel is made. This is done by pushing a piece of steel between two rollers, which squeeze the metal and make it longer and thinner. This method is called rolling. Not all metals can be rolled. For example, iron cannot be rolled because it is too brittle. But steel can be rolled because it is tough and malleable (quyma) enough.

Next, the steel is cut into a flat shape. This is done by placing the sheet onto a die, and then cutting a hole in it with a punch. The method is called punching. The steel can be cut easily because it is now very thin.

Finally, the sheet steel is bent and pressed into a rounded shape. This is done by putting the sheet onto a die and then bending the sheet around the die with a press. This method is called pressing. It is not difficult to press sheet steel because it is thin and malleable.

To be read after Lesson 7

Electric Car

The electric car is not a new idea. It had success with American women in the early 1900s. Women liked electric cars because they were quiet and, what was more important, they did not pollute the air. Electric cars were also easier to start than gasoline-powered ones. But the latter was faster, and in the 1920s they became much more popular.

The electric car was not used until the 1970s, when there were serious problems with the availability of oil. The General Motors Co. had plans to develop an electric car by 1980. However, soon oil became available again, and this car was never produced.

Today there is a new interest in the electric car. The Toyota Co. recently decided to spend \$800 million a year on the development of new car technology. Many engineers believe that the electric car will lead to other forms of technology being used for transportation.

Car companies are working at developing a supercar. A superefficient car will have an electric motor. Four possible power sources are being investigated. The simple one is batteries. Another possibility is fuel cells, which combine oxygen from air with hydrogen to make electricity. Yet another approach would be a flywheel (maxovik), an electric generator consisting of free-spinning

wheels with magnets in the rims that can produce a current. A fourth possible power source for the super-car would be a small turbine engine, running on a clean fuel like natural gas. It would run at a constant speed, generating electricity for driving vehicles or for feeding a bank of batteries, storing energy for later use.

Engines

Do you know what the first engine was like? It was called the «water wheel». This was an ordinary wheel with blades fixed to it, and the current of a river turned it. These first engines were used for irrigating fields.

Then a wind-powered engine was invented. This was a wheel, but a very small one. Long wide wooden blades were attached to it. The new engine was driven by the wind. Some of these ones can still be seen in the country.

Both of these, the water- and wind-operated engines are very economical. They do not need fuel in order to function. But they are dependent on the weather.

Many years passed and people invented a new engine, one operated by steam. In a steam engine, there is a furnace and a boiler. The furnace is filled with wood or coal and then lit. The fire heats the water in the boiler and when it boils, it turns into steam which does some useful work.

The more coal is put in the furnace, the stronger the fire is burning. The more steam there is, the faster a train or a boat is moving.

The steam engine drove all sorts of machines, for example, steam ships and steam locomotives. Indeed, the very first aeroplane built by A.F. Mozhaisky also had a steam engine. However, the steam engine had its disadvantages. It was too large and heavy, and needed too much fuel.

The imperfections of the steam engine led to the design of a new type. It was called the internal combustion engine, because its fuel ignites and burns inside the engine itself and not in a furnace. It is smaller and lighter than a steam engine because it does not have a boiler. It is also more powerful, as it uses better-quality fuel: petrol or kerosene.

The internal combustion engine is now used in cars, diesel locomotives and motor ships. But to enable aeroplanes to fly faster than the speed of sound another, more powerful engine was needed. Eventually, one was invented and it was given the name «jet engine». The gases in it reach the temperature of over a thousand degrees. It is made of a very resistant metal so that it will not melt.

To be read after Lesson 8

The Driving Lesson

Miss Green: Good afternoon. My name is Miss Green and I'm your driving instructor. Is this your first lesson?

Simon: It is my first lesson at this driving school.

M. G.: Oh, you've been to another one?

S.: Yes. The Greenwich school of driving. But I stopped going there.

M. G.: Why? Weren't the lessons good enough?

S.: They were good but my instructor left.

M. G.: Really? Well, let's see what you can do. I want you to drive down this road and turn left at the end.

S.: Yes, all right.

M. G.: You drive very well! I'm sure you'll pass your test. All my pupils pass their tests. Oh, look out! That lorry!

S.: You said turn left at the end.

M. G.: When you want to turn a corner, slow down and look first. You nearly hit that lorry. Please, be careful. Now turn right at the traffic lights... Right, not left!

S.: Sorry it was too late. I've turned left now.

M. G.: Didn't you see the No Entry sign? This is a one-way street.

S.: Why are those drivers shouting?

M. G.: Because you're driving the wrong way down a one-way street. Stop the car, please, and turn it round.

S.: I'm not very good at that.

M. G.: Mind that red car!

S.: Madman! He nearly hit me!

M. G.: He was right and you were wrong. Why didn't you wait? Now you are blocking the road. You want reverse gear. Turn the wheel... more ... more ... Not too fast! Oh, what have you done now?

S.: It is all right. I went into the lamp-post but it is still standing. I didn't knock it down.

M.G.: Oh, but look at the back of the car.

S.: Sorry, but you said «reverse».

M.G.: I didn't say «drive into the lamp-post». Well, you've turned the car round now, so drive back to the traffic lights and go straight across.

S.: Are we going to the park?

M.G.: The roads are quieter near the park. Oh, not too fast!
S.: The lights are green.
M.G.: Slow down! The lights are changing!
S.: I can't slow down. There! We are across.
M.G.: The lights were red!
S.: It's all right. There were no policemen.
M.G.: I know why your last instructor left. He wanted to stay alive.
S.: That's not a very nice thing to say. And it's not true.
He left because he wasn't very well.
M.G.: Stop the car, please. Oh, gently!
S.: Sorry. Did you hit your head on the roof?
M.G.: No. Luckily I was wearing the seat belt. Now I want you to practise driving backwards. Reverse the park gates. Look first, than reverse in.
S.: Right.
M.G.: Oh, you've hit the gate!... Now you are driving on the grass!
S.: I'm going backwards down the hill and I can't stop!
Help me!
M.G.: Use the brakes! Don't drive into the lake!
S.: Too late.
M.G.: Look what you've done. You reversed into a lamp post. You hit the park gate. Now you've driven into the lake. Oh, why didn't you stay with the other driving school?
S.: They had no more cars left.

Heavy-Lift Dirigible

Unlike other new dirigible projects the giant CargoLifter CL 160 (Germany) is aimed at heavy-lift cargo applications, not at tourism or advertising. It will be the beginning of a new era in freight transport.

The 260-meter-long, 65-meter-diameter semi-rigid airship will be capable of transporting 160 ton loads-equivalent to 36 standard 40-ft containers — to out-of-the-way (remote) construction sites 10.0 km away. With a cruise speed of just 80—120 km/hr the CL 160 would not get the load to its destination nearby as fast as a heavier-than-air craft such as Antonov An-124, but it would also not require the landing facilities needed for the unusually large aircraft.

Moored (qo'nmoq, tushish joyiga kelmoq) above the delivery site, the airship will lower loads using an onboard crane without actually having to touch down. A crew of five, including navigator and two cargomasters (yuqori malakali ishchilar) would man the ship.

In fact, the CargoLifter project was born of a logistics need expressed by manufacturers of electric generators, turbines and other oversized (i.e., larger than the usual size) machinery.

Rolls-Royce-Turbomeca turboshaft engines are to be used for maneuvering the big airship, cruise being provided by diesel power-plants.

What Is GPS?

The Global Positioning System (GPS) is a satellite-based navigation system made up of a network of 24 satellites. GPS was originally intended for military applications, but now the system is available for civilian use. GPS works in any weather conditions, anywhere in the world, 24 hours a day.

GPS satellites circle the earth twice a day in a very precise orbit and transmit signal information to Earth. GPS receivers take this information and use triangulation to calculate the user's exact location. Essentially, the GPS receiver compares the time a signal was transmitted by a satellite with the time it was received. The time difference tells the GPS receiver how far away the satellite is. Now, with distance measurements from a few more satellites, the receiver can determine the user's position and display it on the unit's electronic map.

A GPS receiver must be locked on to the signal of at least three satellites to calculate a 2D position (latitude and longitude) and track (movement). With four or more satellites in view, the receiver can determine the user's 3D position (latitude, longitude and altitude). Once the user's position has been determined, the GPS unit can calculate other information, such as speed, bearing (direction), track, trip distance, distance to destination, sunrise and sunset time and more.

Today's GPS receivers are extremely accurate within an average of three to five meters thanks to their parallel multi-channel design.

The 24 satellites that make up the GPS space segment are orbiting the earth about 12,000 miles above us. They are constantly moving, making two complete orbits in less than 24 hours. These satellites are travelling at speeds of roughly 7,000 miles an hour.

GPS satellites are powered by solar energy. They have backup batteries onboard to keep them running in the event of a solar eclipse (solar eclipse), when there's no solar power. Small rocket boosters on each satellite keep them flying in the correct path.

Here are some other interesting facts about the GPS satellites:

The first GPS satellite was launched in 1978.

A full constellation (constellation) of 24 satellites was achieved in

1994.

Each satellite is built to last about 10 years. Replacements are constantly being built and launched into orbit.

A GPS satellite weighs approximately 2,000 pounds and is about 17 feet across with the solar panels extended.

Transmitter power is only 50 watts or less.

GPS satellites transmit two low power radio signals. The signals travel by line of sight, meaning they will pass through clouds, glass and plastic but will not go through most solid objects such as buildings and mountains.

A GPS signal contains three different bits of information — a pseudorandom code, ephemeris data and almanac data.

Some factors that can degrade the GPS signal and thus affect accuracy include the following:

The satellite signal slows as it passes through the atmosphere.

The GPS signal is reflected off objects such as tall buildings or large rock surfaces before it reaches the receiver. This increases the travel time of the signal, thereby causing errors.

A receiver's built-in clock is not as accurate as the atomic clocks onboard the GPS satellites. Therefore, it may have very slight timing errors.

The more satellites a GPS receiver can «see,» the better the accuracy. Buildings, terrain, electronic interference, or sometimes even dense foliage (yaproq) can block signal reception, causing position errors or possibly no position reading at all. GPS units typically will not work indoors, underwater or underground.

To be read after Lesson 9

Getting into Deep Water

The dark depths of the Gulf of Mexico, once frequented by only the sea creatures, are now alive with human activity. Miniature submarines and robot-like vehicles move around the ocean bottom while divers make their way around incredible underwater structures — taller than New York City skyscrapers, but almost totally beneath the surface of the waves. Modern-day explorers are using technology worth of Jules Verne and Jacques Cousteau to find fresh supplies of oil and natural gas.

Until recently, drilling in the Gulf was concentrated close to shore in water as deep as 9 m. But now the scientists are looking to hundreds of meters deep and 160 km and more from land.

The deep water research began in 1984. Since then many American companies have built the world's deepest production platforms of more than 100 storeys high. Finding gas and oil deposits at large depth is not an easy technological task.

Voyage to the Bottom of the Sea

There is an American project of one-person submarine, which will «fly» to the bottom on inverted wings rather than simply sinking under its own weight as the bathyscaphes did. This design is more like an aeroplane than a balloon. It could one day make exploring the ocean depth as easy as flying a plane is today. The most difficult problem is to find a material that is also light enough to allow the craft to float back to the surface if there is a loss of power or some other emergency. Alumina, a hard ceramic, was chosen for the vessel.

The pilot's capsule is about a meter in diameter, 5 centimeters thick and about 2 meters long. It is capped at one end with a ceramic hemisphere and at the other with a glass viewing dome. The rest of the craft, including the wings on either side and the casing at the rear for the motors, are made of a lightweight composite material.

In addition to the pilot, the pressure vessel houses the controls and instrument panel, the life-support system and a 24-volt power supply. The pilot effectively operates the craft by radio control.

The batteries feed a pair of electric motors that can drive the craft at up to 14 knots (25 kilometers per hour). The craft could dive vertically but this would be uncomfortable for the pilot who lies face downwards in the cylindrical chamber. So it descends at an angle of up to 45°. «Deep Flight» is designed to be as streamlined as possible. This means making the submarine's cross section as small as possible and providing as little equipment as possible on the hull.

At a cruising speed of 10 knots «Deep Flight» will descend at a rate of 200 meters per minute and reach 11,000 meters in about an hour in the Mariana Trench (Marianna botiqligi, dunyodagi eng chuqur joy), the deepest site on Earth. The weight of the craft is 2.5 tonnes, which is about the same as a large car. This will allow it to be launched from any vessel.

To be read after Lesson 10

Laser Technology

In the last decade there was outstanding progress in the development of laser technology and its application in science, industry and commerce. Laser cutting, welding and machining are beginning to be big business. The market for laser systems represents around 2.5 % of the world machine tool market.

Which country is the biggest producer and consumer of lasers? Why, Japan, naturally: Japan produced 46 % of world's lasers in 1989, while figures for Europe and the USA are 32 % and 22 %. Japan is building 1,200 to 2,000 CO₂ lasers per year of which some 95 % are over 500 W power and 80 % of them are used for cutting operations.

Europe is the second largest user and the third largest producer. In 1990 Europe's market for lasers was \$128 million, of which Germany consumed about \$51 million, and Italy — \$12 million. The Germany met 90 % of its demands through domestic producers. Growth rate of the European market is estimated at 10 to 15 % per year.

In the future the main trend influencing the industry will be laser source prices. The prices are dropping. There appear lasers of modular construction. The complexity of laser machines is rising. Multi-axes systems are in more use now. Recently a 7-axis CNC laser machining center has been introduced. In addition to X, Y and Z axes, there are two rotary axes, A and C, and two more linear axes, U and V, to give a trepanning (katta tuynuklar kavlamog) motion to the laser.

Optical Disks and Drives

Optical disks can store information at much higher densities than magnetic disks. Thus, they are ideal for multimedia applications where images, animation and sound occupy a lot of disk space. Besides, they are not affected by magnetic fields. This means that they are secure and stable, e.g. they can be transported through airport metal detectors without damaging the data. However, optical drives are slower than hard disks. While there are hard drives with an average access time of 8 milliseconds (ms), most CD-ROM drives have an access time of 150 to 20 ms.

There are various types of optical drives, which have become a reality. CD-ROM systems use optical technology. The data is retrieved using a laser beam. To read CD-ROM disks, you need an optical drive (a CD-ROM player).

A typical CD-ROM disk can hold 650 MB (megabytes) of sound, text, photographs, music, multimedia materials and applications. In addition, most CD-ROM drives can be used to play audio CDs. Do you remember that CD stands for compact disk?

Yet CD-ROM technology has one disadvantage. The data on a CD-ROM cannot be changed or «written» to, i.e. it is impossible to add your own material to what is on the disk. It is like a music CD.

It is not designed for you to write on, it is designed to hold a lot of information that the user doesn't need to change.

Magneto-optical (MO) drives use both a laser and an electromagnet to record information. Consequently, MO disks are rewritable, that is they can be written to, erased, and then written again. They are available in two formats. Their capacity may be more than 2 GB (gigabyte) or 230 to 640 MB. Such combined devices are good for back up purposes and storage of large amounts of information such as a dictionary or encyclopaedia.

To be read after Lesson 11

Space Cooling

A new method of cooling that can generate cryogenic temperatures of 200 °C below zero without the use of electricity and with almost no moving parts has been tested at the Jet Propulsion Laboratory in Pasadena, California. The refrigerator used for the purpose was recently tested to — 253 °C, only 20 degrees above absolute zero, the lowest possible temperature.

In space such cooling system could increase the life of future space station refuelling ports by cooling the large liquid-hydrogen fuel tanks which are likely to be in service.

In future earth applications it could be used for cooling hydrogen-powered cars and planes, as well as for cooling superconducting motors and computers. According to the JPL (Jet Propulsion Laboratory) experts the key lies in the use of hydrides, materials that interact with hydrogen. These materials absorb tremendous amounts of hydrogen gas at room temperature. The engineers of the JPL have taken advantage of this property to build a series of devices that act as compressors and provide a continuous cooling stream of liquid hydrogen.

The system saves weight in space since it can use direct solar heat instead of electricity from heavier, inefficient electric systems. Because it has so few moving parts and uses the same supply of gas in a closed cycle, it could operate for many decades. Because of its long potential lifetime, the system could be

used to cool infrared sensors during missions to the other planets, which may take 10 years or more to complete.

The Propulsion Challenge

Magsails are a form of solar sails that use a completely different type of physical interaction with the Sun. Magsail is a simple loop (kontur) of high-temperature superconducting wire carrying a persistent² current. The charged particles in the solar wind are deflected³ by the magnetic field, producing thrust. Although the thrust density in the solar ion wind flux is 5,000 times less than the thrust density in the solar photon flux⁴, the mass of a solar sail goes directly with the area, whereas the mass of the magsail rises with the perimeter of the enclosed area.

The effective cross-sectional area of the magnetic field around the magsail is about a hundred times the physical area of the loop. As a result, preliminary calculations show the thrust-to-weight ratio of a magsail can be an order of magnitude (kattalik tartibi) better than a solar sail. Recent thermal balance calculations indicate that a properly Sun-shielded⁵ cable can be passively maintained at a temperature of 65 K in space, well below the superconducting transition point for many of the new high temperature superconductors.

Notes to the Text

problem, difficulty, invitation to see which is better
continuing
cause to turn away from
flow
protected

Computer Graphics

Computer graphics are known to be pictures and drawings produced by computers. A graphics program interprets the input provided by the user and transports it into images that can be displayed on the screen, printed on paper or transferred to microfilm. In the process the computer uses hundreds of mathematical formulas to convert the bits of data into precise shapes and colours. Graphics can be developed for a variety of uses including illustrations, architectural designs and detailed engineering drawings.

Mechanical engineering uses sophisticated programs for applications in computer-aided design (CAD) and computer-aided manufacturing (CAM). In

the car industry CAD software is used to develop, model and test car designs before the actual parts are made. This can save a lot of time and money.

Basically, computer graphics help users to understand complex information quickly by presenting it in more understandable and clearer visual forms. Electric engineers use computer graphics for designing circuits and in business it is possible to present information as graphics and diagrams. These are certain to be much more effective ways of communicating than lists of figures or long explanations.

Today, three-dimensional graphics along with colour and computer animation are supposed to be essential for graphic design, computer-aided engineering (CAE) and academic research. Computer animation is the process of creating objects and pictures which move across the screen; it is used by scientists and engineers to analyze problems. With appropriate software they can study the structure of objects and how it is affected by particular changes.

A graphic package is the software that enables the user to draw and manipulate objects on a computer. Each graphic package has its own facilities, as well as a wide range of basic drawing and painting tools. The collection of tools in a package is known as a palette. The basic geometric shapes, such as lines between two points, arcs, circles, polygons, ellipses and even text, making graphical objects are called «primitives». You can choose both the primitive you want and where it should go on the screen. Moreover, you can specify the «attributes» of each primitive, e.g., its colour, line type and so on. The various tools in a palette usually appear together as pop-up icons in a menu. To use one you can activate it by clicking on it.

After specifying the primitives and their attributes you must transform them. Transformation means moving or manipulating the object by translating, rotating and scaling the object.

Translation is moving an object along an axis to somewhere else in the viewing area. Rotation is turning the object larger or smaller in any of the horizontal, vertical or depth direction (corresponding to the x, y and z axis). The term «rendering» describes the techniques used to make your object look real. Rendering includes hidden surface removal, light sources and reflections.

To be read after Lesson 12

The Space Age

Russia was the first nation into space and is recognized as the world's leader in building space stations and conducting long- duration space missions. Since Yury Gagarin's epic flight Russian space science and engineering have

come a long way. Space technology remains Russia's deepest source of pride (g'urur). Russia has launched a great number of space vehicles designed to perform a variety of functions. Unmanned satellites have been of great significance in the exploration and peaceful use of outer space. They help us learn more about the relations between processes occurring on the sun and near the earth and study the structure of the upper atmosphere. These satellites are provided with scientific equipment for space navigation of civil aviation and ships, as well as exploration of the World Ocean, the earth's surface and its natural resources.

In April 1971, history's first space station, Salyut 1, was launched and over the next 15 years six its subsequent versions operated in space. Many orbital manned flights were performed aboard these stations involving a lot of cosmonauts, most of them having flown several times. Russian cosmonauts are known to hold the record for the longest time in space (L. Kizim has worked 375 days) and for continuous stay in space (V. Titov and M. Manarov —365 days, i.e. a year). The knowledge of Russian doctors and researchers about the medical and psychological consequences of longterm space flight far exceed that of American scientists. In 1973, two years after Salyut 1, the United States launched Skylab, the Western World's first space station which was used for three highly successful missions. All these manned missions paved the way for even longer stays aboard the Russian Mir space station and, then, aboard the International Space Station.

The most successful Mir space station was launched in February 1986. It was expected to have a lifetime of only five years but it had been in orbit for 15 years before its controlled re-entry into the atmosphere. This space station was equipped with an astronomical observatory module named Kwant. It incorporated all the novelty that could be offered by designers and engineers. To keep productivity high, Russian designers paid much attention to the space station livability. The interior of Mir was painted in two colours to provide the crew with a sense of floor and ceiling. On Mir cosmonauts got two days off each week and had a special radio so that they could talk to their families and with any sportsman, scientist or celebrity they wanted.

With the twin Vega space probes being successfully launched in 1986, Russian scientists conducted close-range studies of Hailey's comet and gathered impressive scientific data about Venus. Vega 1 and Vega 2 carrying more than 30 research instruments passed within 10,000 kilometers of the comet's heart, transmitted high- quality pictures to Earth and revealed for the first time the dimensions and dynamics of its ten-mile-long nucleus. The relative speed of approaching the comet was equal to 78 km/sec. It should be pointed out that the

study of Hailey's comet was conducted on the basis of extensive cooperation of scientists. Scientists from nine countries, including the U.S, joined the Vega project.

When the 170-million horse power launch vehicle called «Energia» was successfully tested in 1987, Russia has gone far ahead of the United States in the space race. With the new multi-purpose Energia rocket it became possible to put into orbit a 100-ton payload (one must know that the first satellite carried 83,6 kg).

The first International Space Station components, Zarya and Unity, have opened a new era of space exploration. The three-stage Russian Proton booster was used to launch the Zarya module. The rocket was designed by the Salyut Design Bureau and is manufactured by the Khrunichev State Research and Production Space Centre in Moscow. The Proton is among the most reliable heavy-lift launch vehicles in operation with its reliability rating about 98 per cent. Proton measures about 180 feet tall, 24 feet in diameter at its widest point and weighs about 1,540,000 pounds when fully fueled for launch. The engines use nitrogen tetroxide, an oxidizer, and dimethyl hydrazine, a fuel, as propellants. The first stage includes six engines providing about 1.9 million pounds of thrust at launch. Four engines creating 475,000 pounds of thrust power the Proton's second stage. The Proton's third and final stage is powered by a single engine that creates 125,000 pounds of thrust.

Assembling the station will be unprecedented task, turning the Earth orbit into a constantly-changing construction site. More than 100 elements will be joined over the course of 45 assembly flights using the Space Shuttle and two types of Russian rockets. An international team of astronauts and cosmonauts will do much of the work by hand, performing more space works in just five years than have been conducted throughout the history of space flight. They will be assisted by a new generation of robotic arms, hands and perhaps even free-flying robotic «eyes».

The international partners, Canada, Japan, the European Space Agency, are supposed to contribute the following key elements to the ISS: Canada is to provide a robotic arm to be used for assembly and maintenance tasks on the station. The European Space Agency is building a pressurized laboratory to be launched on the Space Shuttle. Japan is building a laboratory module with an attached platform where experiments can be exposed to space as well as logistics transport vehicles.

Scientists believe the ISS to be the most advanced base for developing technologies, systems and procedures to enable safe, efficient and permanent human presence in space.

Cryptography

From e-mail to cellular communications, from secure Web access to digital money, cryptography is an essential part of today's information systems. The only way to protect a message is to encode it with some form of encryption. Data encryption is very important for network security, particularly when sending confidential information. Encryption is the process of encoding data so that unauthorized users can't read it. Decryption is the process of decoding encrypted data transmitted to you. The most common methods of protection are passwords for access control, encryption and decryption systems, and firewalls. Firewall is a software and hardware device that allows limited access to an internal network from the Internet.

Cryptography helps provide accuracy and confidentiality. It can prove your identity or protect your anonymity. It can prevent vandals from changing your Web page and industrial competitors from reading your confidential documents. And in the future, as commerce and communications continue to move to computer networks, cryptography will become more and more vital.

But the cryptography now on the market does not provide the level of security it advertised. Most systems are not designed and implemented together with cryptographers. Present-day computer security is a house of cards; it may stand for now, but it can't last. Electronic vandalism is an increasingly serious problem. Computer vandals take advantage of technologies newer than the system they attack, using techniques the designers never thought of and even invent new mathematics to attack the system with.

No one can guarantee 100 % security. But we can work toward 100 % risk acceptance. Fraud (aldov) exists in current commerce systems. Yet these systems are still successful, because the benefits and conveniences are greater than the losses. Some systems are not perfect, but they are often good enough. A good cryptographic system provides a balance between what possible and what is acceptable.

The good news about cryptography is that we already have the algorithms and protocols we need to secure our systems. The bad news is that that was the easy part; implementing the protocols successfully requires considerable expertise. Thus, there is an enormous difference between a mathematic algorithm and its concrete implementation in hardware and software.

Design work is the main support of the science of cryptography and it is very specialized. Cryptography combines several areas of mathematics: number theory, complexity theory, information theory, probability theory, abstract algebra, and formal analysis, among others. Unfortunately, few can do the

science properly, and a little knowledge is a dangerous thing: inexperienced cryptographers almost always design imperfect systems. Quality systems use published and well-understood algorithms and protocols. Besides, only when cryptography is designed with careful consideration of users' needs and then integrated, can it protect their systems, resources, and data.

OT NOUN

Otlar shaxslar, hayvonlar, joylar, narsalar, hodisalar va turli- tuman mavhum tushunchalarni ifodalovchi soʻzlar boʻlib, Who? (kim?) va What? (nima?) soʻroqlariga javob boʻladi.

SANALADIGAN VA SANALMAYDIGAN OTLAR

Ingliz tilidagi otlar ham oʻzbek tilidagi kabi oʻzi ifodalagan tushunchaga koʻra sanaladigan yoki sanalmaydigan otlarga boʻlinadi. Baʼzi koʻp maʼnoli otlar bir maʼnosida sanaladigan otlar sirasiga kirsam, boshqa maʼnosi bilan sanalmaydigan otlar qatoridan oʻrin olishi mumkin. Sanaladigan va sanalmaydigan otlar quyidagi xususiyatlari bilan farqlanadi:

Sanaladigan otlar

birlik va koʻplik shakllariga ega boʻladi birlik yoki koʻplikda kelishiga qarab birlik yoki koʻplik shaklidagi feʼl bilan keladi birlik shaklida kelganda oldida a, an, yoki one kabi aniqlovchilar boʻlishi mumkin koʻplik shaklida kelganda oldida many yoki few aniqlovchilari boʻlishi mumkin faqat koʻplik shaklida kelganda oldidan some aniqlovchisi ishlatilishi mumkin faqat koʻplik shaklida oldidan number of kelishi mumkin

Sanalmaydigan otlar

faqat bir shaklga ega birlik shaklidagi feʼllar bilan keladi oldidan a, an yoki one soʻzlari aniqlovchi sifatida kelmaydi oldidan aniqlovchi sifatida much ishlatilishi mumkin oldidan aniqlovchi sifatida some kelishi mumkin oldidan amount of qoʻllanishi mumkin

Muayyan turdagi otlar odatda doim **sanaladigan** boʻladi. Ularni quyidagi guruhlariga ajratish mumkin:

1. Odam, hayvon, oʻsimlik, hasharot va ularning qismlarini atovchi otlar:

PEOPLE (ODAM)

a boy (bir) bola
a girl (bir) qiz
a man (bir) kishi
a student (bir) student
a teacher (bir)
oʻqituvchi
a wife (bir) rafiqqa
a woman (bir) ayol

ANIMALS (HAYVON)

a cat (bir) mushuk
a dog (bir) it
a horse (bir) ot
a mouse (bir) sichqon
a tiger (bir) yoʻlbars
a wolf (bir) boʻri
a zebra (bir) zebra

PLANTS (OʻSIMLIK)

a cactus (bir) kaktus
a bush (bir) buta
a flower (bir) gul
an oak (bir) eman
a potato (bir) kartoshka
a rose (bir) atirgul
a tree (bir) daraxt

**INSECTS
(HASHAROT)**

an ant (bir) chumoli
a butterfly (bir) kapalak
a caterpillar (bir) qurt
a fly (bir) pashsha
a mite (bir) burga
a tick (bir) kana
a wasp (bir) ari

**PARTS
(QISM)**

an ankle (bir) to'piq
a bone (bir) suyak
a face (bir) yuz
a head (bir) bosh
a nose (bir) burun
an ear (bir) quloq
a wing (bir) qanot

2. Turli shakllarga ega bo'lgan narsa va obyektning nomlari:

a ball (bir) to'p
a building (bir) bino
a house (bir) uy
a tent (bir) palatka

a car (bir) mashina
a door (bir) eshik
a window (bir) deraza
a shop (bir) do'kon

a mountain (bir) tog'
a river (bir) daryo
a lake (bir) ko'l
a valley (bir) vodiya

a street (bir) ko'cha
a church (bir) cherkov
a stadium (bir) stadion
a tree (bir) daraxt

a lamp (bir) lampa
an umbrella (bir) soyabon
a book (bir) kitob
a pen (bir) ruchka

Atoqli va turdosh otlar

Atoqli otlar alohida olingan odamlar, joylar yoki narsalarning nomlaridir. Ular bosh harf bilan yoziladi. Qolgan barcha otlar turdosh otlar hisoblanadi.

George Allen attends Lakeview College.

Jorj Allen Leykvyu kollejiga qatnaydi.

Monday, June 15, is Marilyn Morgan's birthday.

Dushanba kuni, 15 iyunda Marilin Morganning tug'ilgan kuni.

Agar atoqli ot ikki va undan ortiq kishi, joy yoki narsaning nomi bo'lsa, uning oldidan aniq artiki yoki biror aniqlovchi qo'yiladi.

My brother is named Bill Johnson and my cousin is also named Bill Johnson.

The Bill Johnson who lives across the street from me is my brother.

Akamning ismi Bill Jonson, jiyanimning ismi ham Bill Jonson.
Ko‘chaning narigi tomonida (mening qarshimda) yashaydigan Bill
Jonson mening akam.

Turdosh otlar mavhum va aniq otlarga bo‘linadi.

Mavhum tushunchalar fikr va tasavvurlar, hissiyotlar, sifatlar va jarayonlarni nomlaydi: **justice, beauty, happiness, length, weight, classification**. Aniq otlar hissiyotlar orqali to‘g‘ridan to‘g‘ri sezish mumkin bo‘lgan narsalar yoki jonzotlarni nomlaydi: **ball, boy, bread, chair, heat, noise, fire, smoke, ice, water** va hokazo.

Jamlovchi otlar

Jamlovchi otlar bir guruh kishilar, hayvonlar, qushlar, hasharotlarni ifodalaydi. Jamlovchi ot harakatning guruh tomonidan birga bajarilayotgani yoki guruhning har a‘zosi tomonidan alohida bajarilayotganiga qarab fe‘lning birlik yoki ko‘plikdagi shaklini oladi.

Otlarda ko‘plik

Ingliz tilidagi aksariyat otlarning ko‘plik shakli to‘g‘ri yo‘l bilan yasaladi. Otning birlik shakliga **-s** qo‘shimchasi qo‘shilib, uning ko‘plik shakli hosil qilinadi.

boy – boys book – books pencil - pencils

-s, -ch, -sh, -tch, -x, -z harflari bilan tugagan so‘zlarning ko‘plik shakli **-es** qo‘shimchasini qo‘shish yo‘li bilan yasaladi.

bunch – bunches

o‘ram/bog‘(lar)

patch – patches

bo‘lak/parcha(lar)

fox – foxes

tulki(lar)

Eslatma: “**o**” harfi bilan tugovchi ko‘pgina so‘zlarga **-s** qo‘shimchasi qo‘shiladi, biroq quyidagi otlarning ko‘plik shaklini yasash uchun **-es** qo‘shimchasini qo‘shish lozim bo‘ladi:.

ARTIKLLAR ARTICLES

Artikllar mustaqil ma‘noga ega bo‘lmagan yordamchi so‘zlar bo‘lib, otlarning aniqlovchisi hisoblanadilar. Ingliz tilida artikllarning ikki turi mavjud: **noaniq artikl** (the indefinite article) va **aniq artikl** (the definite article).

Noaniq artikl (a / an)

Noaniq artikl (**a/an**) “qandaydir bir” degan ma’noni anglatadi, ya’ni bir turdagi bir necha narsalardan qaysidir bittasi ekanligini bildiradi. O‘zbek tilida unga aynan mos keladigan so‘z yo‘q, shuning uchun u ko‘pincha tarjima qilinmaydi. Ba’zan *bir, bitta, qandaydir* kabi so‘zlar bilan tarjima qilinishi mumkin.

Quyidagi ikki gapni qiyoslang:

Bandargohga paraxod keldi.

Paraxod bandargohga keldi.

Birinchi gapdagi *paraxod* so‘zi shu turga oid predmetlarning birini ifodalamoqda, ya’ni bandargohga keladigan paraxodlardan biri, lekin aynan qaysi biri ekanligi noaniq. Ikkinchi gapdagi *paraxod* so‘zi shu ma’lumotni (gapni) yetkazayotgan va uni tinglayotgan shaxslar uchun aniq narsani, ya’ni ular kutayotgan paraxodni ifodalayapti. Shuning uchun birinchi misoldagi *paraxod* so‘zi ingliz tiliga **a ship** tarzida, ikkinchi misoldagisi esa **the ship** tarzida o‘girilishi kerak.

Noaniq artikl faqat birlik shaklidagi sanaladigan otlarning oldidan qo‘yiladi.

Noaniq artiklning **a** shakli undosh tovush bilan boshlanuvchi otlardan oldin qo‘yiladi:

a ball (bir) koptok

a man (bir) kishi

a policeman (bir) politsiyachi

a book (bir) kitob

a house (bir) uy

a dog (bir) it

Noaniq artiklning **an** shakli unli tovush bilan boshlanuvchi otlardan oldin qo‘yiladi:

an apple (bir) olma

an example (bir) misol

an inkpot (bir) siyohdon

an umbrella (bir) soyabon

an egg (bir) tuxum

an eye (bitta) ko‘z

Give me, please, **a** pen.

Iltimos, menga ruchka bering (qandaydir bitta ruchka).

This man is **a** teacher.

Bu kishi o‘qituvchi (qandaydir bir o‘qituvchi).

He is **an** investigator.

U tergovchi (bir tergovchi).

Agar otning oldida artikldan boshqa aniqlovchi ham bo'lsa, u holda artikl o'sha aniqlovchidan oldin qo'yiladi.

It is **a book**.

Bu (bir) kitobdir.

It is **an interesting book**.

Bu (bir) qiziqarli kitob.

Noaniq artikl quyidagi holatlarda ishlatilmaydi:

1) sanalmaydigan otlar bilan:

I like **cheese and milk**.

Men pishloq va sutni yaxshi ko'raman.

2) ko'plikdagi otlar bilan:

They are **schoolchildren**.

Ular maktab bolalaridir.

3) atoqli otlar bilan:

I spoke to **Peter** about it.

Men bu (narsa) haqida Piter bilan gaplashdim.

4) otlar oldidan egalik va ko'rsatish olmoshlari kabi aniqlovchilar kelganda:

I need **this book**.

Menga bu kitob kerak.

I see **his car**.

Men uning mashinasini ko'ryapman.

5) o'zidan keyin sanoq son kelgan otlardan oldin:

He lives in **apartment 3**.

U 3-xonadonda yashaydi.

Aniq artikl (the)

Aniq artikl – **the** so'zlovchi va tinglovchi uchun aniq bo'lgan shaxs, narsa, hodisa kabilarni ifodalovchi otlar oldidan ishlatiladi.

The book is interesting.

Kitob qiziqarli (*so'zlovchi va tinglovchi uchun aniq bo'lgan kitob*).

Ingliz tilidagi aniq artikl **the** odatda o'zbek tiliga tarjima qilinmaydi. Ba'zan *o'sha* olmoshi yoki tushum kelishigi qo'shimchasi (*-ni*) yoxud boshqa vositalar bilan tarjima qilinishi mumkin.

This is **the** book I asked you for.

Bu (**o'sha**) men sizdan so'ragan kitob.

The hamma otlar bilan ishlatilishi mumkin. Aniq artikl (**the**)ni quyidagilarni ko'rsatuvchi otlarni aniqlash uchun ishlatish kerak:

1. Oldinroq tilga olib o'tilgan otga qayta ishora qilinganda.

We saw a new film yesterday. **The** film was interesting.

Kecha biz yangi film tamosho qildik. Film qiziqarli ekan.

A dog has been barking all day and here is **the** dog now, standing outside the gate.

Bir it kuni bo‘yi hurib chiqdi, endi o‘sha it tashqarida, darvoza tashqarsida turibdi.

2. Otning o‘zidan keyin keladigan aniqlovchisi borligini bildirish uchun.

The man at the door wants to speak to you.

Eshik yonidagi kishi siz bilan gaplashishni xohlaydi.

The dog that has been barking all day has finally stopped barking.

Kuni bilan hurib chiqqan it nihoyat hurishdan to‘xtadi.

Every student should know something about **the history of his own country**.

Har bir talaba o‘z vatani tarixi haqida biror narsa bilishi kerak.

Aniq artikl (**the**) orttirma darajadagi sifat va ravishlar hamda tartib sonlardan oldin qo‘yilishi shart (bunda ko‘pincha otdan keyin birikmali aniqlovchi keladi).

This is **the best** cake **I have ever eaten**.

Bu men umrimda yegan eng yaxshi shirin kulcha ekan.

China has **the largest** population **of all countries in the world**.

Xitoy dunyodagi barcha mamlakatlar ichida eng ko‘p aholiga ega.

Mr. Everest is **the highest** mountain **in the world**.

Janob Everest (tog‘i) dunyodagi eng baland tog‘.

Charles Lindbergh was **the first** person **to fly the Atlantic alone**.

Charlz Lindberg Atlantika (okeani)dan yolg‘iz uchib o‘tgan birinchi insondir.

Eslatma: yakka holda ishlatilgan, ya‘ni o‘zidan keyin aniqlanmish kelmagan tartib son oldidan artikl qo‘yilmaydi.

She was **first** in her class.

U o‘z sinfida birinchi edi.

Our team is **third** in the standings.

Bizning lamoqa mavqeyi bo‘yicha uchinchi.

3. So‘zlovchi (yozuvchi) va tinglovchi (o‘quvchi) uchun ma‘lum bo‘lgan kontekstda.

Here comes **the** teacher (one teacher known to the class).

Bu yoqqa o‘qituvchi kelyapti (sifga ma‘lum bo‘lgan o‘qituvchi).

Turn on **the** light in **the** kitchen (only one light in one kitchen).

Oshxonadagi chiroqni yoq (oshxonada faqat bitta chiroq bor).

Have you been to **the** mountains recently? (mountains nearby that are known to everyone)

Siz yaqindda tog‘da bo‘ldingizmi? (shu yaqin atrofdagi hammaga ma‘lum tog‘da)

They prefer to live in **the** city (the reader understands the difference between living in the country or suburbs and living in the city).

Ular shaharda yashashni afzal ko‘radilar (o‘quvchi shaharda yoki uning chekkasida yashash bilan qishliqda yashash orasidagi farqni tushunadi).

4. Narsaning sinfini aniq ko‘rsatish uchun. Ko‘pincha otdan oldin keladi:

The child is the hope of the future.

Bola(lar) kelesha(imiz) umididir.

The nuclear threat is frightening.

Atom (bombasi) havfi dahshatga solmoqda.

Aniq artikl **the** ba‘zan sifatdan oldin kelishi ham mumkin, masalan:

The elderly are often lonely.

Keksalar ko‘pincha yolg‘iz bo‘ladilar.

The handicapped need access to public buildings.

Nogironlarga jamoat binolariga kirish huquqini berish kerak.

5. Ilovali1 birikmalar boshida.

This is my friend, **the** one I was telling you about.

Do this experiment first, **the** experiment on page 29.

6. Yagona holda mavjud bo‘lgan narsalarni ifodalovchi otlar oldidan.

the sky-osmon

the sun-quyosh

the moon-oy

the earth-yer

the president-prezident

the capital-poytaxt

Tashkent is **the** capital of our country.

Toshkent mamlakatimizning poytaxti.

The sun rises in **the** east, and sets in **the** west.

Quyosh sharqdan chiqib, g‘arbga botadi.

Artikllar (**a/an, the**) quyidagi hollarda ishlatilmaydi:

1. Ot bir sinfga (turga) mansub bo‘lgan barcha narsalarni ifodalaganda:

Dogs are domestic animals. (all dogs)

Itlar uy hayvonlaridir. (barcha itlar).

Mary likes **dogs**. (all dogs)

Meri itlarni yaxshi ko‘radi. (barcha itlarni)

Man proposes; God disposes.

Insondan harakat, Allohdan barakat (*man* “kishi” so‘zi orqali barcha insonlar nazarda tutilgan)

2. Bir turni boshqa turdan ajratish uchun:

Dogs, not **squirrels**, are domestic animals.

Olmaxonlar emas, itlar uy hayvonlaridir

Mary likes **dogs**, not **cats**.

Meri mushuklarni emas, itlarni yoqtiradi.

Men, not **women**, are boxers.

Ayollar emas, erkaklar bokschilardir.

3. Bir turga mansub barcha narsalarni emas, qanchadir miqdori ifodalanganda:

Leaves are beginning to fall.

Barglar to‘kila boshlayapti.

Engineers make good salaries.

Injenerlar yaxshi maosh olishadi.

The edge of the field was marked by **trees**.

Dalaning cheti daraxtlar bilan belgilab qo‘yilgan edi.

4. *be* fe‘lidan keyin kelgan ko‘plikdagi otlar bilan:

Most of my friends are **students**.

Do‘stlarimning ko‘pchiligi – student.

His sisters are **teachers**.

Uning opalari – o‘qituvchi.

5. O‘ziga xos va yagona bo‘lgan muassasa va jarayonni ifodalovchi otlar bilan:

School begins Monday (a particular Monday).

Maktab dushanba (kuni) boshlanadi.

Breakfast will be late tomorrow (there will be only one breakfast tomorrow).

Ertaga nonushta kechikadi (ertaga faqat bir marta nonushta bo‘ladi).

People are angry with **Congress** (there is only one Congress in the country).

Odamlar Kongresdan norozi (mamlakatda faqat bitta Kongress bor), *lekin*,

People are angry with **the** state legislature (one of many).

Odamlar davlat qonunchiligidan norozi (bir nechtadan bittasi).

People are angry with **the** city council (one of many).

Odamlar shahar kengashidan norozi (bir nechtadan bittasi).

FE’L ZAMONLARI

TENSE

Oddiy hozirgi zamon

Fe’lning hozirgi oddiy zamon (Simple Present Tense) shakli infinitivning “to”siz shakliga to‘g‘ri keladi. Uchinchi shaxs birlikda fe’l o‘zagiga **-(e)s** qo‘shimchasi qo‘shiladi.

Positive Tasdiq

I men o‘ynayman

We play. Biz o‘ynaymiz

You siz o‘ynaysiz.

They ular o‘ynaydilar.

He o'ynaydi.
She plays. o'ynaydi..
It o'ynaydi..

Uchinchi shaxs birlikda ishlatilayotgan fe'l undoshdan keyin keluvchi "y" harfiga tugagan bo'lsa, "y" harfi "i"ga aylanadi va "-es" qo'shimchasi qo'shiladi:

study – studies try - tries

"o" unlisi va "ch", "sh", "s" yoki "x" sirg'aluvchi undoshlar bilan tugagan so'zlarga "-es" qo'shimchasi qo'shiladi:

go – goes teach – teaches fish – fishes

do - does pass – passes fix - fixes

Inkor va so'roq gaplar **do** yordamchi fe'li vositasida yasaladi.

Negative Inkor

I
We
You **do not**
They(**don't**) play

Men o'ynamayman. Biz o'ynamaymiz. Siz o'ynamaysiz. Ular o'ynamaydilar.

He play **does**
She **not**
It (**doesn't**)

U o'ynamaydi. U o'ynamaydi. U o'ynamaydi.

Oddiy hozirgi zamon har xil holatlarda ishlatilishi mumkin. U doim ham hozir bo'layotgan ish-harakat yoki holatni ifodalamaydi.

Oddiy hozirgi zamon quyidagi hollarda ishlatiladi:

1. Biror narsa yoki kimsaning hozirgi holati yoki maqomini ifodalash uchun holat fe'llari bilan.

Ben **is** hungry.

Benning qorni och.

Now I **believe** that you are right.

Endi haqligingga ishonyapman (*yoki* ishondim).

That cake **smells** good.

Anavi shirin kulchadan yaxshi hid kelyapti.

Do you **realize** what you are saying?

Nima deyayotganingni tushunyapsanmi?

Caroline **attends** college in Canada.

Karolin Kanadada kollejga qatnaydi (*yoki* qatnayapti).

Does Harold **live** in Rome now?

Harold hozir Rimda yashayaptimi?

Bunday gaplarda **now, at this time/moment,**

today, tonight, this minute/morning/noon/evening

kabi payt ravishlari kelishi mumkin.

2. Oddiy hozirgi zamon mutlaq haqiqat yoki tabiiy qonuniyatni ifodalash uchun ishlatiladi.

The moon **affects** the tides.

Oy suvning ko'tarilishi va pasayishiga ta'sir qiladi.

Parallel lines never **meet**.

Parallel chiziqlar hech qachon to'qnashmaydi.

Hot air **rises**.

Issiq havo (yuqoriga) ko'tariladi.

Hydrogen and oxygen combine to make water.

Suv hosil bo'lishi uchun vodorod bilan kislorod qo'shiladi.

Bunday gaplarda **always** (doim), **never** (hech qachon), **inevitably** (muqarrar), **without fail** (albatta), **at all times** (hamisha), **invariably** (shubhasiz) kabi payt ravishlari kelishi mumkin.

3. Oddiy hozirgi zamon odat tusiga kirgan, takrorlanuvchi ish-harakatni ifodalash uchun ishlatiladi.

Beverly **drinks** coffee every morning.

Beverli har kuni ertalab kofe ichadi.

We always **celebrate** my birthday with a family party.

Biz doim mening tug'ilgan kunimni oilaviy kecha bilan nishonlaymiz.

The Browns **do not wash** their windows every week.

Braunlar derazalarini har hafta yuvishmaydi.

Do the Andersons plant tomatoes every year?

Andersonlar har yili pomidor ekishadimi?

Bunday gaplarda **always** (doim), **never** (hech qachon), **usually** (odatda), **seldom** (kamdan kam/ba'zida), **sometimes** (ba'zan), **rarely** (kamdan kam), **not ever** (doim emas), **occasionally** (tasodifan), **often** (tez-tez), **not often** (tez-tez emas), **every** (har), **each** (har) kabi payt ravishlari kelishi mumkin.

4. Hozirgi oddiy zamon badiiy, ilmiy, sahna va san'at asarlarini muhokama qilishda boshqalarning avval aytgan yoki yozgan gaplariga murojaat qilinganda tarixiy hozirgi zamoni ko'rsatish uchun ishlatiladi.

In the short story "The Lottery", Shirley Jackson **writes** an allegory of the injustice of life.

"Lottereya" nomli qisqa hikoyasida, Shirli Jakson hayot adolatsizligi allegoriyasini yozgan.

Darwin **presents** evidence for the development of life from lower to higher forms.

Darvin hayotning quyi shakldan yuqori shaklga qarab rivojlanishi haqida dalillar keltiradi.

The author of this textbook **explains** the problem clearly.

Bu darslik muallifi muammolarni yaxshi tushuntirib bergan.

Bunda gapda **skillfully** (mohirona), **cleverly** (oqilona), **correctly** (to'g'ri), **incorrectly** (noto'g'ri), **clumsily** (qo'pol), **brilliantly** (a'lo darajada), **well**

(yaxshi), **poorly** (bo'sh), **adequately** (mos tarzda), **inadequately** (nomuvofiq tarzda), **properly** (to'g'ri), **rightly** (haqli ravishda), **wrongly** (noto'g'ri) kabi baholash ravishlari kelishi mumkin.

5. Hozirgi oddiy zamon biror narsani izohlash, tushintirish yoki aniqlashda ishlatiladi.

To fight against criminality **means** to prevent and solve crimes.

Jinoyatchilikka qarshi kurashmoq jinoyatlarni oldini olmoq va ochmoq demakdir.

An investigator **solves** crimes but an operative worker **detects** criminals.

Tergovchi jinoyatlarni ochadi, tezkor xodim esa, jinoyatchilarni izlab topadi.

6. Hozirgi oddiy zamon shart va payt ergash gaplarda kelajakda sodir bo'lishi mumkin bo'lgan ish-harakatni ifodalashda ishlatiladi.

Uncle Robert will give you fifty dollars **if** he **likes** your work.

Agar ishing yoqsa, Robert amaki senga ellik dollar beradi.

Uncle Robert will give you fifty dollars **when** he **sees** you.

Robert amaki seni ko'rganida senga ellik dollar beradi.

7. Hozirgi oddiy zamon keljakda sodir bo'lishi aniq bo'lgan ish-harakatni ifodalashda ishlatiladi.

The plane **leaves** at 9:25 tonight.

Samolyot kechqurun soat 9:25da uchadi.

The term **is** over on December 16.

Muddat 16 dekabrda tugaydi.

Oddiy kelasi zamon

Fe'ning oddiy kelasi zamon (The Simple Future Tense) shaklini yasash uchun **shall** (I shaxs birlik va ko'plikda) va **will** (II va III shaxslar birlik va ko'plikda) yordamchi fe'llari hamda asosiy fe'ning "to"siz infinitiv shaklidan foydalaniladi. Hozirgi ingliz tilida barcha shaxslar uchun, ham birlikda ham ko'plikda **will** yordamchi fe'lini qo'llash oddiy holga aylangan.

I shall (will) do it tomorrow.

Men buni ertaga bajaraman.

Og'zaki nutqda tasdiq va so'roq gaplarda yordamchi fe'llarning qisqargan shakllari ishlatiladi.

Simple Future kelgusida sodir bo'ladigan ishharakatlarni ifodalaydi. Kelasi zamonda ko'pincha quyidagi payt ravishlari ishlatiladi:

tonight bugun tunda

tomorrow ertaga

the day after tomorrow indinga

in two days (a month) ikki kundan (bir oydan) keyin

next week kelasi hafta(da)

next month kelasi oy(da)

soon yaqinda, tezda

She travels a lot. Today she is in London. Tomorrow she'll be in Rome, next week she'll be in Tokyo.

U juda ko'p sayohat qiladi. Bugun u Londonda. Ertaga u Rimda bo'ladi, kelasi hafta(da) Tokioda bo'ladi.

We'll probably go out for a walk after dinner.

Tushlikdan keyin sayr qilishga chiqsak kerak.

I won't be at home tonight.

Bugun tunda uyda bo'lmayman.

Simple Future (oddiy kelasi zamon) ko'pincha **if, when, after, as soon as, before** bog'lovchilari bilan bog'langan shart va payt ergash gapli qo'shma gaplarda ishlatiladi. Bunday qo'shma gaplardagi bosh gap odatda kelasi zamonda keladi.

Oddiy kelasi zamon **be going to** "-moqchi" vositasida ham ifodalanishi mumkin.

Oddiy o'tgan zamon to be fe'lining tuslanishi

Oddiy o'tgan zamonda (The Simple Past Tense) **to be** (bo'lmoq) fe'li ikki shaklda ishlatiladi: **was** - birlikda va **were** - ko'plikda.

To'g'ri va noto'g'ri fe'llar

O'tgan zamon shaklining yasalishiga ko'ra ingliz tilidagi fe'llar ikki turga bo'linadi: **to'g'ri fe'llar** (regular verbs) va **noto'g'ri fe'llar** (irregular verbs).

To'g'ri fe'llarning o'tgan zamon shakli **-ed** qo'shimchasi yordamida yasaladi va [d] yoki [t] yohud [id] tarzida talaffuz qilinadi.

Imlo (spelling)

"-e" harfiga tugagan to'g'ri fe'llarga **-d** harfini qo'shib o'tgan zamon shakli yasaladi:

to translate – translated

tarjima qilmoq – tarjima qildi

to investigate – investigated

tekshirmoq – tekshirdi

Undoshdan keyin keluvchi "y" harfiga tugagan fe'lga **-ed** qo'shimchasi qo'shilganda "y" harfi "i"ga aylanadi.

to study – studied

tahsil olmoq – tahsil oldi

to identify – identified

aynanlashtirmoq – aynanlashtirdi

Noto'g'ri fe'llarning o'tgan zamon shakli fe'l o'zagining o'zgarishi bilan hosil bo'ladi.

to write – wrote

yozmoq – yozdi

to go – went

bormoq - bordi

to become –

became

bo‘lmoq – bo‘ldi

to have – **had**

ega bo‘lmoq – ega edi

Hozirgi ingliz tilida ko‘p ishlatiladigan noto‘g‘ri fe’llarning ro‘yxati qo‘llanmaning oxiriga ilova qilingan.

Hozirgi davomli zamon

Continuous (davomli, davom etuvchi) zamonlari guruhi ish-harakatning muayyan vaqtda (o‘tmishda, hozir yoki kelgusida) sodir bo‘lib turganligini yoki hali tugamaganligini bildiradi.

Hozirgi davom etuvchi zamon (The Present Continuous Tense) **to be** yordamchi fe’lining hozirgi zamon shakllaridan biri (**am, is, are**) va asosiy fe’lning hozirgi zamon sifatdosh shakli (**Participle I**) yordamida yasaladi.

<i>Positive</i>	<i>Tasdiq</i>
I am working.	Ishlayapman.
He	
She is working.	Ishlayapti.
It	
We	Ishlayapmiz.
You are working.	Ishlayapsiz.
They	Ishlayaptilar.

<i>Negative</i>	<i>Inkor</i>
I am not working.	Ishlamayapman.
He	
She is not working.	Ishlamayapti.
It (isn't working)	
We	Ishlamayapmiz.
You are not working.	Ishlamayapsiz.
They (aren't working)	Ishlamayaptilar.

Present Continuous ba’zi manbalarda **Progressive Tense** deb ham yuritiladi. Mazkur zamon ayni paytda sodir bo‘lib turgan, lekin tugaydigan ish-harakatni ifodalaydi.

Kelasi zamon payt ravishlari bilan ishlatilganda kelasi (Future) zamoni ifodalaydi.

Present Continuous quyidagi hollarda ishlatiladi:

1. Hozir sodir bo‘lib turgan ish-harakatni ifodalashda **now, today, this minute, this month, this year, at the moment** kabi va boshqa payt ravishlari bilan:

The children **are playing** outside today.

Bugun bolalar tashqarida o‘ynashyapti.

“What **are you doing** now?”

“Hozir nima qilyapsiz?”

“I’**m reading** a book.”

“Kitob o‘qiyapman.”

It is raining.

Yomg‘ir yog‘yapti.

2. Odat bo‘lib qolgan ish-harakatni, ko‘pincha salbiy munosabat bildirilganda:

That little girl **is** always **biting** her fingernails.

O‘sha qizcha doim tirnog‘ini tishlab yuradi.

Tracy **is** always **eating** too much.

Treysi doim ko‘p ovqat yeydi.

3. Kelgusida sodir bo‘lishi kutilayotgan ish-harakatni ifodalashda **this afternoon, tonight, tomorrow, next week, soon, next month** va shu kabi boshqa payt ravishlari bilan:

The chief constable **is arriving** from London at 2:15 tomorrow afternoon.

Bosh konstabel ertaga kunduzi soat 2:15 da Londondan keladi.

We **are going** to the theatre tonight.

Bugun kechqurun teatrga bormoqchimiz.

She **is leaving** on Friday.

U juma kuni jo‘nab ketyapti. (*yoki* ketadi)

Jismoniy, aqliy va ruhiy hissiyotlarni ifodalaydigan quyidagi fe‘llar **Continuous** zamonlarida ishlatilmasdan, **Simple** (oddiy) zamonlarda ishlatiladi.

O‘tgan davomli zamon

O‘tgan davomli zamon (The Past Continuous Tense) **was** yoki **were** yordamchi fe‘lidan keyin asosiy fe‘lning hozirgi zamon sifatdoshini qo‘llash bilan hosil qilinadi.

Past Continuous o‘tmishda muayyan vaqtda sodir bo‘lib turgan ish-harakatni ifodalaydi. O‘tmishdagi muayyan vaqt nutq vaziyatidan anglashiladi yoki gapda ifodalanadi.

Ish-harakat davom etayotgan vaqt gapda payt holi bilan ifodalanishi mumkin. Bunda **at four o‘clock** (soat to‘rt), **at that time** (o‘sha vaqtda), **all day/night long** (butun kun/tun davomida), **the whole evening/morning** (butun oqshom/tong), **from six to seven** (oltidan yettigacha) va boshqalar ishlatilishi mumkin.

I **was watching** television the **whole evening** yesterday.

Kecha butun oqshom davomida televizor ko‘rayotgan edim *yoki* kecha butun oqshom televizor ko‘rdim.

From five to seven we **were playing** chess.

Soat beshdan yettigacha shaxmat o‘ynayotgan edik.

Ish-harakat davom etayotgan vaqt o‘tgan zamondagi boshqa fe‘l orqali ifodalanishi mumkin. Bunday gaplar odatda **when** (paytda) yoki **while** (-yotganda) bog‘lovchisi bilan bog‘langan payt ergash gapli qo‘shma gap ko‘rinishida bo‘ladi.

When I **came** home, my brother **was having** supper.

Men uyga kelgan paytda (*yoki* uyga kelganimda) akam ovqatlanayotgan edi.
James and I **were watching** television **when** lightning **struck** the house.
Uyni yashin urganda Jeyms va men televizor ko'rayotgan edik.
While James and I **were watching** television, lightning **struck** the house.
Jeyms va men televizor ko'rayotganimizda uyni yashin urdi.

Past Continuous bir vaqtda bo'layotgan ikki va undan ortiq ish-harakatni ham ifodalashi mumkin.

While I **was working** in the garden my sister **was making** dinner.
Men bog'da ishlayotganimda singlim ovqat pishirayotgan edi.

Kelasi davomli zamon

Kelasi davomli zamon (The Future Continuous Tense) **shall** (I shaxs birlik va ko'plik uchun) va **will** (qolgan shaxslar uchun) yordamchi fe'llaridan keyin **be** va asosiy fe'lning **hozirgi zamon sifatdoshini** qo'llash orqali hosil qilinadi.

O'zbek tilidagi kelasi davomli zamonda inkor asosiy fe'l bilan ham ifodalanishi mumkin, masalan, **ishlayotgan bo'lmayman** o'rniga **ishlamayotgan bo'laman** deyish mumkin.

Future Continuous quyidagi holatlarda ishlatiladi:

1. Yaqin yoki uzoq kelajakda sodir bo'ladigan harakatlarni ifodalashda:

What **will** you **be doing** tomorrow?

Ertaga nima qilasan?

He'**ll be taking** his next exam next week.

Kelasi hafta u keyingi imtihonini topshiradi (*yoki* topshirayotgan bo'ladi).
I'**ll be seeing** him tomorrow.

Uni ertaga ko'raman.

2. Kelgusida ma'lum bir vaqtda sodir bo'ladigan ish-harakatni ifodalashda:

I **shall be doing** my homework at eight o'clock tomorrow again.

Men ertaga soat sakkizda yana uy vazifamni tayyorlayotgan bo'laman.

Payt va shart ergash gapli qo'shma gaplardagi bosh gap kelasi zamonda bo'lsa, ergash gapning kesimi, ish-harakat mantiqan kelasi zamonda sodir bo'lishiga qaramay, hozirgi zamon shaklida ifodalanadi.

I **shall be working** when you **come** to see me.

Sen meni ko'rgani kelganimda men ishlayotgan bo'laman.

When you **arrive** at the airport, he **will be waiting** for you there.

Sen aeroportga yetib kelganimda u seni o'sha yerda kutayotgan bo'ladi.

Zamonlar moslashuvi

To'ldiruvchi ergash gapli qo'shma gaplarda bosh gapning kesimi o'tgan zamondagi fe'l bilan ifodalangan bo'lsa, bosh va ergash gaplar zamonda moslashadi.

Ergash gap orqali bir marta sodir boʻlgan ish-harakat ifodalanganda **Past Simple** yoki **Past Continuous** ishlatiladi.

He **said** that he often **saw** her.

U uni tez-tez koʻrib turganligini aytdi.

He **said** that she **was preparing** for the exam.

U imtihonga tayyorlanayotganligini aytdi.

Bosh gapda ifodalangan ish-harakat ergash gapdagidan keyin sodir boʻlgan boʻlsa, toʻldiruvchi ergash gapda **Past Perfect** yoki **Past Perfect Continuous** qoʻllanadi.

She **said** that she **had passed** her exam.

U imtihonni topshirganligini aytdi.

She **said** that she **had been** preparing for the exam for two weeks.

U imtihonga ikki hafta tayyorgarlik koʻrganini aytdi.

Toʻldiruvchi ergash gapdagi kelasi zamonga oid ishharakatni ifodalash uchun **oʻtgan kelasi** zamon shakllaridan biri **would** yoki **should** qoʻllanadi.

He **said** that he **would** help me the next day.

U menga ertasiga yordam berishini aytdi.

He **said** that he **would** be waiting for me at 3.

U soat 3 da meni kutayotgan boʻlishini aytdi.

Agar gap hammaga maʼlum boʻlgan biror tabiiy hodisa haqida borsa, zamonlar moslashuvi buzilishi mumkin.

Galileo **proved** that the Earth **goes** round the Sun.

Galiley yerning quyosh atrofida aylanishini isbotlagan.

Oʻzganing nutqini ifodalash uchun (oʻzlashgan gaplarda) **say, ask, tell** soʻzlari berilib, undan keyin toʻldiruvchi ergash gap keladi. Agar mazkur feʼllar oʻtgan zamonda (**said, asked, told** tarzida) ifodalangan boʻlsa, zamonlar moslashuviga amal qilinadi va gapdagi koʻrsatish olmoshlari va payt ravishlari boshqasi bilan almashtiriladi.

Oʻzlashgan gaplarning soʻroq shakli **if** yoki **whether** bogʻlovchisi vositasida beriladi.

He **asked** me, “**Are** you busy?” – He **asked** me **if (whether)** I **was** busy.

“Bandmisan?”, – soʻradi u mendan. – U mendan bandmanmi, yoʻqmi, (shuni) soʻradi.

FEʼL NISBATLARI VOICES of VERBS

Ingliz tilidagi feʼllarning ikki nisbati mavjud: aniq nisbat va majhul nisbat.

Aniq nisbat

Aniq nisbat (Active voice) maxsus Grammatik koʻrsatkichga ega emas. Maʼnosiga koʻra aniq nisbat ishharakatning asosan ega tomonidan bajarilganligini ifodalaydi.

William Shakespear wrote “Hamlet”.

Uilyam Shekspir “Hamlet”ni yozgan.

Majhul nisbat

Majhul nisbat **to be** fe’lining shaxs va zamondagi tegishli shakli va o‘tgan zamon sifatdoshi yordamida yasaladi.

Ҳозирги замон:	This work is done every day. (Бу иш ҳар куни қилинади.)
Ўтган замон:	This work was done yesterday. (Бу иш кеча қилинган.)
Келаси замон:	This work will be done tomorrow. (Бу иш эртага қилинади.)
Must модал феъли:	This work must be done at once. (Буишҳозирок қилинишикерак.)
Can модал феъли:	This work can be done at any time. (Буишҳар қачонқилинишимумкин.)
May модал феъли:	This work may be done now. (Бу иш ҳозир қилиниши мумкин.)

Majhul nisbatning o‘ziga xos xususiyati shundaki, agar oddiy nisbatda gapning egasi ish-harakatning bajaruvchisi bo‘lsa, majhul nisbatda gapning egasi ish-harakatning bajaruvchisi bo‘lmaydi.

This house **was built** in 1920.

Bu uy 1920 yilda qurilgan. (majhul)

Qiyoslang:

Somebody **built** this house in 1920.

Bu uyni kimdir 1920 yilda qurgan. (oddiy)

Active: We can solve this problem.

Biz bu muammoni hal eta olamiz.

Passive: This problem can be solved.

Bu muammo hal etilishi mumkin.

The new hotel will be opened next year.

Yangi mehmonxona kelasi yil ochiladi.

This room is going to be painted next year.

Bu xona kelasi yil bo‘yalmoqchi.

Active: Someone is cleaning the room right now.

Ayni paytda kimdir xonani tozalayapti.

Passive: The room is being cleaned right now.

Ayni paytda xona tozalanyapti.

Past Continuous zamonidagi majhul darajani yasash uchun **was** va **were** ishlatiladi: **was / were being +done / cleaned**

Active: Someone was cleaning the room.

Kimdir xonani tozalayotgan edi.

Passive: The room was being cleaned when I arrived.

Men yetib kelganimda xona tozalanayotgan edi.

Present Perfect zamonida: **have / has been + done / cleaned**

Active: Somebody has already cleaned the room.

Kimdir xonani allaqachon tozalab qo'yibdi.

Passive: The room has already been cleaned.

Xona allaqachon tozalab qo'yilgan.

Past Perfect zamonida: **had been + done / cleaned**

Active: When we came, somebody had cleaned the room.

Biz kelganimizda kimdir xonani tozalab qo'ygan edi.

Passive: When we came, the room had been cleaned.

Biz kelganimizda xona tozalab qo'yilgan edi.

Majhul nisbat o'zbek tilida fe'l o'zagiga asosan **-I** (yozdi – yozildi), va **-n** (ko'rdi – ko'rindi) qo'shimchalarini qo'shish orqali yasaladi.

This problem **is** much **spoken** about.

Bu muammo haqida ko'p **gapiriladi**.

Inglizcha majhul nisbatdagi ayrim gaplarni o'zbek tiliga birgalik nisbatida (**-sh** qo'shimchasi vositasida yasaladi: gapirdi – gapirishdi) ham tarjima qilish mumkin.

This problem **is** much **spoken** about.

Bu muammo haqida ko'p **gapirishadi**.

Ann **wasn't offered** a job.

Annaga ish taklif qilishmadi.

A job **wasn't offered** to Ann.

Annaga ish **taklif qilinmadi**.

The way to the station **was shown** to us.

Bizga temir yo'l bekatiga boradigan yo'lni **ko'rsatishdi**.

MODAL FE'LLAR

MODALS

Ingliz tilida modallik (ish-harakatga munosabat) ma'nosini ifodalovchi maxsus fe'llar mavjud. Modallik ma'nosi deyilganda asosan majbur etish, zaruriyat, ruxsat, taxmin kabilari tushuniladi. Modal fe'llar o'zlari mustaqil ishlatilmay, boshqa fe'llarga qo'shilib keladi.

Can mumkinlik, layoqat, qobiliyat, imkoniyat kabilarni ifodalaydi.

Who **can** speak English?

Kim inglizcha gapira oladi?

Can modal fe'lining ekvivalenti **be able to** modal fe'lidir.

He **is not able to** translate this text.

U bu matnni tarjima qila olmaydi. (tarjima qilishga qodir emas)

May mumkinlik, ijozat, faraz qilish kabilarni ifodalaydi.

May I come in?

Kirsam maylimi? (Mumkinmi?)

May modal fe'lining ekvivalenti sifatida **be allowed to** ishlatiladi.

Then he **was allowed to** come in.

Keyin unga kirishga ruxsat berildi.

Must va **should** modal fe'llari majburiylik, zaruriyat kabilarni ifodalaydi.

You **must** do as I told you.

Siz men aytganimdek qilishingiz kerak.

The windows are dirty. I **must** clean them.

Derazalar iflos. Ularni artishim kerak.

You **should** go and see this film. It's very interesting.

Siz, albatta, borib bu filmni ko'rishingiz kerak. U juda qiziqarli.

I **must** do it now. I can't leave it till tomorrow.

Men buni hozir qilishim kerak. Uni ertaga qoldira olmayman.

Must modal fe'li bilan tuzilgan savolga inkor javob qaytarilganda **needn't** (=need not) ishlatiladi.

Must I do it now?

Shuni hozir qilishim shartmi?

No, you **needn't** (do it now).

Yo'q, (hozir qilishing) shart emas.

Agar nima qilishingiz haqida ko'rsatma olmoqchi bo'lsangiz **shall** fe'lini qo'llang.

Shall I repeat the sentences?

Gapni qaytarishim kerakmi?

Must modal fe'li inkor shaklda qat'iyman qilishni ifodalaydi.

You **mustn't** do that.

Bunday qilmasliging kerak.

You **mustn't** play with matches.

Gugurt o'ynamasliging kerak.

You **mustn't** be late.

Kechikmasligingiz kerak.

Must modal fe'lining o'tgan zamon shakli mavjud emas. O'tgan zamonda unga ma'nodosh bo'la oladigan **have to** yoki **have got to** ishlatilishi mumkin.

I can't go with you now, I **have to** (**have got to**) do my homework.

Men hozir sizlar bilan keta olmayman, uy vazifamni tayyorlashim kerak.

There was no bus in the street and we **had to** walk home.

Ko'chada birorta avtobus yo'q edi va biz uyga piyoda ketishga majbur bo'ldik.

Have to modal fe'lining so'roq shakli egadan oldin **do** / **does** / **did** yordamchi fe'lini qo'llash orqali ifodalanadi.

When **do** I **have to** do it? (=When I **have got to** do it?)

Men buni qachon qilishim kerak?

Inkor gaplarda **do not** (**don't**) / **does not** (**doesn't**) / **did not** (**didn't**) ishlatiladi.

You **don't have to** stay.

Qolishingiz shart emas.

They **didn't have to** wait long.

Ko'p kutishlariga to'g'ri kelmadi.

Hozirgi zamonda inkorni **haven't got** / **hasn't got** tarzida ham ifodalash mumkin.

You **haven't got** to stay.

Sizning qolishingiz shart emas.

Have to o'tgan va kelasi zamonlarda ham qo'llanishi mumkin.

It was too late and we **had got to** walk home.

Juda kech bo'lgan edi va biz uyga piyoda ketishga majbur bo'ldik.

I'll **have** to do this work tomorrow.

Bu ishni ertaga qilishimga to'g'ri keladi.

Should modal fe'li ko'proq maslahat va nasihat ma'nosida qo'llanadi.

You **should** see a doctor.

Sen shifokorga uchrashishing kerak.

He **shouldn't** work so hard.

U bunchalik qattiq ishlamasligi kerak.

Be to oldindan kelishilganlikni ifodalaydi.

We **are to** start tomorrow.

Biz ertaga jo'nab ketishimiz kerak. (*shunday kelishganmiz*)

The students **are to** come at two o'clock.

Talabalar soat ikkida kelishlari kerak.

Need modallik ma'nosini asosan so'roq va bo'lishsiz gaplarda ifodalab keladi.

You **needn't** go there.

U yerga borishingiz kerak emas.

Dare botinish va jur'at etishni ifodalaydi.

I **dare** not to ask him to come here.

Undan bu yerga kelishni iltimos qilishga botina olmadim.

ИНЛИЗЧА-ЎЗБЕКЧА ЛУҒАТ

a adjective — sifat
adv adverb — ravish
conjunction — bog'lovchi
noun — ot
plural — ko'plik

A

abandon [a'baendan] v tashlab ketmoq, qoldirmoq
abbey ['aebi] n abbatlik, monastir
ability [e'biliti] n qobiliyat
able ['aibl] a qobiliyatli
to be ~ bo'lmoq
about [a'baut] adv qtrofida, chamasi
above [e'bAv] yuqori, ustida; adv ~ mentioned yuqorida aytilgan
abruptly [a'brAptli] adv birdan, to'satdan
absence ['aepsans] n hozir bo'lmaslik
absent ['aepsant] a yo'q, bu yerda yo'q
absolute ['aepsalu:t] a absolyut, to'liq
absorb [ab'so:b] v yutmoq, shimib olmoq
academic [aeka'demik] a akademik; - year o'quv yili
accelerate [ak'selareit] v tezlashtirmoq
acceleration [ak^ela'reijan] n tezlashtirish
accelerator [ak'selareita] n tezlatgich, akselerator
accept [ak'sept] v qabul qilmoq (taklif)
accessible [ak'sesabl] a yaqqol, amalga oshadigan
accident ['aeksidant] n baxtsiz hodisa
accomodate [a'komadeit] v moslashtirmoq, turar joq bermoq
accomodation [^koma'deijan] n bino yashash joyi
accompany [a'kɑ:mpəni] v kuzatib qo'yimoq
accomplish [e'komplifl] v tugatmoq, yakunlamoq
accomplishment [e'komplijment] n bajarish, yakunlash
according (to) [a'ko:dir] nimagadir asosan
accordingly [a'ko:dir|li] adv shunday qilib
account [a'kaunt] n on ~ uchunm tufayli; v ~ for tushuntirmoq
accounting [a'kauntiri] n hisob
accumulate [e'kju:mjuleit] v yig'ib qo'yimoq
accuracy ['aekjuresi] n aniqlik
accurate ['aekjurit] a aniq
achieve [e'tfi:v] v yetishmoq

achievement [e'tfi:vment] n muvaffaqiyat
 acknowledge [ek'nolicfe] v tan olmoq
 acquire [e'kwaie] v ega bo'lmoq (ahamiyat)
 across [e'kros] prp orqali
 act [aekt] v harakat qilmoq; - (on, upon) ta'sir ko'rsatmoq
 action ['aekjen] n harakat
 active ['aektiv] a faol
 activity [aek'tiviti] n faoliyat
 actual ['aektfuel] a haqiqiy, yaqqol
 actually ['aektfueli] adv haqiqatda
 add [aed] v qo'shmoq
 addition [e'dijen] n qo'shilish, ; in - to keyin, keyinchalik
 adapt [e'daept] v moslashtirish
 address [e'dres] v kingadir murojaat qilmoq
 adequate ['aedikwit] a adekvat, to'g'ri keladigan
 adjust [e'cfcASt] v to'g'rilamoq
 admiral ['aedmerel] n admiral
 adopt [e'dopt] v qabul qilmoq (tizim, konsepsiya)
 advance [ed'vcrns] v o'rtaga tashlamoq (g'oya, nazariya)

B

back [baek] adv teskari, orqaga
 backup [ˈbækʰɪp] v qo'llamoq
 backward ['baekwad] adv teskari yo'nalish
 bag [baeg] n xalta, sumka
 balance ['baelans] n tarozi, mutanosiblik
 balloon [ba'lu:n] n ahvo shari
 bank [baer|k] n qirg'oq, bank
 barrel ['baeral] n bochkam barrel (suyuq materiallar o'lchami)
 base [beis] n asos, asos solmoq; to be ~d (on) [te bi: beist (on)] ... ga asoslangan
 basic ['beisik] a asosiy basis ['beisis] n asos, baza
 battle ['baetl] n jang
 beam [bi:m] n nur
 bearing ['bɛɪɪŋ] n podshipnik
 beat (beat, beaten) [bi:t, bi:t, bi:tn] v urmoq, g'alaba qozonmoq; to be ~en mag'lub bo'lmoq
 beautiful ['bju:taful] a chiroyli
 because [bi'koz] cj chunki; - of uchun, tufayli
 become (became, become) [bi'kAm, bi'keim, bi'kAm] o'rnashmoq

before [bi'fo:] adv oldin, ilgari
 begin (began, begun) [bi'gin, bi'gaen, bi'gAn,] v boshlamoq, boshlanmoq; to ~
 with eng avvalo, boshidan
 beginning [bi'gimrj] n boshlanish
 beg pardon ['beg 'pa:dn] uzr so'ramoq
 behaviour [bi'heivja] n hulq
 behind [bi'haind] adv keyin, orqada
 believe [bi'li:v] ishontirmoq, hisoblamoq
 belong [bi'lori] v qarashli bo'lmoq
 below [bi'lau] adv quyida, pastda
 belt [belt] n belbog', zona
 bend (bent, bent) [bend, bent] v egilmoq
 beneath [bi'ni:] adv past, pastda
 benefit ['benifit] n foyda olmoq, foyda keltirmoq
 binary ['bainari] a ikki yoqlama
 besides [bi'saidz] adv, ..tashqari
 beyond [bi'jond] ...tashqari
 bicycle ['baisikl] n velosiped
 bike [baik] n (bicycle dan qisqartma) velosiped
 bird [ba:d] n qush
 bit [bit] n bo'lak, qism
 blade [bleid] n tig', xanjar
 blank [blaer|k] a bo'sh
 blanket ['blaerjkit] n junli ogeyal
 blow (blew, blown) [blau, blU:, blaun] v zarba
 board [bo:d] n kema borti
 body ['bodi] n tana, korpus, odamlar guruxi
 boil [boil] v qiynamoq
 boiler ['boila] n qozon
 bomb [bom] n bomba, bombardimon qilmoq
 bone [Бэп] n suyak
 booster ['bu:sta] n tezlatgich, raketa tezlatish qismi
 border ['bo:da] chegara
 boredom ['bo:dam] n zerikish
 born [bo:n] to be – tug'ilmoq
 borrow ['borau] v olib turmoq, qarz olmoq
 bother [Бобэ] v bezovta qilmoq
 bottom ['botam] n pastki qism, tub
 brain [brein] n miya

brake [breik] n tormoq, tormoz bermoq
branch [bra:ntf] n yo'nalish
breakthrough ['breik'Gru:] n muvaffaqiyat, kashfiyot
bright [brait] a yorug', yaltiriq
brightness ['braitnis] n yorug'lik
brilliant ['briljant] a yaltiroq

C

cabin ['kæbin] n kabina, kayuta
cable ['keibl] n kabel
calcium ['kælsiam] n kalsiy
calculate ['kælkjuleit] v sanamoq, hisoblamoq
calculation [kælkju'leijan] n hisob, hisoblab chiqmoq
call [ko:I] n signal, telefon qo'ng'irog'i
called [ko:Id] pp so ~ ataladi
cancel ['kænsal] v bekor qilmoq
capability [keipa'biliti] n qobiliyat
capable ['keipabl] a qoniliyatli
capacity [ka'pæsiti] n quvvat
capital ['kæpitl] n royxat
capture ['kæpɹə] v bosib olmoq, zabt etmoq
car [ka:] n автомобиль, - body kuzov (avtomobil)
carbon ['ka:ban] n uglerod
carburettor ['ka:bjur:eta] n karbyurator
career [ka'ria] n karyera
card [ka:d] n kartochka
cardboard ['ka:dbo:d] n karton
care [kɛə] n, v g'amxo'rlik; to take – g'amxo'rlik qilmoq
careful ['keaful] a diqqatli, extiyotkor
carefully ['keafli] adv aniqlik
cargo ['ka:gau] n yuk
carrier ['kæpa] n transport samolyoti, transportyor
carry ['kaeri] v tasjimoq, olib bormoq
case [keis] n voqea, sud ishi; in (the) - of ...holda
cast (cast) [ka:st] v tashlamoq (soya)
catch (caught) [kaetf, ko:t] v tutib olmoq
cathode ['kæGeud] n katod;
cause [ko:z] n ~ ish sabab
ceiling ['si:liri] n shift

celebrity [si'lebriti] n mashhurlik
celestial [si'lestjal] a samoviy
body osmon jismi; - mechanics samoviy maxanika
cell [sel] n element; akkumulyator
cellular ['seljula] a kletkali, uyali; - phone uyali telefon
centigrade ['sentigreid] a yuz gradusli, yuz gradusga bo'lingan
central ['sentral] a markaziy
centre ['senta] n markaz
centrifugal [sen'trifjugal] a markazdan qochuvchi
century ['sentfuri] n yuz yillik, asr

D

daily ['deili] a kundalik
damage ['daemicfe] n zarar
danger ['deincfe] n xavf
dangerous ['deincferes] a xavfli
dark [da:k] a qorong'u
darken ['daiken] v qoraytirmoq; ~ed qoraytirilgan
dash [daefl n tirem shtrix
date back ['deit 'baek] v munopsabatda bo'lmoq (ma'lum bir davrga)
day [dei] n kun; - before yesterday-kechadan ilgari kun; - by ~ kundan kunga;
one – bir kuni; - off bo'sh kun
dean [di:n] n dekan
death n o'lim
decade ['dekeid] o'n yillik, dekada
decide [di'said] v qaror qilmoq
decision [di'si39n] n qaror, xulosa
declare [di'klee] v e'lon qilmoq
decline [di'klain] v rad etmoq (taklif)
decorate ['dekereit] v bezamoq (uy)
decrease [di:'kri:s] kamaytirmoq
defect [di'fekt] n defect, kamchilik
defend [di'fend] n himoya qilmoq
define [di'fain] v aniqlamoq, aniqlik kiritmoq
definite ['definit] a ma'lum, aniq
definition n aniqlik
degree [di'gri:] n daraja, gradus; to get a – ilmiy daraja olmoq
delay [di'lei] n ushlanib qolmoq
deliver [di'liva] v ~ a lecture ma'ruza qilmoq

demand [di'ma:nd] v talab, talab qilmoq
demonstrate ['demanstreit] v namoyish qilmoq, ko'rsatmoq
demonstration [demens'treijan] n namoyish
dense [dens] a tig'iz, to'yingan
density ['densiti] n tig'izlik
deny [di'nai] v inkor qilmoq
department [di'pɜrtmant] n bo'lim, sex, fakultet
depend [di'pend] ~ing on ...bog'liq
dependence [di'pendans] n qaramlik
dependent [di'pendant] a qaram; to be ~ on qaram bo'lmoq (...ga)
deposit [di'pozit] n kon
depression [di'prejan] n tushmoq, pasaymoq
depth [dep] n chuqurlik

E

each [i:tf] xapбир; ~ of dan har biri; ~ one har biri;
time xapcaфap; ~ year har yili
early ['e: li] a vaqtli; adv barvaqt;
earth [e:0] n yer
easily ['i:zili] adv oson
easy ['i:zi] a yengil; adv oson
ecological [e'ke'lodjikel] a ekologik
ecology [i'koledji] n ekologiya economical [jike'nomikel] a iqtisodiy;
economy [i'konemi] n oqtisodiy, iqtisod
edge [edj] n tig',
editing ['editiril n montaj, taxrir
educate ['edju:keit] v o'qitmoq, ta'lim bermoq
education [edju/keijen] n ma'lumot
effect [i'fekt] harakat, natija, ta'sir
effective [i'fektiv] a effektiv
efficiency [i'fijensi] n foydalanish koeffisenti
efficient [i'fijent] a yuqori ish koeffisenti
effort ['efet] n harakat qilmoq
elect [i'lekt] v tanlamoq, saylamoq
electric [i'lektrik] a elektr; - conductivity elektr o'tkazuvchanlik; - current elektr toki
electrical [i'lektrikal] a ~ engineer injener-elektrik; - engineering, elektrotexnika
electricity [ilek'trisiti] n elektr

electron [ilektron] n elektron
electronic [ilek'tromk] a elektronli
electronics [ilek'tromks] n elektronika
element ['eliment] n element, qism, bo'lak; ~s of machines mashina detallari
elemental ^eli'mentl] a asosiy, boshlang'ich, elementar
elementary ^eli'menteri] a oddiy, elementar
elevator ['eliveite] n ko'targich, lift
eliminate [ilimineit] v bartaraf qilmoq
elongate ['i:lor|geit] v cho'zilmoq), uzaytirmoq (muddat)
else [els] adv yana, ham
emission [I'mijen] n tarqatish, emissiya
emit [I'mit] v tarqatmoq
empire ['empaie] n imperiya
employ [im'ploi] v foydalanmoq, qo'llamoq
empty ['empti] a bo'sh
enable [I'neibl] v yordam bermoq, imkoniyat bermoq
enclose [in'kleuz] v qo'shib yubormoq (xatga biror nima), joylashtirmoq, qamab
qo'ymoq (biror narsa ichiga)
encode [in'keud] v kodlashtirmoq, shifrlashtirish
encounter [in'kaunte] v uchrashib qolmoq, to'qnashmoq
end [end] v tugamoq, yakun; n oxir
enemy ['enimi] n dushman
energy ['enedji] n energiya, quvvat

F

fable ['feibl] n asotirm mif
fabricate ['fæbrikeit] v ishlab chiqarmoq, tayyorlamoq
fabricating ['fæbrikeitrr] n ishlab chiqarish; ~ processes ishlab chiqarish
jarayoni
fabrication [,fæbri'keijen] n ishlab chiqarish, tayyorlash
face [feis] n chexra, yuz, yuza
facilitate [fe'siliteit] v yengillashtirmoq
facility [fe'siliti] n uskuna, qurilma, apparatura
fact [fækt] факт; in ~ haqiqatda
factory ['fækteri] n zavod, fabrika; ~ grounds zavod hududi
faculty ['fækelti] n fakultet, o'qituvchilar tarkibi (amer.)
fail [feil] v sinmoq, buzilmoq, imtixonidan yiqilmoq
failure ['feilje] n buzilmoq, ishdan chiqmoq
fair [fee] n yaramarka

fall (fell, fallen) [fo:l, fel, fo:ln] v yiqilmoq, pasaymoq; n yiqilish; kuz (amer.)
 fame [feim] n shuxrat, mashhurlik
 familiar [fe'milje] a ~ yaxshi tanish, ma'lum
 family ['faemili] n oila
 famous ['feimes] a mashhur, taniqli
 fan [faen] n ventilyator
 fantastic [faen'taestik] a fantastic, g'ayritabiiy
 far [fa:] a uzoq; adv uzoqda;
 farther ['fa:e] a keying, keyinchalik
 fashion ['faejən] n uslub, moda
 fast [fa:st] atez; ~ acting = ~ operating tez harakatlanuvchi
 fasten ['fa:sn] v maxkamlamoq, bog'lamoq
 fault [fo: It] n kamchilik, yetishmovchilik, nosozlik
 favourite ['feiverit] a sevimli
 fear [fie] n qo'rquv
 feature ['fi:tfe] n o'ziga xos tomon, belgi
 feed (fed) [fi:d, fed] v uzatmoq (yoqilg'I, xom ashyo); n uzatmoq (material),
 ovqat
 feel (felt) [fi:l, felt] v sezmoq, his qilmoq
 feeling ['fi:lrr] n sezish, his qilish
 female ['fi:meil] a ayollarga aloqador
 ferromagnetic ['f e reumaeg'netik] a ferromagnitli
 few [fju:] adv kam, oz; a – bir necha, kam sonli
 fibre ['faibe] n ip, gazlama
 fiction ['fikjen] n belletristika, mubolag'a, badiiy to'qima
 field [fi:ld] n bo'lim, maydon (elektr)
 fight (fought) [fait, fo:t] v kurashmoq; n kurash
 fill [fil] v to'lmoq, to'ldirmoq
 film [film] n plyonka, yupqa qatlam, film
 final ['fainI] a oxirgi, yakuniy; n ~s tugatish imtixonlari
 finally ['famali] adv nihoyat, xulosa
 find (found) [faind, faund] v topmoq; - out aniqlamoq, tushunmoq
 finger ['frnge] n barmoq
 finish ['finij] v tugatmoq
 firearm ['faiercrm] n o'q otar qurol

G

game [geim] n o'yin

gap [даер] n bo'sh, bo'sh joy
 gas [gaes] n gaz, benzin (amer.); a gazli
 gasolene ['gaesauli:n] n benzin;
 powered benzinda ishlaydigan
 gather ['даейэ] v yig'moq, yig'ilmoq, to'planmoq
 gear [gie] n shesternya
 general [general] a asosiy
 generally ['cfeenarali] adv odatda, umuman; - speaking umuman aytganda
 generate ['cfeenareit] v yaratmoq, ishlab chiqarmoq
 generation [ˈcfeena'reijan] n avlod, olish, ishlab chiqarish
 generator ['djeneraite] n generator
 genius ['cfei: njes] n geniy
 gently ['djentli] adv xushmuomala
 geography [dji'ogrefi] n geografiya
 get (got) [get, got] v olmoq, yetishmoq
 giant ['djaient] a katta, gigant
 go (went, gone) [geu, went, gon]
 v yurmoq, biror narsada yurmoq; - away ketmoq; ~ down tushmoq; - on davom
 etmoq; - out chiqmoq;
 gold [geuId] n oltin
 good [gud] a yaxshi; a - deal of ko'p; for – har doim; - luck omad tilayman
 govern ['gAven] v bosh barmoq
 government ['gAvnment] n hukumat
 gown [gaun] n mantiya (sudya kiyimi) graduate ['graedjueit] v tugatmoq (o'quv
 yurti);
 graduation ^graedju'eijen] n tugatish; - project diplom loyihasi
 gram [graem] n gramm
 grant [gra:nt] n stipendiya; v бермок, ruxsat etmoq; ~ a degree ilmiy daraja
 bermoq
 gravitation [,graevi'teijen] n tortishish kuchi, gravitatsiya
 gravity ['graeviti] n og'irlik kuchi, yerning tortishish kuchi
 great [greit] a katta, ulkan; a - number of juda ko'p, katta son; to be of ~
 importance katta ahamiyatga ega bo'lmoq; to be of - interest katta qiziqish
 o'yg'otmoq
 greatly ['greitli] adv juda
 greet [gri:t] v salomlashmoq
 group [gru:p] n gurux, tur. grow (grew, grown) [greu, gru:, greun] v o'smoq;
 growth [greuG] n bo'y
 guidance ['gaidens] n boshqaruv; - system boshqaruv tizimi

guide [gaid] n boshliq;

H

half [ha:f] n yarim hall [ho:l] n zal

hammer ['haeme] n bolg'a

hand [haend] n qo'l; on the one -... on the other – bir tomondan..., boshqa tomondan;

hang (hung) [hasri, ЪЛГ] v osab qo'ymoq, qadab qo'ymoq

happen ['haspen] v sodir bo'lmoq

happy ['haspi] a baxtli

hard [ha:d] a qattiq, og'irm qiyin

hardly ['ha:dli] adv zo'r-bazo'r

hardness ['ha:dnis] n qattiqlik

hardships ['ha.d/ip] n (pi) qiyinchiliklar

hate [heit] v nafratlanmoq

head [hed] n boshliq; v boshqarmoq

headlight ['hedlait] n fara, chiroq

health [he 10] n sog'liq

hear (heard) [hie, he:d] eshitmoq

heart ['ha:t] ai yurak, markaz, yadro

heat [hi:t] n issiqlik, harorat; v isitish; ~ resisting issiqlikka chidamli

heating ['hi:tir] n isish

heavy ['hevi] a o'gir

heel [h i:l] n dog'

height [hait] n tepalik, cho'qqi

helium ['hi:ljam] n geliy

help [help] n yordam; v yordam bermoq

hence [hens] adv kelib chiqadiki...

hidden [hidn] pp yashirin

high [hai] a yuqori; ~ temperature alloy issiqlikka chidamli eritma; ~ quality steel yuqori sifatli po'lat

higher ['haie] a oliy; ~ education oily ta'lim; ~ school oily ta'lim muassasasi

highway ['haiwei] n shosse, yo'l

historical [his'torikel] a tarixiy

history ['histeri] n tarix

hole [haul] n teshik, tuynuk

hope [heup] n umid, v umid qilmoq;

horizontal^hori'zontl] a gorizonta

I

idea [ai'dia] n g'oya, fikr, ideya

identical [ai'dentikal] a bir xil
i.e. = that is ['6aet 'iz] darvoqt
ignite [ig'nait] v alanga olmoq
ignition [ig'nijan] n alangalanmoq, yonmoq
illuminate [i'lju:mineit] v yoritmoq, ochmoq
image ['imidj] n obraz, rasm
imagination [ˈmaedʒi'neijan] n tasavvur, fantaziya
imagine [I'maefcin] v tasavvur qilmoq, xayol qilmoq
immediately [i'mi.djotli] adv tezda shu ondayoq
immensely [I'mensli] adv juda
impact ['impaekt] n zarba
impassable [im'pɑ:.sabl] a o'tib bo'lmas
imperative [im'perativ] a buyruq
imperfect [im'psifikt] a nomukammal
implement ['impliment] v bajarmoq
importance [im'po:tsns] n ahamiyat; to be of ~ ahamiyatga ega bo'lmoq
important [im'po.tant] a zarur
impose [im'pauz] v yuklamoq (majburiyat)
impossible [im'pɒsbl] a imkoni yo'q
impress [im'pres] v tassurot qoldirmoq, hayron qoldirmoq
impressible [im'presbl] a lol qoldiradigan
impression [im'prejsn] n tassurot
imprint [im'print] v iz qoldirmoq
improve [im'pru:v] vmukammallashtirmoq, sozlamoq
improvement [im'pru:vmant] n yaxshilanish, mukammal
impurity [im'pjusriti] n ifloslanish
in [in] B; - a year bir yildan keyin
inaccuracy [in'aekjʊrssi] a noaniqlik
inattentive [ˈne'tentiv] a e'tiborsiz
inch [intʃ] n dyum (2,54 cm)

J

jam[djaem] n tiqin, "probka"
jet [(f)et] n oqim; ~ engine reaktiv dvigatel; - propelled reaktiv (samolyot)
job [cfeob] n ish, topshiriq
join [cfeoin] v qo'shilmoq, shug'ullanmoq, kirmoq; ~ together biror narsaga qo'shilmoq

joint [ˈdʒɔɪnt] n birlashish joyi; a umumiy, birlashgan, qoʻshma
journey [ˈdʒɜːni] n tashrif, sayohat
junior [ˈdʒuːniə] a kichik

K

keep (kept) [ki:p, kept] ushlab qolmoq, saqlab qolmoq; ~ in mind eslab qolmoq, nazarda tutmoq; - + Gerund davom ettirmoq (qilmoq) nimadir;
key [ki:] n kalit
kick [kɪk] n zarba
kill [kɪl] v oʻldirmoq
kilometer [ˈkɪləmi:tə] n kilometr
kind [kaɪnd] n tur, tip, koʻrinish, sort, klass, xarakter all ~s of har xil, xilma-xil; what ~ of qanday;
kindergarten [ˈkɪndəˌɡɑːtʃən] n bolalar bogʻchasi
knock [nɒk] v urilmoq, taqillatmoq; ~ down sindirmoq, buzmoq
know (knew, known) [paɪ, njuː, pɛɪn] v bilmoq, tanimoq; ~n a taniqli
knowledge [ˈnɒlɪdʒ] n bilim

L

label [ˈleɪbl] n etiketka
laboratory = lab [ləˈbɒrətəri] n laboratoriya; ~ assistant labirant, preporator
labour [ˈleɪbər] n ish, mexnat
lack [læk] v kamchilik, muxtoj boʻlmoq
lane [leɪn] n koʻcha harakati liniyasi
land [lænd] mamlakat; a yer usti; v qoʻnmoq
language [ˈlæŋɡwɪdʒ] n til
lantern [ˈlæntən] n chiroq
large [lɑːdʒ] a katta, ulkan; a ~ variety juda xilma-xil
largely [ˈlɑːdʒli] adv keng holda
laser [ˈleɪzər] n lazer
last [lɑːst] v davom etmoq; a oʻtgan, oxirgi
late [leɪt] a kechgi; adv kech; to be ~ kech qolmoq; in the - sixties 60 yillar oxirida
lately [ˈleɪtli] adv oxirgi paytlarda, yaqinda
later [ˈleɪtər] a ancha kechgi, keyin; - on kechroq
latter (the latter) [ˈlætər] a oxirgi (ikkitadan)
latitude [ˈlætɪtjuːd] n kenglik
laugh [lɑːf] v kulmoq, jilmaymoq
lay (laid) [leɪ, leɪd] v qoʻymoq; ~ the foundation asos solmoq
lead [led] n qoʻrgʻoshin

lead (led) [li:d, led] v olib bormoq
leader ['li:da] n raxbar
learn (learnt) [lɜ:n, lɜ:nt] v o'qimoq, o'rganmoq
learning ['lɜ:nɪŋ] n o'qish, o'rganish
least [li:st] n eng kam miqdor
leave (left) [li:v, left] v ketmoq, tashlab ketmoq
lecture ['lektʃə] n ma'ruza; v ma'ruza o'qimoq
left [left] a chap
length [lerθ] n uzunlik
lengthy ['lerθi] a juda uzun, cho'zilgan
let (let) [let] v ruxsat bermoq, imkon bermoq
letter [leta] n harf, xat
level ['levl] n daraja
lie (lay, lain) [lai, lei, leɪn] yotib qolmoq

M

machine [me'ʃi:n] v qayta ishlamoq
madman ['mædmən] n aqldan ozgan, jinni
magazine [ˈmæɡe'zɪn] n jurnal
magnetic [mæg'netɪk] a magnitli
magnificent [mæg'nɪfɪsnt] a ajoyib
mail [meɪl] n pochta, pochta jo'natmasi
main [meɪn] a asosiy, bosh; the ~ thing eng asosiysi
mainly ['meɪnli] adv shunday qilib
maintain [meɪn'teɪn] v qo'llab quvvatlamoq
maintenance ['meɪntenəns] n ish holatida bo'lmoq, ekspluatasiya
major ['meɪdʒə] a bosh, asosiy
majority [me'ʃeərɪti] n ko'pchilik
make (made) [meɪk, meɪd] v qilmoq, bajarmoq, ishlab chiqarmoq
management ['mænɪdʒmənt] n boshqarma, ma'muriyat
maneuver [ma'nu:və] v manyovra qilmoq
mankind [mæn'kaɪnd] n insoniyat
manned [mænd] pp (man) uchuvchili (bortida odam bo'lgan)
manner ['mænə] n uslub, manera
manufacture [ˈmænju'fæktʃə] v ishlab chiqarmoq, qayta ishlamoq, tayyorlamoq
marine [ma'ri:n] a dengizga, kemaga aloqador
mark [ma:k] baho, belgi
marking ['ma:kɪŋ] n belgi, belgilash
mass [mæs] n massa;

master ['mcr.sta] v ega bo'lmoq (bu yerda)
match [mæf] v to'g'ri kelmoq, mos kelmoq
material [ma'tiariəl] n material
mathematics ^mæôï'mætiks] n matematika
matter ['mæta] n ish, masala

N

nail [neil] n mix
name [neim] n ism, nom; v atamoq
after kimnidir nomiga qo'ymoq
namely ['neimli] adv aynan
natural ['naetfrel] a tabiiy
nature ['neitfe] n tabiqat, tur
navigation ^naevi'geijen] n dengizda suzish, navifatsiya
navy ['neivi] n harbiy dengiz floti
near [ne] adv atrofida, yaqinida
nearly ['nieli] adv deyarli
necessary ['nesiseri] a zarur
necessity [ni'sesiti] n zaruriyat
need [ni:d] n zaruriyat, v muxtoj bo'lmoq
needle ['ni:dI] n nina, strelka
negative ['negetiv] a salbiy
network ['netwe:k] n to'r
never ['neve] adv hech qachon;
new [nju:] a yangi; - man yangi odam
news [nju:z] n yangiliklar
newspaper [,nju:s/peipe] n gazeta
next [nekst] a navbatdagi; ~ year keying yil
nickel ['nikl] n 5 sentli tanga
night [nait] n tun
non-traditional ['nontre'dijenl] a notradision, noan'anaviy
nose [neuz] n burun, oldingi qism (kema, samolyot, mashina)
notable ['neutebl] a diqqatga sazovor joy
note [neut] v belgi qo'ymoq, baho
notebook ['neutbuk] n yon daftar
nothing ['nɒθɪŋ] hech nima; - to be done -hech nima qilib bo'lmaydi
notice ['neutis] v his qilmoq, ko'rmoq
novelty ['novelti] n yangi, yangilik
now [naɪ] adv hozir, endi
nowadays ['nauedeiz] adv hozirgi payt

nowhere ['neuwee] adv hech qayerda
nuclear ['nju:kliɛ] a yadroviy; ~ engineering yadro texnikasi; ~ power yadro energiyasi
nucleus ['nju:kliɛs] n (pi nuclei) yadro, markaz, atom yadrosi
number ['nʌmbɛ] n raqam, son; a ~ of qator, bir necha; in a - of ways bir nechaz usullarda; v sanamoq
numerical [nju:'merikəl] a raqamli
numerous ['nju:meres] a ko'p sonli

O

obey [e'bei] v bo'ysunmoq, object ['ɒbcfeɪkt] n predmet, to'ldiruvchi [eb'cfeekt] v e'tiroz qilmoq
observation [ə'ɒbzə'vei/en] n kuzatuv
observatory [eb'ze:vetri] n observatoriya
observe [eb'ze:v] v kuzatmoq
obtain [eb'tein] v olmoq, ega bo'lmoq
obvious ['ɒvɪəs] a ochiq, aniq
occasion [ə'keɪʒən] n hodisa; on the ~ munosabati bilan
occupy ['ɒkjʊpaɪ] v egallamoq; to be occupied egallangan bo'lmoq
occur [ə'kɜ:] v sodir bo'lmoq
ocean ['aʊʃən] n okean
offer ['ɒfə] v taklif qilmoq, tayyor bo'lmoq
office ['ɒfɪs] n kontora, kabinet; post ~ pochta
official [ə'fɪʃl] n amaldor, rasmiy
often ['ɒfn] adv tez-tez
oil ['ɔɪl] n moy; v moylamoq
old [ɔld] a eski; how – necha yil
once [wʌns] adv bir kuni, bir marta; ~ again, ~ more yana bir marta; at ~ birdaniga; ~ a week haftada bir marta
one [wʌn] ~ another bir-birini; ~ by ~ bitta-bitta; - day bir kuni; ~ more yana bitta;
only ['aʊnli] a yagona; the ~ way yagona yo'l, usul
open ['aʊpən] a ochiq, v ochilmoq
operate ['ɒpəreɪt] v harakat qilmoq, ishlamoq
operation [ɒpə'reɪʃən] n ish, harakat
operator ['ɒpəreɪtə] n ishchi, operator
opportunity [ɒpə'tju:nɪti] n imkoniyat
oppose [ə'pəʊz] v qarshilik qilmoq
opposite ['ɒpəzɪt] a teskari
opposition [ɒpə'zɪʃən] n qarshi harakat qilmoq, oppozitsiya

oppress [a'pres] v taxqirlamoq
optical ['optikal] a optik; ~ fiber optic tola
optics ['optiks] n optika
oral ['o:ral] a og'zaki

P

pack [paek] n paket
package ['paekicfe] n paket, modul
paint [peint] v bo'yamoq, chizmoq
painter ['peinte] n rassom
palace ['paelis] n saroy
panel ['paenl] n panel, boshqaruv shiti
paper ['peipe] n qog'oz, maqola; a qog'ozli
parents ['pserents] n ota-ona
park [pa:k] v uzoq muddatga qo'yish (avtomashina)
parking ['pa:kɪŋ] n transport qo'yish joyi
part [pa:t] n qism; to take qatnashmoq
partial ['pa:Jel] a qisman
partially ['pɜ:ljeli] adv qisman
particle ['pa:tɪkl] n zarra
particular [pe'tɪkjule] a ma'lum, o'ziga xos
pass [pa:s] v o'tmoq; ~ examinations imtixonlardan o'tmoq
passage ['paesicfe] n abzas
passenger ['paesɪncfee] n passajir;
car yangil avtomobil
passive ['paesiv] a passiv
past [pa:st] a o'tgan; adv orqali
path [pa:θ] n yo'l, yo'nalish pathway- trayektoriya
pattern ['paeten] n model, namuna
pave [peiv] v ~ the way yo'l ochmoq, joy tayyorlamoq
pay (paid) [pei, peid] v to'lamoq;
attention diqqat qaratmoq; n to'lov, ish haqi
payload ['peilaud] n foydalanmoq
peace [pi:s] n dunyo
pearl [pɜ:l] n marvarid
peculiar [pi'kju.lja] a alohida
peculiarity [pi,kj u: li'ae riti] n o'ziga xos tomon
pedagogical ^peda'gocfeikal] a pedagogik

Q

qualification [ˈkwɒlɪfɪˈkeɪʃən] n kvalifikatsiya, malaka
qualified [ˈkwɒlɪfaɪd] a malakali
quality [ˈkwɒlɪti] n sifat
quantitative [ˈkwɒntɪtətɪv] a sonli
quantity [ˈkwɒntəti] n son
question [ˈkwɛstʃən] n savol; in ~ ko'rilayotgan masala
questionable [ˈkwɛstʃənəbl] a shubhali
quick [kwɪk] a tez
quiet [ˈkwaɪət] a tinch, osuda

R

race [reɪs] n musobaqa, poyga
radar [ˈreɪdər] n radar
radiate [ˈreɪdiət] v markazdan qochish
radiation [ˈreɪdiəʃən] n radiatsiya
radio [ˈreɪdiəʊ] n radio; ~ engineering radio texnika; ~ receiver =
~ set radiopriyomnik
random [ˈrændəm] a tasodifiy, tartibsiz
range [reɪnʃ] n harakat radiusi, masifa, qator, diapason
rapid [ˈræpɪd] a tez
rate [reɪt] n temp; tezlik; twicethe ~ ikki baravar tezroq; atany ~ har qanday
holatda
rather [ˈrɑː5ə] adv juda;
ratio [ˈreɪʃiəʊ] n munosabat
ray [reɪ] n nur; cathode- - tube elektr nur-trubkasi
reach [riːtʃ] v yetishmoq
read (read) [riːd, red] v o'qimoq
readily [ˈredɪli] adv bajonudil
reading [ˈriːdɪŋ] n o'qish; - room o'quv zali
ready [ˈredi] tayyor; to be ~ tayyor bo'lmoq; to get – nimagadir tayyorlanmoq
real [riəl] a haqiqiy
reality [riːˈælɪti] n haqiqatda
realize [ˈriəlaɪz] v tushunmoq, amalga oshirmoq
really [ˈriəli] adv haqiqatan ham, aslida
rear [riə] a orqa
rearward [ˈriəwəd] adv orqaga, teskari
reason [ˈriːzən] n sabab
receive [riːsɪv] v qabul qilmoq
receiver [riːsɪvə] n priyomnik

recent ['ri:snt] a oxirgi
recently ['ri:sntli] adv yaqinda
recognition [/ekag'nijan] n tan olish
recognize ['rekagnaiz] v tan ilmoq
recollect [7reka'lekt] v eslamoq

S

safe [seif] a ishonchli, xavfsiz
safely ['seifli] adv omadli
safety ['seifti] n xavfsizlik
sail [seil] v yelkanda suzmoq
boat yelkanli qayiq
sailor ['seila] n matros
same [seim] a xuddi shunaqa; the – shuni o'ziga; in the - way shunday, shu usulda
sample ['sa:mpl] n namuna
sand [saend] n qum
satellite ['saetalait] n yo'ldosh
satisfactory ^saetis'faektari] a qoniqarli
satisfy ['saetisfai] v qoniqtirmoq
save [seiv] v qutqarmoq, iqtisod qilmoq
saving ['seivrq] a asrovchi; n extirot qiluvchi, qutqaruvchi
scale [skeil] n razmer
scan [skaen] v skaner qilmoq
scanning ['skaenrn] n skaner qilish
scarcely ['skeasli] adv ...dayoq
scattered ['skaetad] a sochilgan
schedule [/'edju: I] n grafik, reja
scheme [ski:m] n sxema, reja
school [sku:I] n maktab, ilmiy yo'nalish
science ['saiens] n fan
scientific ^saien'tifik] a ilmiy
scientist ['saientist] n olim
screen [skri:n] n ekran, shit, to'siq; v himoya qilmoq, yopmoq
screw [skru:] n vint
sea [si:] n dengiz
seagoing ['si:,gaurn] n dengizda suzish
seal [si:l] n izolatsiya
seaman ['si:man] n dengizchi
search [sa:tf] axtarmoq, tadqiq qilmoq

seat [si:t] n o'tirishga joy
 secondary ['sekenderi] a o'rta (ma'lumot)
 seem [si:m] v ko'rinmoq
 seize [si:z] v ushlab qolmoq
 seldom ['seldem] adv kam (uchraydi)
 select [si'lekt] v танламоқ
 self-governing ['self'gAvenrr] a o'zini-o'zi boshqaruvchi
 self-moving ['selfmu:vir] a o'zi harakat qiladigan
 self-propelled ['selfpra'peld] a o'zi yuradigan
 sell (sold) [sel, saud] v sotmoq

T

table ['teibl] n stol, tablisa
 take (took, taken) [teik, tuk, 'teikn] v olmoq; ~ away olib qo'ymoq; ~ care of ...ga g'amxo'rlik qilmoq
 talk [to:k] v gapirmoq, suxbatlashmoq; n suxbat
 tank [taerik] n bak, basseyn, tank
 tape [teip] n lenta, plyonka (magnit yozuv uchun)
 tape-recorder ['teipr^koide] n magnitofon
 task [ta:sk] n vazifa tax ['taeks] n soliq tea [ti:] n choy
 teach (taught) to:t] v o'qitmoq, o'rgatmoq
 teacher ['tiitjo] n o'qituvchi
 technical ['tekrukel] a texnik
 technique [tek'ni:k] texnika, usul
 technological ^tekne'lodjikal] a texnologik
 telegram ['teligraem] telegramma
 telegraph ['teligraif] telegraf
 telephone ['telifeun] telefon
 television ['tel^vijen] televideniye; a televizion
 tell (told) [tel, teuld] v aytmoq, xabar bermoq
 temperature ['tempritfe] harorat
 term [te:m] atama, semestr; long – uzoq muddatli
 territory ['teriteri] hudud
 test [test] v sinab ko'rmoq, tadqiq qilmoq
 thank [0aer|k] v minnatdorlik bildirmoq; thanks to tufayli
 that is (i.e.) that is why man anima uchun
 then [βeπ] adv unda, o'shanda; the – o'sha vaqtdagi
 thereby ['bEe'bai] adv shunday qilib
 therefore ['6Eefo:] adv shuning uchun
 thermal ['0e:mel] a termik

thick [θɪk] a qalin, semiz
thin [θɪn] a юйуьqqa
thing [θɪŋ] narsa; one - bitta
think (thought) [θɪŋkt, θo:t] v o'yilamoq

U

unable [ˈʌn'eɪbl] a qodir emas; to be – ga qodir bo'lmaslik
unamenable [ˌʌnəˈmeɪnəbl] a quloq solmaydigan
unbelievable [ˌʌnbɪˈli:vəbl] a hayron qolarli
uncertain [ˌʌnˈsɜ:tɪn] a ishonchsiz; to be - shubhalanmoq
under [ˈʌnde] ostida; ~ certain conditions ma'lum sharoitlarda
undergraduate [ˌʌndeˈgrædʒuɪt] n talaba
underground [ˈʌndeɡraʊnd] n metro; a yer osti
underwater [ˈʌndeˈwoɪte] a suv osti
undiscovered [ˌʌndɪsˈkʌvəd] a ochilmagan, kashf qilinmagan
uneven [ˈʌnˈri:vən] a notekis
unexpected [ˌʌnɪksˈpektɪd] a kutilmagan
unfortunately [ˌʌnˈfo:tʃnɪtli] adv baxtga qarshi, afsuski
uniform [ˈju:nɪfɔ:m] a bir xil
unit [ˈju:nɪt] n o'lchov birligi
universal [ˌju:niˈve:səl] a umumiy
universally [ˌju:niˈve:seli] adv hamma joyda, har yerda
universe [ˈju:nɪve:s] n dunyo, olam
university [ˌju:niˈve:sɪti] n universitet
unknown [ˌʌnˈnɔ:nt] a noma'lum
unless [enˈles] cj agarda...
unlike [ˈʌnˈlaɪk] a bir xil bo'lmagan; ...dan farqli
unlikely [ˌʌnˈlaɪkli] extimoli kam

V

vacation [veˈkeɪʃən] n kanikul, ta;til
vacuum [ˈvækjuəm] n vakuum; ~ chamber vacuum kamera
valid [ˈvælɪd] a asosli, qimmatbaho
value [ˈvælju:] n baho, miqdor
valve [vælv] n klapan, elektron, lampa
vaporize [ˈveɪpəraɪz] v bug'lanib ketmoq
varied [ˈveərɪd] a har xil, farq qiladigan
variety [veˈraɪəti] n xilma xillik, alarge ~ of turli-tuman

vary ['v80n] v o'zgarmoq
 vehicle ['vi: ikl] n harakat vositasi (avtomobil)
 velocity [vi'iositi] n tezlik
 Venus ['vi:nes] n Venera
 versatile ['V9:s0tail] a har tomonlama
 versatility [v0:s0'tiliti] n ko'p tomonlilik
 version ['v0:J©n] n variant, versiya
 vertical ['v0:tik9l] a vertikal
 very ['veri] adv juda; the – xuddi o'sha; - much juda ko'p
 via ['vai0] orqali (lot.)
 vibrate [vai'breit] v tebranish
 vibration [vai'breij©n] n tebranish
 viceversa ['vaisi'v0:s0] adv aksincha (lot.)
 vicinity [vi'siniti] n yaqinlik; Moscow ~ Moskva yaqini
 victory ['vikt0ri] n g'alaba
 view [vju:] nтyp; v sinchiklab ko'rmoq
 village ['vilidj] n qishloq
 violin ^vaie'lin] n skripka
 virtue ['v0:tfu:] g'urur; by ~ nimadir tufayli
 visible ['vizebl] a ko'rinish
 vision ['vi3©n] n ko'rinish; night – tungi ko'rish
 visit ['vizit] n tashrif buyurmoq, kelmoq
 visual ['vizjuel] a ko'rinadigan

W

wait [weit] v kutmoq
 walk [wo:k] v yurmoq, sayr qilmoq
 about sayr
 wall [wo:I] n devor
 wander ['wonde] v daydimmoq
 want [wont] v xoxlamoq
 war [wo:] n urush
 warm [wo:m] a issiq
 warming ['wo:mir] n isish
 warmth [wo:m0] n issiqlik
 warn [wo:n] v oogohlantirmoq
 warning ['wo:niri] n ogohlantirish; safety ~ ogohlantirish signali
 warrior ['worie] n kurashchi, jangchi
 wash [woj] n ювиш; ~ing machine kir yuvish mashinasi
 waste [weist] n axlat; v keraksiz; ista'molga yariqsiz

watch [wɒtʃ] v kuzatmoq; n soat
water ['wɔ:tə] n suv; system vodoprovod
watertight ['wɔ:tetaɪt] a suc o'tkazmaydigan
wave [weɪv] n to'lqin
way [weɪ] n yo'l, usul; in such a ~ shunday qilib; ~ out vaziyatdan chiqmoq
weak [wi:k] a kuchsiz
weapon ['wepən] n qurol
wear (wore, worn) [weə, wɔ:, wɔ:n] v kiymoq (kiyim)
weather ['weðə] n ob-havo
week [wi:k] n xафта; ~ day ish kuni; ~ end shanbadan dushanbagacha (uik-end)
weigh [weɪ] v o'lchamoq
weight [weɪt] n vazn; by ~ vazn bo'yicha
weightlessness ['weɪtlɪsnɪs] n vaznsizlik
welding ['weldɪŋ] a payvand

Y

year [je:] n yil; ~s before ...gacha ...yil oldin; ... ~s old ... yil, yosh
yellow ['jeləʊ] a sariq
yet [jet] adv haliyam

Z

zinc [zɪŋk] n sink
zone [zəʊn] n zona, belbog'

“ELEKTRONIKA VA AVTOMATIKA” HAMDA “MUXANDISLIK TEXNOLOGIYALARI” FAKULTETLARI TALABALARI UCHUN QO‘SHIMCHA MATERIALLAR

Text 1

Internet biznes va iqtisodiyotga qanday ta’sir qiladi? Oxirgi yillardan misollar keltiring :

A. Matnno o‘qing va quyidagi ma’nolarda kelgan so‘zlarni toping:

work (to be in action), large (substantial), terrible (horrible) experience, deal with, payment for professional service, follow, business deal, trade, in the end, keep a secret, reduce drastically, reduction, very great, offer a price at an auction sale.

Car Giants’ Single Online Supply Store

General Motors, Ford Motors and Daimler Chrysler companies have announced plans to open the online auto marketplace, potentially making it the largest Internet business yet created. It will allow suppliers and buyers to automate routine transactions and streamline the bidding process for everything from car windows and fuel-injection parts to paper clips and paint through electronic sales, auctions and «reverse auctions» in which buyers state their needs and receive bids from sellers.

Consumers are not likely to see massive price cuts because of the new system. But it should help automakers keep a lid on retail prices as new features are introduced, such as electronic steering, computerized transmission systems and weight-sensitive air bags. It will also make it possible for customers to order more personalized vehicles and to take delivery of them faster.

General Motors, Ford and Daimler Chrysler will have an equal share of the new company, which is expected to be running by the end of June. They will also open their virtual marketplace to other automakers and could eventually expand the service into other industries, such as aerospace, construction and office supplies.

The joint marketplace is the most powerful sign of the migration of commerce from the old world of salesmen and brick stores to the new virtual world of electronic commerce (e-commerce). It is going to change the way businesses interact with each other by taking out the huge inefficiencies that have been built around the old methods of using the phone and mail.

By using the speed of Internet communications and the power of large computerized databases to handle global sales and purchasing, the companies hope to control costs, slash production inefficiencies and reduce the logistical nightmare of tracking millions of parts.

«The Internet is transforming every piece of our company and our industry», Ford president said in a statement.

In one of the first purchases made by Ford on its own online marketplace the company was reported to save more than \$10 million.

There will ultimately be more than 100,000 supply companies on the system. The company could become a profit maker since it will collect a fee or commission for every transaction that takes place over the network.

Note to the Text

to make more efficient by simplifying

Matndan quyidagi so'zlarning antonimlarini toping:

buy, buyer, sale, wholesale price, waste (use more than needed), destroy, increase, loss, small.

Ikki ustundagi so'zlardan gaplar tuzing:

A		B
1. electronic	a.	share
2. routine	b.	sales, commerce
3. retail	c.	price cuts
4. equal	d.	transactions
5. global	e.	prices
6. massive	f.	marketplace
7. virtual/joint	g.	sales and purchasing

1-mashq. Gaplarni tarjima qiling. Ajratib ko'rsatilgan so'zlarning o'zbekcha ekvivalentlarini toping:

Market is the total demand for goods.

Market economy is one in which prices and quantities are determined by supply and demand.

Marketing is a theory and practice of large scale selling.

The marketing «mix» often referred to as the four Ps includes choosing the right product a company produces; selling it at the right price; using the right kind of promotion, i.e., the ways to make the product popular and well-known by advertising; making it available in the right place, where you sell the product and how it reaches the consumer, which is also known as distribution.

People who buy and use products are called consumers.

People who buy the products of a particular company are

that company's customers or clients.

One of the equal parts into which capital of a company is divided is called a share.

Market share is the % of a market that a company has, e.g., 25 % market share.

Market leader is the company or product with the largest market share.

Market research provides information about what people want, need and buy.

Profit is money made or gained in business.

You call the amount you have sold sales figures.

Sales target means the amount you would like to sell in the future.

The amount you hope to sell next two years is sales forecast.

Sales representative (usually sales rep) is a person who sells a company's products.

The person who runs the sales or marketing department is called sales or marketing manager.

To launch a new product is to introduce a new car onto the market.

The main competitor is the most important company in the same market.

The idea that people have of the company is the image of the company.

2 mashq. A va B ustunlardagi so'zlardan gaplar tuzing:

- | A | B |
|-------------|---------------------|
| 1. make | a. the service |
| 2. cut | b. inefficiency |
| 3. save | c. goods |
| 4. have | d. commission (fee) |
| 5. launch | e. money |
| 6. expand | f. a profit |
| 7. control | g. a new product |
| 8. collect | h. prices |
| 9. automate | i. a share |
| 10. reduce | j. transaction |
| 11. handle | k. costs |

3-mashq. Nuqtalar o'rniga quyidagi so'zlardan mos keladiganini qo'ying:

market leader image customers buying sales figures sales forecast profit handle
product consumers competitors price sales rep retail marketing

1. The company is interested in (1) ... this enterprise, but we find the (2)... to be too high.
2. The wholesale price is always lower than the (3) ... price.
3. Our marketing manager thinks the company will not make as much (4) ... this year.
4. We do not (5) ... goods of that kind in this company.
5. Everybody was impressed with the (6)... for the new product.
6. What is your company's (7) ... for the next year?
7. Our main (8) ... are going to take part in a (9) ... conference this week.
8. An experienced (10)... should have an excellent knowledge of his company's (11)..., the needs of (12) ... in his particular market and, of course, the needs of their company's most important (13) ...
9. IBM is one of the (14) ... in the USA computer industry.
10. The (15) ... of a company is very important in sales and marketing.

4-mashq. Gaplardagi faqat bitta so'zni almashtiring va u teskari ma'noni ifodalasin:

Nobody thought that the company would lose a lot of money.

The company has decided to sell the factory in Leeds. 3. Our sales manager cannot get used to being an unsuccessful businessman.

5-mashq. Jadvalni to'ldiring:

Noun	Adjective	Noun	Adjective
competition	expensive	sense	• • •
fashion		power	reliable • t •
availability			dangerous

6-mashq. A. «Marketing» mavzusida 20-25 ta kalit so'z ayting: .**B. Speak about:**

The market leader in the motor car (computer) industry in our country, its market share and main competitors.

A car (computer) that has been launched lately.

Bank sohasida internet qanday qulayliklar beradi? Matni o'qing va quyidagi ma'nolarni beradigan so'zlarni toping:

a sum of money to be paid in case of accident (loss, etc.), money in one's account, money to be paid for lighting (heating in your house), a manner or way of doing smth., allow to.

Banking on a Web Lifestyle

According to Bill Gates, a well-known winner of MN Golden Certificate from Microsoft, within 5—8 years, and possibly much earlier, many people will manage their finances via the Internet. Each bank will put up Web pages that present its products in an easy-to-use fashion, making it simple for customers to manage money quite well electronically.

If you are a customer, your funds will move automatically to meet your needs. You will easily get answers to questions such as:

Am I saving enough? Have I gathered all the information I need to file a tax return (соликдекларацияси)? Am I keeping to my budget? How does this month's electric bill compare to the bill for the same month last year?

These changes won't come at the expense of the banking industry. On the contrary, the Web will let companies offer services that meet individual needs, which is an essential advantage.

Productivity improvements tend to produce many more winners than losers. Life gets better when people discover a fundamentally better way to do something important. That is why the Web is unlikely to dehumanize banking or anything else.

The Web will offer banks great opportunities, especially as their services expand to include insurance, advice and a broad range of investments. Some banks will offer to manage your assets (мулк) and provide you with credit. If your checking account balance (хисоббаланси) gets too high, the bank will offer to move funds into investments that have higher yields (фоизлифойда). Banks will advise you to pay down credit-card balances or other loans (қарз, ссуда), and let you do it with a click. They will know that if they do not give you this kind of advice and convenience, you are likely to take your business elsewhere.

The Internet is a tool of communication, a place for people as well as for extensive information.

1-mashq. Ajratib ko'rsatilgan so'zlarning o'zbekcha ekvivalentlarini toping. Kalit so'zlarni eslab qoling:

Businessmen can lend (қарз бермоқ) and borrow (қарз олмақ) money.

The money to be borrowed from the bank is called a loan.

Most companies borrow money to finance (i.e., to pay for) investments (e.g., equipment they buy in order to do business).

If you borrow money from the bank you must pay interest. Interest rate is per cent (фоиз) you should pay back.

Businesses have to make a profit, not to make a loss.

To make a profit means to earn or receive more money than you spend.

If a company does not make a profit or a loss, it breaks even (загарсиз).

The money a company receives for its products is called the turnover.

The money spent is called the expenditure.

A company spends money on raw materials, labour (workers, employees, staff) and overheads (e.g., rent for buildings, electricity, telephone, etc.)

In order to grow or expand and prosper (do well, be successful) the companies need low inflation or rate of inflation (which means the continuous increase in the price of products), low interest rates, economic and political stability, a healthy economy, not an economy in recession, and tax cuts as well. Recession is a period of reduced and slow business activity. Tax is a sum of money to be paid by citizens (according to income, for example) to the government for public purposes.

A trend is a change or movement of prices, profits, sales, etc. To describe a trend we can use the following expressions:

The government will raise taxes.

Taxes will rise (increase, go up) by 2 % (or to 28 %).

There will be a sharp rise in inflation.

Taxes will fall (go down, decrease) slowly.

There will be a slow fall (decrease) in taxes.

Prices are up by 5 %; profits are down by \$2 million.

Inflation will probably remain stable at around 3 %.

Expenditure is spending or using money, for example, government expenditure.

2-mashq. Ajratib ko'rsatilgan so'zlarni ma'nosi yaqin so'zlar bilan almashtiribg:

1. Our company is doing well now.
2. Sales have increased dramatically.
3. This came after a dramatic fall last year.
4. Profits have risen considerably.
5. Our turnover has gone up this year.
6. The company is growing very quickly.

7. We expect sales to increase for about two years.
8. Then they will fall slightly.
9. It is necessary to spend more money on R&D (Research and Development).

3-mashq. Gaplar tuzing:

healthy and loss credit...
 ... stability interest... ... return
 break... ... materials account...
 economy in... tax... productivity ...
 turn ... over ...

4-mashq. Ikki ustunni birlashtirib, gaplar tuzing:

A	B
finance	a. money on
offer	b. services
provide with	c. a profit / loss
gather	d. needs
make	e. investments
meet	f. information
spend	g. opportunity
expand	h. interest
lend/borrow	i. credit
pay	j. money

6-mashq.A. matnni o'qing va quyidagi so'zlarning ma'nolarini tushunishga harakat qiling: unit of account, value, grains, print, consider, cease, cash, withdraw, bank account.

Money as a Unit of Account

The most difficult aspect of money to understand is its function as a unit of account. Money is difficult to define, because the value of anything changes with time and circumstances.

Sir Isaac Newton defined the pound sterling (£) in 1717 as 113 grains of pure gold. By the end of the nineteenth century the gold standard had spread around most of the trading world, with the result that there was a single world money. It was called by different names in different countries, but all these supposedly different currencies were interconnected through their particular definition in terms of a quantity of gold.

The end of the gold standard began with the introduction of the agreement in 1946. This fixed the value of all world currencies relative to the US dollar, which in turn was fixed to a specific value of gold (US \$ 0.35/oz.) However, in 1971 the US government finally refused to exchange US dollar for gold, and other countries soon followed. Governments printed as much paper money or coinage as they wanted, and the more that was printed, the less each unit of currency was worth.

The great advantage of the nineteenth-century gold standard was not just that it defined the unit of account, but that it operated throughout almost the entire world. A price in England was the same as a price in Australia or any other country.

Today we can determine price differences between countries by considering the exchange rate of the day.

The great advantage of having a single stable world money is that such money has very high information content. It tells people where to invest their time, energy and capital, all around the world, with much greater accuracy and predictability than would otherwise be possible.

Nowadays many specialists believe that within the next decade money, as we know it will probably cease to exist in technologically advanced countries. The familiar coins and notes will soon be replaced entirely by plastic money — plastic cards of various kinds. And the shops of the future will be linked directly to the network of banking computers. The shop assistant will simply key in your bank account code number and the amount you have spent, and thank you politely.

Banks have invested huge amounts of money in new technology. Credit cards are issued by credit card companies such as Visa and MasterCard. These companies work closely with all the major banks. A credit card enables you to pay for goods or services immediately without cash or cheque. You are given free credit for an agreed period. At the end of this period you are charged high interest. Every credit card holder is given a credit limit.

Most banks provide their customers with banker's cards. Using PIN (personal identification number) you can use this card to withdraw cash from the ATMs (Automated Teller Machines).

Some banks have already introduced «first generation» smart cards. A smart card contains a computer «chip». It can do all the things other cards can do but it can also store and display each transaction. In the near future you may be using these cards for «home shopping», satellite TV, telephone charges, and as passports and identity cards.

7-mashq. Nuqtalar o'rniga mos keladigan terminlarni qo'ying, tarjima qiling:

... is money that may be used to start a business.

... is the type of money used in a country.

... is money in coin or notes.

... are metal money, ... is system of coins in use.

... are paper money.

... money is different kinds of plastic cards.

... is to be worth in terms of money.

... is price asked for goods or services.

To ... means to ask smb. to pay.

To ... money means to keep some of one's money, e.g., for a new computer.

To ... money means to use it badly on things that one does not need.

The ... of living means how much people pay for things.

13.... of living is the level of money and comfort people have.

8-mashq. Nuqtalar o'rniga sinonim yoki antonimlarni qo'ying:

value ... waste ...

... condition ... lend

quantity ... cheap ...

... common, often see or heard ... unstable

various ... minor ...

9-mashq. A. «Business and finance» mavzusida 20-25 ta kalit so'zlar ayting:

B. Speak about:

The state of the economy at the moment. Is it strong or is it in recession?

The current rate of inflation in the country. Has the government reduced company taxes or personal taxes lately? Has public expenditure risen or fallen recently?

New technology and money.

Text 3

Zamonaviy ishlab chiqarishni tashkil qilishda elektron aloqa vositalari qanday ahamiyatga ega?

Matnni o'qing va quyidagi so'zlarning ma'nolarini tushunishga harakat qiling:

vital, corporate, compile, memo, pace, respond, intranet, empower.

Paperwork and the Digital Nervous System

Bill Gates states it did not take Microsoft Co. long to get rid of most of the company's paper forms. The move from paper to electronic forms is a vital step in the evolution of a modern organization's nervous system. A corporate system defines how an organization deals with planned and unplanned events alike. It includes meetings, paperwork and electronic systems. It governs the way information about customers is stored, the way workers are organized, the way budgets are compiled and activities are coordinated, and the way information is exchanged.

In the past, companies were virtually alike in terms of how they managed these activities. Meetings, memos and managers were relied upon heavily. The pace was not usually too fast, and there was lots of paper.

But one of the lessons from Darwin is that the excellence of an organism's nervous system helps determine its ability to sense change and quickly respond, thereby surviving or even thriving.

Today, new «digital nervous systems» are based on electronic communications tools that help corporations maintain themselves, defend from dangers and take advantage of opportunities rapidly. The Internet and intranets are essential.

You can easily bring the people you need together electronically, even if they are all over the globe. The people in the company can gain a common understanding of what is going on. They can exchange ideas easily. Perhaps the single most important element of a digital nervous system is a customer database. Having all your information about customers in one place gives you the tools to analyze and make decisions. It empowers you to be highly responsive to customers needs.

Microsoft's system is far from perfect, but it improves as the company takes better advantage of technology. Its annual budgeting process used to take three months. Microsoft invented a new process around electronic forms on the company's intranet.

The budget cycle is now a very tense three-week period. The company's digital system lets everybody see immediately what the other people in the company are planning. The managers see comparisons of sales and expense forecasts relative to market size in other divisions and regions. The product groups see the numbers organized by product. The subsidiaries see the numbers geographically. The finance people see them in on a profit-and-loss basis.

In other words, information can automatically be analyzed and compared and summarized and brought to the attention of the people who need to know about it.

A. Ikki ustundagi so'zlardan foydalanib, gaplar tuzing:

A	B
annual	a. forms
vital	b. budget
digital	c. understanding
common	d. communications tools
electronic	e. step
paper and electronic	f. system

B. Ikki ustundagi so'zlardan foydalanib, gaplar tuzing:

A	B
annual	a. forms
vital	b. budget
digital	c. understanding
common	d. communications tools
electronic	e. step
paper and electronic	f. system

Text 4

Logistika nima? Bu sohada qanday yangi yo'nalishlar paydo bo'lyapti?

A. Matnni o'qing va quyidagi so'zlarning ma'nolarini tushunishga harakat qiling: retrieve, storage, package of services, to contract, totality.

Flexible Logistics Systems

Several organisations are expanding beyond their national borders as a strategy to improve competitiveness and their ability to offer diverse products to an expanded market. Many companies have become very proficient at supplying products throughout the world. The task requires not only the ability to recognize opportunities, but also an information system to co-ordinate the supply of goods and materials to places where they are needed throughout the world.

Logistics is supply, distribution and replacement of materials, goods and personnel. It is a problem for all organisations, both public and private. For instance, there were tremendous logistics challenges of moving the US military — army, navy, and air force — to carry out the military operations called «Desert Storm», problems which were even more complex when other nations belonging to the United Nations assisted with the operations. Large logistical problems are faced by relief agencies which are trying to give public assistance to people during emergencies.

In a small warehouse, improvements can be obtained from better information systems, productivity improvements, inventory (инвентаризация) savings, reductions in returns (қайтариш, оборот, фойда), space saving (10—30 per cent), and extra customer service profit. That is, for a warehouse of 80,000 sq. ft, 50 staff, and \$100 million sales per annum, and inventory of \$40 million, it is possible to save over \$2 million per annum from improved methods. The costs of such improvements can be retrieved after just three months.

The logistics aspects of the distribution chain (занжир) in any organisation relate to the use of information to manage more effectively the functions of transportation, storage, warehousing, and freight forwarding (юкжўнатиш). The information system has to co-ordinate a distribution network which consists of transportation services between suppliers to factories, factories to storage facilities, ports and warehouses, storage services in the warehouses, transportation services between the warehouses and buyers and linkages between countries. As a result of implementing an efficient information system and computer network, McDonald's restaurants are able to receive food products from various suppliers, repackage them to meet McDonald's specifications, and then deliver them to their restaurants throughout the world, and still maintain consistent (москеладиган) standards.

Some companies perform logistics services themselves, but many are contracting these services to specialists who have information systems to offer a package of services — from simple storage and warehousing to a total package or complete service which might include consolidation (бирлашма) of cargo, transportation, storage and inventory management. Companies within the logistics sector distinguish themselves by the totality of the services they offer. Generally, smaller firms may have less sophisticated information systems and may only provide services such as warehousing and transportation. Large firms have the resources and economies of larger scale to develop more sophisticated information and computer systems. However, developing a sophisticated and centralized information and mechanized warehouse may not necessary lead to a success.

Certain larger companies choose to rely on more flexible systems, which allow for learning and adaptation.

B. A tomondagi so'zlarga B tomondan sinonim yoki yaqin so'zlarni toping:

A

1. complex
2. total

B

- a. tremendous
- b. of different kind

- | | |
|-------------------------|------------------|
| 3. diverse | c. sophisticated |
| 4. keep up | d. assistance |
| 5. profit | e. maintain |
| 6. very great, enormous | f. returns |
| 7. help | g. entirety |
| 8. totality | h. complete |

A. Matndan quyidagi ma'nolarda kelgan so'zlarni toping:

help given to those in need and trouble

skilled, expert

get back, return quickly

spread out over a large area

a problem, difficulty

serious situation, needing action as soon as possible

a/per year

a building for storing goods before distribution

easily changed, adaptable for new needs or conditions

Нукталарўрнигақуйидагисўзларданмоскеладиганиниқўйинг:

management logistics distribution inventory storage returns transported
warehouse

We know (1) ... to be a detailed list of goods, parts, equipment, etc. 2. Small profits and quick (2)... is the motto (девиз) for shops that rely on large sales and quick turnover. 3. In the same way, Toshiba might contract with a (3) ... firm so that television sets and other products could be picked up from the factory, taken to a (4)... , perhaps repackaged, and then (5)... to stores in other countries. 4. Many companies are interested in improving customer service through better inventory (6)... 5. As a rule, an unproductive (7) ... chain results in a higher total inventory cost.

(8) ... facility — a single set of consolidated databases that could be accessed by sailors aboard ship, support engineers at shore and program managers.

1 машқ. А. «Logistics» мавзусида 15-20 такалитсўзларниайтинг: .

B. Speak about:

Problems logistics deals with.

SUPPLEMENTARY TEXTS

To be read after Text 1

Finding Opportunity in the Global Economy

Bill Gates says today if you had to guess (ўйлабтопмок) somebody's approximate income (i.e., money you receive) and you were limited to asking one polite question, a good one would be: «What country do you live in?» That is because of the huge difference in average wages (weekly payment for work) from country to country. But a generation from now, if you want to guess someone's income, a more-telling single question might be: «What's your education?» «This, at least, is my belief», B. Gates says. Future business opportunity will depend on educational opportunity — for everyone.

Compared to almost anything else in a developed society, the cost of investment in education is low — and the returns are high. Even the poorest of countries can develop better schools. Education is essential because electronic networks and software-driven technologies are beginning to break down the economic barriers between nations. The Internet and the availability of inexpensive, powerful computers are helping spread opportunity to developing nations.

International communication, which is certain to become extraordinary¹ cheap in all its forms, will bring suitably educated people from every economic region into the mainstream of the world economy. Well-educated, enterprising individuals with access to information technology will do well no matter where they live.

Nearly a billion people in rural China may find their lives little changed for decades, but tens of millions of the best-educated Chinese could earn more or less what similarly educated people in the United States or Germany do. As technology breaks down the barriers of distance and national borders, it will be even more important that everybody be given equal educational opportunities. Eventually, being «poor» won't be much a matter of living in a poor country as it will be a matter of having poor skills.

Assuming you want to develop those skills, what should you study? There are a lot of opportunities in the knowledge-based global economy, and B. Gates is particularly enthusiastic about the business he knows best — software.

Because software is an almost pure expression of logic, the industry is a great field for almost anyone today. Just about every technical and scientific discipline will apply. The business side is equally exciting and challenging²

because the industry is so dynamic. And software jobs are among the highest-paid. It is not a win-lose industry, either. More software development in one region does not mean reduced software development in another. Rather, software development as a whole helps to grow the world economy.

The value and importance of the software industry — and its employees — will continue to grow indefinitely. Software is transforming the workplace in industry after industry, increasing productivity and helping globalize the world economy.

Notes to the Text

unusually

interesting and difficult

To be read after Text 2, 3, 4

Ten Attributes of a Good Employee

Here are 10 of the qualities Bill Gates finds in the «best and brightest» employees the companies should attract and retain.

First, it is important to have a fundamental curiosity¹ about the product of your company or group. You have to use the product yourself.

Second, you need a genuine (хақиқий) interest in discussion with customers about how they use your product, what they like or don't like in order to know where your company's product could be better.

Third, once you understand your customer's needs, you have to enjoy thinking through how this product can make work more interesting.

These first three points are related. Success comes from understanding and caring deeply about your products, your technology and your customers' needs.

Fourth, you as an individual employee should develop your own skills and those of the people you work with. If maximizing your next bonus² or salary increase is all that motivates you, you are likely to lose an opportunity to benefit from teamwork³ that creates success in the long term.

Fifth, you need to have specialized knowledge or skills while maintaining a broad perspective. Big companies, in particular, need employees who can learn specialties⁴ quickly, so a willingness to learn is critical.

Sixth, you have to be flexible enough to take advantage of opportunities that can give you perspective. At Microsoft Co., they try to offer a person lots of different jobs in the course of a career. Anyone interested in joining management is encouraged (поощрять) to work in different customer units, even if it means moving within the organization or relocating to a different part of the world. Microsoft Co. has many employees working for their US

subsidiaries in other countries. This helps them better understand world markets. Seventh, a good employee will want to learn the economics of the business. Why does the company do what it does? What are its business models? How does it make money? And a company, in turn, should educate its employees in the fundamental financial realities of its industry.

Eighth, you must focus on competitors, i.e., you must think about what is going on in the marketplace. What are your company's competitors doing that is smart⁵? What can we learn from them? How can we avoid their mistakes?

Ninth, you've got to use your head. Analyze problems to understand the implications (яширинмаъно) of potential tradeoffs⁶ of all kinds, including the tradeoff between acting sooner with less information and later with more. Use your head in practical ways. Prioritize your time effectively.

Finally, don't fail to see the obvious essentials, such as being honest, ethical⁷ and hard working. These attributes are critical and go without saying.

Notes to the Text

strong desire to learn / know about smth.

addition to usual payment

combined effort

special activities, operations, products, etc.

skillful, clever (=quick in learning and understanding things)

compromise, compromising decision, choice

of moral principles

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