AL - FARABI KAZAKH NATIONAL UNIVERSITY

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ENGLISH FOR INFORMATION TECHNOLOGY FACULTY STUDENTS

Educational manual

Almaty 2021
«Qazaq University»

Recommended by the Scientific Council of the Faculty of Philology Editorial and Publishing Council of Al-Farabi Kazakh National University (Protocol N°7 dated 12.03.2021)

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English for Information technology facultiy students**:** educational manual
/ U.B. Adilbayeva, G.A. Gaiipova – Almaty, 2021.

The educational manual is prepared at the Department of Foreign Languages of the Faculty of Philology of **KazNU. This manual is intended for students of the faculty of information technology. The purpose of the manual is to develop students skills of translating original technical texts, to expand the special vocabulary, based on the available basic knowledge, to form the competence necessary for the implementation of professional purpose. The educational manual is divided structurally into 15 lessons. Each of them presents assignments for the development of communicative competence.**

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ПРЕДИСЛОВИЕ

Учебное пособие подготовлено на кафедре иностранных языков факультета филологии Казахского национального университета им. аль-Фараби. Учебноее пособие предназначено для студентов всех специальностей 1 курса факультета информационных технологии.

Целью данного пособия является развитие навыков и умений письменного перевода с английского языка на родной язык оригинальных текстов по специальностям в области информационных технологии, расширение словарной базы, на основе имеющихся базовых знаний по английскому языку сформировать компетенции, необходимые для осуществления профессиональных целей.

Учебное пособие разделено структурно на 15 уроков, в каждом из которых, помимо текста, представлен комплекс упражнений и задания на говорения, выполнение которых способствует лучшему усвоению прочитанного материала и свободному владению новой лексикой.

Пособие построено на междисциплинарной основе и современных методических принципах, содержит тексты по специальностям студентов факультета информационных технологии, а также комплексы упражнений и заданий для развития навыков устной и письменной речи на английском языке.

Учебное пособие состоит из 96 страниц. Каждый урок данного пособия включает в себя упражнения по переводу, устной практике, усвоению активной лексики, дополнительные тексты для изучающего и просмотрового чтения и последующего анализа. Имеются полезные выражения по специальностям информационных технологий, грамматический справочник с упражнениями и ключи к грамматическим упражнениям.

Lesson 1
My speciality

Pre reading task.

1. **Brainstorming:** Why have you chosen this specialty? (3-4 sentences).
2. **Vocabulary of the topic.** Learn the words and their definitions.

Word	Definition
salary	a fixed regular payment, typically paid on a monthly basis but often expressed as an annual sum, made by an employer to an employee
career	an occupation undertaken for a significant period of a person's life and with opportunities for progress.
field	a particular branch of study or sphere of activity or interest.
skill	the ability to use one's knowledge effectively and readily in execution or performance.
freelance	is one where a person works for themselves, rather than for a company
wage	a fixed regular payment earned for work or services, typically paid on a daily or weekly basis.
creative	producing or using original and unusual ideas
jack-of-all-trades	a person who can do many different types of work.

Reading.

3. Read the text.

My Future Profession

I dream of my future job to be interesting and well-paid. People say that money is not everything, but it certainly does help because it gives independence and freedom. I would like to combine a good satisfying job with a high paying *salary*. That is why I want to become a computer programmer. It is a whole new world. Many people very often continue the *careers* of their parents or grandparents but it is not the case with me. My mother is a doctor and my father is an engineer. But I don't want to be neither a doctor nor an engineer. My favourite subjects in school are mathematics, physics, and computer science. I am interested in computer programming.

People with jobs in the career ***field*** of IT use computers, software, networks, servers, and other technology to manage and store data. There is growing demand in various jobs in the field of information technologies nowadays. In order to be a successful IT specialist you must possess some ***skill***s and personal qualities. The most important ones are the following: being able to think logically, love to solve problems, persistence and patience. A computer programmer must be able to find the most efficient way to solve the problem.

It is important to understand that the work of the programmer can be different: some of them work for a small agency, some for a huge company, others are ***freelance*** or have their own business. I would like to work for a big company. I know the advantages of being an IT specialist. The first is relatively high ***wage*** level, second is growing demand on the labor market, also good working conditions because this work is usually quiet and comfortable in an office, the work is often ***creative***, next is can work remotely-it allows to choose a comfortable place to live and work. There are some disadvantages that go along with advantages. They are: sedentary work in front of a computer screen; the work can be boring; there is not much communication; in small projects, you have to be ***a jack-of-all-trades*** person. Taking into consideration all advantages and disadvantages I came to the conclusion that the profession of a computer programmer offers great opportunities, because the future of our society is connected with the development of information technologies. I am sure I will reach my goal if I keep working hard. So after I finish school I want to enter the university and study computer science.

1. Give the true (T) or false (F) or doesn't say DS answers.

1. Computer programmer`s job is well-paid.
2. To be a successful IT specialist you must have some skills.
3. A computer programmer can work just only in big companies.
4. Creative means a particular branch of study or sphere of activity or interest.
5. One of the most important skills is being able to think logically.

6. There are no disadvantages to being a computer programmer.
7. People in this job always earn much.
8. There is growing demand in various jobs in the field of IT nowadays.

Writing.

4. Write about your dream job. Use notes to help you.

Example: My dream job is … .
I design/solve/ analyse … .
I would like to work for … (a person)
I have to be …(+ adjective)
… patient
… hard-working
… good with people
… flexible
I have to be … (+ type of person)
… a team-worker
… a leader
… a problem-solver

Speaking.

5.Think of five questions about choosing a profession. When your teacher says, "start", you have three minutes to talk to the person next to you.

When you ask a question and your partner or group mates answer, show your interest using the following: *Really? Oh,yes! Yes, me too. That is great! Wow, interesting indeed! I know what you mean. Why? When?, etc.*

Lesson 2
Computer

Pre reading task.

1. **Brainstorming:** Think and tell about some of the different ways that people use computers.

2. Vocabulary of the topic. Learn the words and their definitions.

Word	Definition
calculate	to judge the number or amount of something by using the information that you already have, and adding, taking away, multiplying, or dividing numbers.
features	a distinctive attribute or aspect of something
desktop	the working surface of a desk.
mainframe	a very large, powerful computer with a lot of memory that many people can use at the same time
keyboard	a panel of keys that operate a computer or typewriter.
counterpart	a person or thing that corresponds to or has the same function as another person or thing in a different place or situation.
stylus	an instrument for writing, marking, or incising
booting	to load (a program) into a computer from a disk.
device	a thing made or adapted for a particular purpose, especially a piece of mechanical or electronic equipment.

Reading.

2. Read the text.

Types of computer

Computer is an electronic device that manipulates information or data, in other words it is designed to work with Information. The term computer is derived from the Latin term "computare", which means to ***calculate*** or machine programs. It cannot do anything without a Program. It has the ability to store, retrieve, and process data. You may already know that you can use a computer to type documents, send email, play games, and browse the Web and use it to edit or create spreadsheets, presentations, and even videos. It is believed that the Analytical Engine was the first computer, which was invented by Charles Babbage in 1837 and called Analytical Engine. Charles Babbage is also known as the father of the computer.

There are different types of computers nowadays like, desktop computer, laptop, netbook, hybrid, tablet, smartphone. Let's understand these types of computers by their definitions.

1. Desktop computer-a computer suitable for use at an ordinary desk. A ***desktop*** computer is a computer that is designed to stay in a single location. Still, the term

"desktop computer" was used back then to differentiate between personal PCs and larger computers, such as ***mainframes*** and supercomputers. Desktop computers have more power and more features.

2. Laptop- a laptop is a small, portable personal computer with a "clamshell" form factor, typically having a thin LCD or LED computer screen mounted on the inside of the upper lid of the clamshell and an alphanumeric ***keyboard*** on the inside of the lower lid. The clamshell is opened up to use the computer. Its name comes from lap, as it was deemed to be placed on a person's lap when being used. Today, laptops are commonly used in a variety of settings, such as at work, in education, for playing games.

3. Netbook- is a new type of laptop computer, defined by size, price, horsepower, and operating system. It is slimmer, lighter, and offers a more simplified set of tools. A netbook is a type of laptop with a slimmed-down set of features, it usually costs much less than its full-sized laptop ***counterparts***.

4. Hybrid computers - are a different type of computer that has both features of digital and analog computer. Main objective of designing this computer is to perform very complicated calculations. Hybrid computers can be used in the large scale organizations to solve logical and technical calculations as well as offer great processing of differential equations.

5. Tablet computer- is intermediate in size between a laptop computer and a smartphone. Early tablet computers used either a keyboard or ***a stylus*** to input information, but these methods were subsequently displaced by touch screens.

Tablets come with a more slimmed down operating system because of the limited computing power and memory. Generally speaking, most tablets are much faster at ***booting*** than most computers.

6. Smartphone - a mobile phone that performs many of the functions of a computer, typically having a touchscreen interface, internet access, and an operating system capable of running downloaded apps. A smartphone is a mobile phone that can do more than other phones. They work as a computer but are mobile ***devices*** small enough to fit in a user's hand. Uses include sending and receiving emails, text, photographs and multimedia messages.

Speaking.

3. Using your own words answer the questions 1-4 with your partner.

1.What is a computer?
2. How many types of computers are mentioned in the text? What are they?
3. When was the first computer invented?
4. Who is Charles Babbage?
5. What type of computer do you prefer? Why?

6. How has the computer industry changed over the years?

Reading and writing.
5.Read the advantages and disadvantages of computers, choose one of them to describe in detail in written form.

Type	**Advantages**	**Disadvantages**
Desktop computer	lots of memory space easy to upgrade fast processors no battery large screen (depending on the monitor) cheaper than laptops and tablets	large footprint need keyboard, mouse and monitor big and heavy can be noisy requires a separate monitor not portable
Laptop	easy to carry small and lightweight powered by battery portable	very expensive less ergonomic than a desktop easy to steal or loose can overheat easily
Netbook	longer battery life easy to carry anywhere low price/cheap	small features limited power
Hybrid	speed precision On-Line Data Processing	expensive not reachable

 Tablet	small and lightweight recognizes handwriting can be used as a GPS system great for note taking can connect keyboard on it multi-touch screen long battery lifetime	easy to damage weak capability small screen high cost don't have optical drives for CDs and DVDs less number of ports
 Smartphone	instant communication Web Surfing camera entertainment GPS productivity Apps privacy	costly Poor Social Interaction distraction health Issues addiction extra work

Speaking.
6. Discuss the following questions with your partner.

1. Do you know a lot about computers?
2. How often do you use computers?
3. Do you have a laptop? What is your laptop brand?
4. What are advantages and disadvantages of your laptop?
4. Can you access the internet at home?
5. What type of computer would you like to have in the future?
6. What do you think is more useful? Smartphones or Tablets?
7. What are two disadvantages of using smartphones and tablets?
8. What do you think about desktop computers?

Lesson 3

Professions related to computers

Pre reading task.

1. You have two minutes to discuss one of the following questions with your partner then share it with the whole group.
a. Which professions are very well-paid these days? Why does

society value those workers highly?
b. Some companies use a flexible time system and employees can work hours that suit their lifestyles. What do you think about this?
c. Are there jobs that men do better than women do? How about vice versa?

2. Learn the words and word combinations.

Words and word combinations	**Definition**
Web designer	A person who creates web pages.
Software developer	A person who creates computer applications.
Programmer	A person who designs operating systems and fixes them when they break.
Computer scientist	The name of a person who studies computers.
Computer technician	A person who fixes technical problems with the computer.
Tech support	The office you call when you have a problem with the computer.
Database administrator	A person who manages computer information.
Cloud computing engineer	A person who is responsible for any technological duties like design, planning, management, and support.

Reading.
3. Read and understand the text.

Job types in information technology

The IT industry is well known for its wide range of job titles, which can make it hard for graduates interested in this sector ***to pin down*** **e**xactly what people do. Career prospects in IT are excellent. Opportunities are always being created in this dynamic, growing field. It's good to know the different ***career streams*** available in information technology and also information and communications technology (ICT). Each job has a distinctive set of required skills and personal traits. Almost all IT jobs depend on strong technical knowledge. But each has a different emphasis, whether the job centres on coding, managing hardware, applying software, data science or managing systems or people. Having an IT or similar knowledge in this field would be an asset for each career.

Business analysts examine an organisation (or part of a business) to determine how to better achieve goals. Almost always, there's a strong information technology component. That is because IT is integral to modern business operations. For example, analysts may ***scope out*** the potential effects of changing computer software. Analysts need to be adaptable because job requirements vary from company to company. To become a business analyst, you will probably need to obtain an entry-level position in the field and build a career from there. Business education in addition to advanced IT training confers an advantage.

Here is some of the most common job types in information technology.

1. **Cloud Computing Engineer-**Cloud computing engineers define, design, build, and maintain systems and solutions leveraging systems and infrastructure managed by cloud providers such as Amazon Web Services (AWS) and Computer Network Specialist-Computer network specialists and analysts define, design, build, and maintain a variety of data communication networks and systems.
2. **Computer Support Specialist-**help computer users and organizations. Some of these workers support computer networks ***by testing*** and evaluating network systems and ensuring that the day-to-day operations work. Others provide customer service by helping people with their computer problems.
3. **Database Administrator**-Database administrators help store and organize data or companies or customers. They protect the data from unauthorized users. Some work for companies that provide computer design services. Others work for organizations with large database systems, such as educational institutions, financial firms, and more.
4. **Information Technology Analysts**-are responsible for designing and implementing organizational technology for businesses. They create solutions for collecting and analyzing market data, customer input, and client information.
5. **Information Technology Leadership-**leadership in IT draws from candidates with strong technology backgrounds and superior management skills. They have experience in creating and implementing policies and systems to meet IT objectives, and the ability ***to budget*** the time and funds necessary.
6. **Information Security Specialist-**the increased incidence of security breaches and the associated danger of identity theft has enhanced the importance of protecting data on commercial and governmental sites. Information security analysts help defend an organization's computer network and computer systems.
They plan and ***carry out*** a variety of security measures, such as installing and using software, and simulating cyber-attacks to test systems.
7. **Software Develop**-design, run, and test various computer programs and applications. Software developers create new applications and code solutions. They have strong programming skills.
8. **Web Developer-**design, create, and modify websites. They are responsible for maintaining a user-friendly, stable website that offers the necessary functionality for their client's needs.

These specialties require some skills and ability in this area, here are some of them: product knowledge, persuasion, interpersonal skills, mobility, logical

thinking, teamwork, attention to detail, problem solving, communication and listening, specialist network knowledge, mobility, clear thinking etc. Some IT companies look for predictable skills such as knowledge of C++, JavaScript or Net, but many others have more surprising requirements. Technology recruiters have been known to look for creativity, the ability ***to be self-critical*** and the ability to help colleagues get their jobs done and enjoy their day. These can all be categorised as soft skills, which can be defined as skills that aren't technical, specialist or specific to that particular job; they are often to do with how you relate to other people, so there is considerable overlap with what people often call 'interpersonal' or 'people' skills.

Read more job descriptions here.

https://www.thebalancecareers.com/list-of-information-technology-it-job-titles

4. Match the phrases 1-6 with A-F and try to guess their meanings.

1. to pin down — A revealing a person's capabilities by putting them under strain; challenging.
2. career streams — B an estimate of income and expenditure for a set period of time.
3. scope out — C a model of career development for employees to
4. by testing — D force someone to be specific and make their intentions clear
5. to budget — E perform a tas
6. carry out — F look at (someone or something) especially in order get information

Writing.

5. Complete the sentences.

1. All information technology jobs _____ strong technical knowledge. depend on
2. Information technology is _____ to modern business operations. integral
3. They provide customer service _____ people with their computer problems. by helping
4. ITAs create solutions for ____ and analyze market data, customer input, and client information. collecting
5. _____ create new applications and code solutions. Software developers
6. Technology recruiters have been known _____ for creativity, the ability. to look
7. Information _____ help defend an organization's computer network and computer systems. security analysts

Speaking.
6. Split into two groups, the reports and IBM. The group of reporters should express misunderstanding on some terminology and the group of IBM experts help them out.

Reporters	**Team members**
What exactly do you mean by..... Clear As far as I understand ..... Not quite..... I say..... In general ,yes	I mean..... You know what ... Right It's simple You know why ...., don't you? Say .....

Lesson 4

Programs

Pre reading task.

1. Think and tell your opinion about the following questions. How useful are computers to you? What is the best thing about a computer? What would life be like without your computer? What would happen if all of the world's computers suddenly stopped forever?

2. Words and word combinations to learn.

to accomplish-achieve or complete successfully
to perform-carry out, accomplish, or fulfil (an action, task, or function).
to create-bring (something) into existence
referred to-mention or allude to.
software developer-is a company or person that creates software
to develop-grow or cause to grow and become more mature, advanced, or elaborate.

Reading.
3. Read the text.

Computer programs

Computer programming is the process of designing and building an executable computer program **to accomplish** a specific computing

result or **to perform** a specific task. Programming involves tasks such as analysis, generating algorithms, profiling algorithms' accuracy and resource consumption, and the implementation of algorithms in a chosen programming language. Programming is the art of developing computer programs with the aid of a selected programming language by a computer programmer. It is a special skill whose quality is tested by the quality of the **resulting program** or software.

Computers can do such a wide variety of things because they can be programmed. This means that computers are not designed to do just one job, but to do any job that their programs tell them to do. A program is a set of instructions that a computer follows to perform a task, also it is a set of instructions written in a language understandable by the computer to perform a particular function on the computer. A well-written program could be parceled well to form an application package customized for solving specific types of problems on the computer system.

There are some commonly **used programs** such as Microsoft Word and Adobe Photoshop, etc. Microsoft Word is a word processing program that allows you **to create**, edit, and print documents with your computer. Adobe Photoshop is an image-editing program that allows you to work with graphic images, such as photos taken with your digital camera. Programs are commonly **referred to** as software. Software is essential to a computer because it controls everything the computer does. All of the software that we use to make our computers useful is created by individuals working as programmers or software developers.

A programmer, or **software developer**, is a person with the training and skills necessary to design, create, and test computer programs, a scientist (a professional) skilled in using constructs of programming languages **to develop** executable and acceptable computer programs.

Computer programming is an exciting and rewarding career. Today, you will find programmers' work used in business, medicine, government, law enforcement, agriculture, academics, entertainment, and many other fields.

Writing.

4. Read the sentences and give T (true), F (false) answers.

1. Computers are designed to do just one job.
2. Programming is a special skill whose quality is tested by the quality of the resulting program or software.
3. Microsoft Word is an image-editing program that allows you to work with graphic images.
4. Programming involves tasks such as: analysis, generating algorithms, profiling algorithms' accuracy etc.
5. Computer programming is a boring and not rewarding career.
6. Software is essential to a computer because it controls everything the computer does.
7. The programs are lists of instructions that will be followed by the control unit of the central processing unit.

8. Computers can manipulate formulae, equations and calculations.

Speaking.

5. Round-table discussion.

Prepare for discussion on the topic "Programmer and programming". Use the following expressions for your discussion.

Discussion	**Agreeing and disagreeing**
I would like to begin the discussion on the subject by saying that… First of all I must say… I would just like to say… I think (suppose, guess, believe, dare say)… In my opinion…	I agree I generally agree I quite agree here. I strongly agree. I fully agree. I am of the same opinion. It goes without saying that…

Lesson 5

Digital literacy

Pre-reading task.

1. Answer the following questions.
What does basic computer skills mean?
How do you describe your computer skill level?
What computer skills should you learn?

2. Try to guess the meaning of the highlighted words. Check with your dictionary or your teacher.

computer-literate
to influence
privileged people
technical achievements
direct the operation
special services

a subscription magazine
the checkout clerk
purchasing decisions

Reading.
3. Read the text and understand.

Computer Literacy

Informed citizens of our information-dependent society should be **computer-literate**, which means that they should be able to use computers as everyday problem-solving devices. They should be aware of the potential of computers **to influence** the quality of life. Computer literacy-is the knowledge and ability to use computers and technology efficiently. Computer literacy can also refer to the comfort level someone has with using computer programs and other applications that are associated with computers. The precise definition of "computer literacy" can vary from group to group. Computer literacy is considered a very important skill to possess.

Another common definition of computer literacy is the knowledge and skills required for basic use of computer hardware, software and the Internet. These critical computer and Internet skills are valued in today's academic and professional environments. This leads to success in education and employment since computer skills are integral to all areas of study and work. There was a time when only **privileged people** had an opportunity to learn the basics, such as reading, writing, and arithmetic. Now, as we are quickly becoming an information-becoming society, it is time to restate this right as the right to learn reading, writing and computing. There is little doubt that computers and their many applications are among the most significant **technical achievements** of the century. They bring with them both economic and social changes. "Computing" is a concept that embraces not only the old third R, arithmetic's, but also a new idea — computer literacy.

In an information society a person who is computer-literate need not be an expert on the design of computers. He needn't even know much about how to prepare programs which are the instructions that **direct the operations** of computers. All of us are already on the way to becoming computer-literate. Just think of your everyday life. If you receive **a subscription magazine** in the post-office, it is probably addressed to you by a computer. If you buy something with a bank credit card or pay a bill by check, computers help you process the information. When you check out at the counter of your store, a computer assists **the checkout clerk** and the store manager. When you visit your doctor, your schedules and bills and **special services**, such as laboratory tests, are prepared by computer. Many actions that you have taken or observed have much in common. Each relates to some aspect of a data processing system. If you are computer

literate, you understand the capabilities and limitations of computers and know how to use them wisely. Being computer literate also enables you to make informed **purchasing decisions**, use computers in your career, and understand the many ethical, legal, and societal implications of technology today.

4. Answer to the following questions according to the text.

1. What does "a computer-literate person" mean?
2. Are you aware of the potential of computers to influence your life?
4. What is the role of computers in our society?
5. What is "computing'?
6. What is a program?
7. Prove that we all are on the way to becoming computer-literate.
8. Give examples of using computers in everyday life.

Writing.

5. Complete the sentences with prepositions.

1. They should be aware ____ the potential of computers to influence the quality of life.
2. The precise definition of "computer literacy" can vary ____ group ____ group.
3. Computer literacy is considered a very important skill ____ possess.
4. Another common definition of computer literacy is the knowledge and skills required ____ basic use of computers.
5. They bring ____ them both economic and social changes.
6. In an information society a person who is computer-literate need not be an expert ___ the design of computers.
7. When you check ____ at the counter of your store, a computer assists the checkout clerk and the store manager.
8. All ___ us are already on the way to becoming computer-literate.
9. If you are computer literate, you understand the capabilities and limitations ___ computers.
10. Use computers ___ your career.

Speaking.

6. Work in pairs. Ask the following questions to talk about computer literacy.

What are examples of being computer literate?
What are the basic computer literacy skills?
Why every student should be computer literate?

Read and use the following words and phrases which are common during the re-asking and interruption in the talk.

Interruption and Re - asking
Sorry for interrupting. I don't get the idea....
What exactly do you mean by.....
Pardon? Can you be more specific.....
Pardon, but the only thing that I still can't make out is .....
Well, as far as I understand .....
Sorry/ Well you know why ....., don't you?
Come again please?!
I hate to be a Buttinsky, but do you know that….
Let me get it straight. Do you mean…

Lesson 6

Pre-reading task.

1. Answer the following questions.
Do you often use the Internet?
When did you first use the Internet?
How many hours a day do you use the Internet?
How can the internet help you learn English?

2. Try to guess the meaning of the highlighted words. Check with your dictionary or your teacher.

invention
affordable
transaction
telnet
instantaneous
a broadband
data
embrace

Reading.

3. Read the text.

The Internet

Just a century ago we didn't even know about computers and the Internet. But today we take them for granted and can't imagine our life without these inventions. I think that the Internet (or WorldWideWeb) is the greatest **invention** and it has made a significant impact on our lives. The Internet was invented in the late 1960s by the US Defense Department's Advanced Research Projects Agency. In 1969, there was a network of just four mainframe computers. A mainframe computer is a large, powerful computer, shared by many users. The idea of the electronic mailbox was born when users looked for a way to talk to each other electronically. By 1984, the Internet had begun to develop into the form we know today. Nowadays the Internet is **affordable** almost for anyone and it connects people all around the world. You can stay in touch with your friends, relatives and colleagues. Our modern life will stop without the net because it helps to make online business transactions, manage our bank accounts, pay our gas or electricity bills and send important e-mails.

Electronic mail is much faster than traditional mail, because once the message is typed out, it arrives in the electronic mail box of the recipient within minutes. It's better to use e-mail to contact friends rather than phone them, because e-mail is cheaper for long distances than the phone. People can share their interests through the Internet and it makes it very easy to exchange ideas and information. The Internet is the largest source of information. There are millions of Internet sites storing plenty of useful data about everything: science, history, psychology, sports, fashion, music, cooking and many other subjects. We can also download our favourite movies or songs, listen to radio channels or play games. Learning or practising foreign languages is possible with the Internet too.

Public Internet began in the late 70's. In the 70`s web users used an interface called **telnet**, but now that program is mainly obsolete. Telnet is most widely deployed in accessing college email accounts. The Internet is very helpful, because it's a huge database of knowledge, from pictures of family trips to an analysis of quantum mechanics. Everyone should have the Internet because of its near **instantaneous** communication and huge wealth of knowledge. But how to go on the Internet and do a search for information we need. There are two ways to do it.

The first is when you know an internet address of data you need and the second one is when you try to find information you need by using a search program. In the beginning we have got to enter any browser you like. It could be an Internet Explorer, Netscape Navigator or Opera, etc. If we have **a broadband** connection, we connect to the Internet at once. If not, we have to set up and connect to our dial-up service. Finally, if we want to find some information on the Internet, we will type an address of this **data** in the browser we use the existing search-programs such as the google search program, rambler search program, yandex search program or yahoo search program.

Besides data, we can send and receive e-mail or electronic mailget from the Internet. This internet service is cheaper than ordinary mail and much quicker. It is becoming popular day by day. We can get some news from the Internet, because there are many informational servers on the web. Everybody knows that the Internet is a global computer network, which **embraces** millions of users all over the world. The Internet has already entered our ordinary life. It's hard to imagine our lives without the Internet nowadays. It has become an important part of every person's life. It is clear that the accurate number of users can be counted fairly approximately, nobody knows exactly how many people use the Internet.

Writing.

4. Cover the text and write what these years and words refer to.

Opera, 1960, 1969, 1970, millions, e-mail, 1984, foreign languages.

Speaking.

5. Work in two groups, A and B. Think of advantages and possible disadvantages of the Internet. Then together consider how the disadvantages can be minimized.

Use the following useful expressions to talk.

Well, my opinion is…	As I see it…
My point of view is…	Besides…
In addition…	Generally speaking…
You may be right, but…	There is one more thing to be noted.

Group A. Advantages of dataspaces	Group B. Disadvantages of dataspaces

Group 1	**Group 2**	**Group 3**	**Group 4**
1. Do you think our lives have been improved by the Internet?	1.What are some of the ways the Internet can be	1.What problems does the Internet create? What problems does it solve?	1. Do you think that working at home using the Internet is good or bad?

2. In your opinion, what is the most important feature of the Internet?	used for education? 2. Do you think that the Internet will replace Libraries?	2. How does the Internet help people from different countries to communicate with each other?	2. Many Universities are now offering online courses. Give some reasons why this is a good/a bad thing. Why?

Lesson 7

Reading.

1. Read and learn the vocabulary.

intricate — күрделі, түсініксіз
to operate switches — қосқыштарды басқару
to store numbers — сандарды жаттау
to manipulate — басқару; қолдану; түрлендіру
to input / to feed in — енгізу (ақпарат)
to turn on = to switch on — қосу
to turn off= to switch off — өшіру
to process data — деректерді өңдеу
to supply — қызмет ету, кіру; жеткізу, қамтамасыз ету
addition — қосу (математика)
subtraction — азайту
division — бөлу
multiplication — көбейту
exponentiation — дәрежелеу
user [’ju:zg] — пайдаланушы
input device — енгізу құрылғысы
disk drive— дискіні сақтау құрылғысы
tape drive— магниттік сақтау құрылғысы
cathode-ray tube — катодты-сәулелік түтік
to make decisions — шешім қабылдау
instantaneously — бірден, тез

2. Read the text and tell what a computer is and what its main functions.

What is a computer?

A computer is a machine with an intricate network of electronic circuits that operate switches or magnetize tiny metal cores. The switches, like the cores, are capable of being in one or two possible states, that is, on or off; magnetized or demagnetized. The machine is capable of storing and manipulating numbers, letters, and characters (symbols).

The basic idea of a computer is that we can make the machine do what we want by inputting signals that turn certain switches on and turn others off, or magnetize or do not magnetize the cores.

The basic job of computers is processing of information. For this reason computers can be defined as devices which accept information in the form of instructions, called a program, and characters, called data, perform mathematical and / or logical operations on the information, and then supply results of these operations. The program, or part of it, which tells the computers what to do, and the data, which provide the information needed to solve the problem, are kept inside the computer in a place called memory.

It is considered that computers have many remarkable powers. However, most computers, whether large or small, have three basic capabilities.

First, computers have circuits for performing arithmetic operations, such as: addition, subtraction, division, multiplication, and exponentiation.

Second, computers have a means of communicating with the user. After all, if we couldn't feed information in and get results back, these machines wouldn't be of much use. Some of the most common methods of inputting information are to use terminals, diskettes, disks, and magnetic tapes. The computer's input device (a disk drive or tape drive) reads the information into the computer. For outputting information two common devices used are: a printer, printing the new information on paper, and a cathoderay-tube display, which shows the results on a TV-like screen.

Third, computers have circuits which can make decisions. The kinds of decisions which computer circuits can make are not of the type: "Who would win the war between two countries?" or "Who is the richest person in the world?" Unfortunately, the computer can only decide three things, namely: Is one number less than another? Are two numbers equal? and, Is one number greater than another?

A computer can solve a series of problems and make thousands of logical decisions without becoming tired. It can find the solution to a problem in a fraction of the time it takes a human being to do the job.

A computer can replace people in dull, routine tasks, but it works according to the instructions given to it. There are times when a computer seems to operate like a mechanical "brain," but its achievements are limited by the minds of human beings. A computer cannot do anything unless a person tells it what to do and gives it the necessary information; but because electric pulses can move at the speed of light, a computer can carry out great numbers of arithmetic-logical

operations almost instantaneously. A person can do the same, but in many cases that person would be dead long before the job was finished.

3. Translate the text.

Speaking.

4. Answer the questions using information from the text.

1. What is a computer? 2. What are the two possible states of the switches? 3. What are the main functions of a computer? 4. In what way can we make the computer do what we want? 5. What is the basic task of a computer? 6. In what form does a computer accept information? 7. What is a program? 8. What are data? 9. What is memory? 10. What three basic capabilities have computers? 11. What are the ways of inputting information into the computer? 12. What is the function of an input device? 13. What devices are used for outputting information? 14. What decisions can the computer make? 15. What are the computer's achievements limited by?

5. Find in the text the English equivalents of the following words and phrases.

Электрондық тізбектердің күрделі желісі; ажыратқыштарды басқару; сандарды сақтау (есте сақтау); сигналдарды енгізу арқылы; қосу; өшіру; ядроларды магнитсіздендіру; мәліметтерді өңдеу; командалар түріндегі ақпарат; деректер деп аталатын белгілер; математикалық амалдарды орындау; нәтиже беру; қажетті ақпаратты беру; керемет мүмкіндіктерге ие болу; азайту, бөлу, көбейту; дәрежелеу; енгізу құрылғысы; жүргізу; ақпаратты оқу; ақпарат шығару; катодты сәулелік түтік; шешім қабылдау; мыңдаған логикалық операцияларды орындау; енгізілген бағдарламаға сәйкес; қажетті ақпаратты беру; электрлік импульстар; жарық жылдамдығында; көптеген математикалық амалдарды орындау.

Writing.

6. Make pairs or groups of similar words from the list of the words below.

For example: A. to perform, to exercise, to carry out;
B. a man, a person, a human being.

Verbs: to turn on, to provide, to type, to accept, to help, to learn, to observe, to call, to tell, to keep, to feed, to solve, to relate, to switch off, to communicate, to receive, to supply, to switch on, to assist, to print, to study, to input, to turn off, to decide, to store, to say, to name, to watch.
Nouns: work, machine, fundamentals, display, application, capabilities, job, storage, screen, state, basics, use, concept, specialist, journal, character, memory,

idea, expert, magazine, position, symbol, command, data, solution, device, instruction, powers, information, decision.
Adjectives: basic, tiny, common, small, main, significant, routine, general, remarkable, uninterested, intricate, important, wonderful, complex, little.
Adverbs: rapidly, probably, instantaneously, in a moment, quickly, perhaps.

Lesson 8

Reading.

1. Read and learn the words and combinations.

slide rule — слайд ережесі
logarithm table — логарифмдік кесте
calculus — математикалық талдау
general-purpose— жалпы мақсат
to cut out the human being altogether —адамды толықтай алып тастау
to manipulate — өңдеу; түрлендіру; басқару
data processing — деректерді (ақпараттарды) өңдеу, енгізу
tabulate the census —санақ кестесін құру
means of coding — кодтау құралдары
to punch the holes — тесіктерді тесу үшін
to perform— орындау (іс-әрекет); түсіну
unit of data — ақпарат бірлігі
keyboard terminals — пернетақтаны басқаратын терминал (шығу)
proliferation—көбею, тез өсу

11. Read the text and tell me about the first calculating devices it describes.

The First Calculating Devices.

Let us take a look at the history of computers that we know today. The very first calculating device used was the ten fingers of a man's hands. This, in fact, is why today we still count in tens and multiples of tens.
Then the abacus was invented. People went on using some form of abacus well into the 16th century, and it is still being used in some parts of the world because it can be understood without knowing how to read.
During the 17th and 18th centuries many people tried to find easy ways of calculating. J. Napier, a Scotsman, invented a mechanical way of multiplying and dividing, which is now the modern slide rule. Henry Briggs used Napier's ideas to produce logarithm tables which all mathematicians use today.

Calculus, another branch of mathematics, was independently invented by both Sir Isaak Newton, an Englishman, and Leibnitz, a German mathematician. The first real calculating machine appeared in 1820 as the result of several people's experiments.

In 1830 Charles Babbage, a gifted English mathematician proposed to build a general-purpose problem-solving machine that he called "the analytical engine." This machine, which Babbage showed at the Paris Exhibition in 1855, was an attempt to cut out the human being altogether, except for providing the machine with the necessary facts about the problem to be solved. He never finished this work, but many of his ideas were the basis for building today's computers.

By the early part of the 20th century electromechanical machines had been developed and were used for business data processing. Dr. Herman Hollerith, a young statistician from the US Census Bureau successfully tabulated the 1890 census. Hollerith invented a means of coding the data by punching holes into cards. He built one machine to punch the holes and others to tabulate the collected data. Later Hollerith left the Census Bureau and established his own tabulating machine company. Through a series of merges, the company eventually became the IBM Corporation.

Until the middle of the 20th century machines designed to manipulate punched card data were widely used for business data processing. These early electromechanical data processors were called unit record machines because each punched card contained a unit of data.

In the mid-1940s electronic computers were developed to perform calculations for military and scientific purposes. By the end of the 1960s commercial models of these computers were widely used for both scientific computation and business data processing. Initially these computers accepted their input data from punched cards. By the late 1970s punched cards had been almost universally replaced by keyboard terminals. Since that time advances in science have led to the proliferation of computers throughout our society, and the past is but the prologue that gives us a glimpse of the future.

Speaking.

3.Read the text again then answer the questions.

1. What was the very first calculating device? 2. What is the abacus? 3. What is the modern slide rule? 4. Who gave the ideas for producing logarithm tables? 5. How did Newton and Leibnitz contribute to the problem of calculation? 6. When did the first calculating machine appear? 7. What was the main idea of Ch. Babbage's machine? 8. How did electromechanical machines appear and what were they used for? 9.

What means of coding the data did Hollerith devise? 10. How were those electromechanical machines called and why? 11. What kind of computers appeared later? 12. What new computers of the 1970s?

4. Find the English equivalents of the following words and phrases in the text.

Есептеу құрылғысы; есептеудің оңай тәсілі; ондықтың еселігі; есептің кейбір нысандары; көбейту мен бөлудің механикалық тәсілін ойлап табу; логарифмдік сызғыш; логарифмдердің кестелерін құрастыру; математикалық талдау; өз бетінше ойлап табу (бір-бірінен); нәтижесінде; іскерлік ақпаратты өңдеу; ақпаратты кодтау құралдары; тесіктер; жинақталған мәліметтерді кестеге қалыптастыру; перфокартадағы мәліметтермен жұмыс; ақпаратты блоктарға жазатын құрылғы; ақпарат бірлігі; есептеулерді орындау; ғылыми мақсаттар үшін; пернетақта терминалы.

Writing.

5. Remember the meaning of the following verbs and choose derivative words for them.

Мысалы: есептеу үшін - есептеу, калькулятор, есептеу.

To compute, to invent, to know, to multiply, to divide, to depend, to solve, to provide, to process, to code, to punch, to collect, to design, to store, to contribute, to use, to manipulate, to assemble, to connect, to consume, to rely, to divide, to multiply, to inform, to instruct, todiscover, to operate.

Lesson 9

Reading.

Read and learn the words and combinations.

digital computer —сандық компьютер
to aim — нысанаға бағыттау
to figure out —анықтау үшін
at a fast rate —жоғары жылдамдықпен
memory / storage— мәліметтер мен нұсқаулықтарды сақтау үшін
to store data and instructions — жадыда сақтайтын бағдарламасы бар компьютер
stored program computer — компьютер с занесенной в память программой
binary code — екілік код
condition — күй, шарт
vacuum tube — вакуумдық түтік

to amplify — күшейту
to perform computations —есептеулерді орындау

1. **Read the text and tell what you learned about the first digital and analog computers. Translate the text.**

The first Computers

In 1930 the first analog computer was built by American named Vannevar Bush. This device was used in World War II to help aim guns.
Many technical developments of electronic digital computers took place in the 1940s and 1950s. Mark I, the name given to the first digital computer, was completed in 1944. The man responsible for this invention was Professor Howard Aiken. This was the first machine that could figure out long lists of mathematical problems at a very fast rate.
In 1946 two engineers at the University of Pennsylvania, J. Eckert and J. Maushly, built their digital computer with vacuum tubes. They named their new invention ENIAC (the Electronic Numerical Integrator and Calculator).
Another important achievement in developing computers came in 1947, when John von Neumann developed the idea of keeping instructions for the computer inside the computer's memory. The contribution of John von Neumann was particularly significant. As contrasted with Babbage's analytical engine, which was designed to store only data, von Neumann's machine,
called the Electronic Discrete Variable Computer, or EDVAC, was able to store both data and instructions. He also contributed to the idea of storing data and instructions in a binary code that uses only ones and zeros. This simplified computer design. Thus computers use two conditions, high voltage and low voltage, to translate the symbols by which we communicate into unique combinations of electrical pulses. We refer to these combinations as codes.
Neumann's stored program computer as well as other machines of that time were made possible by the invention of the vacuum tube that could control and amplify electronic signals. Early computers, using vacuum tubes, could perform computations in thousandths of seconds, called milliseconds, instead of seconds required by mechanical devices.

Speaking.

3. Review the text again and answer the questions using the information in the text.

1. When was the first analog computer built? 2. Where and how was that computer used? 3. When did the first digital computers appear? 4. Who was the inventor of

the first digital computer? 5. What could that device do? 6. What is ENIAC? Decode the word. 7. What was J. Neumann's contribution to the development of computers? 8. What were the advantages of EDVAC in comparison with ENIAC? 9. What does binary code mean? 10. Due to what invention could the first digital computers be built?

4. Find the English equivalents of the following words and phrases.

Сандық компьютерлер; техникалық жетілдірулер; компьютерлерді жетілдіру; өнертабысқа жауапты; математикалық есептер; электрондық түтіктер; маңызды жетістік; жад құрылғысы; қомақты үлес; жоғары кернеу; төмен кернеу; электрлік импульстар; секундтың мыңыншы бөлігі; есептеу; командаларды компьютердің ішінде сақтау; ақпаратты есте сақтау; командаларды жаттау; алға жылжыту; біреуін және нөлін қолданыңыз; дизайнды жеңілдету; сигналдарды күшейту; есептеулерді орындау.

Writing.

5. Make pairs of similar words from the list of words below.

Verbs: to name, to complete, to calculate, to develop, to keep, to interprete, to communicate, to fulfill, to apply, to translate, to improve, to build, to call, to store, to communicate, to figure out, to perform, to use, to finish, to construct, to connect.

Nouns: speed, aim, storage, information, machine, significance, computation, data, device, rate, calculation, purpose, memory, importance.

6. Fill in the blanks with the appropriate words.

1. The first digital computer could_____a lot of mathematical problems at a fast_____ . 2. Vannevar Bush built the first_____computer in 1930. 3. Babbage's analytical engine was designed to _____ data. 4. J. von Neumann invented a machine that was able to _____ not only data but also_____. 5. Neumann_____the idea of storing data in a _____. 6. Computers use two conditions fo r_____symbols. 7. The invention of _____ made computers possible to control and _____ electronic signals. 8.Due to _____ computers could perform _____ much faster.

7.Translate sentences or phrases.

A. Sentences.

1. Computers were designed to perform thousands of computations per second. 2. To make computers more reliable transistors were used. 3. They were applied to reduce computational time. 4. To integrate large numbers of circuit elements into a

small chip, transistors should be reduced in size. 5. To use integrated circuit technology new computers were built. 6. Analytical engine was invented to store data.

B. Phrases.

The problem to be solved; the work to be finished; the cards to be punched; calculations to be performed; the machine to be shown at the exhibition; the device to be provided with the necessary facts; computers to be used for data processing; efforts to increase reliability; electronics to connect systems and subsystems; the speed of response to depend on the size of transistor; computers to perform thousands of calculations per second; vacuum tubes to control and amplify electric signals; these are circuits to use a large number of transistors; operations to be performed.

Lesson 10

Reading.

Learn the terms of the text.

architecture — сәулет, құрылым
architect— жүйені немесе құрылымды әзірлеуші
unit — құрылғы, модуль, блок, құраушы бөлік
accessory equipment — көмекші құрылғылар
engineering background — техникалық дайындық, біліктілік
analyst— талдаушы, жүйені әзірлеуші
product line — (компьютерлік) өнімдер сериясы
manufacturer — өндіруші, әзірлеуші
application programmer— қолданбалы бағдарламашы
to simulate — имитациялау
voltage — напряжение
pressure — қысым, қысу
digital computer — сандық компьютер
hybrid computer — аралас типті, аналогтық-сандық компьютер
discrete— дискретті, бөлек
continuous quantity — үздіксіз шама
on-going process — тұрақты, үздіксіз процесс
to rely — арқа сүйеу, сену (бір нәрсеге)
to install — орналастыру, монтаждау, конфигурациялау
household appliances — тұрмыстық техника / құрылғылар
microwave oven — микротолқынды пеш
indoor climate control system — үйдегі температураны бақылау жүйесі

1. **Read the text.**

Computer System Architecture

As we know, all computer systems perform the functions of inputting, storing, processing, controlling, and outputting. Now we'll get acquainted with the computer system units that perform these functions. But to begin with let's examine computer systems from the perspective of the systems designer, or architect.

It should be noted that computers and their accessory equipment are designed by a computer system architect, who usually has a strong engineering background. As contrasted with the analyst, who uses a computer to solve specific problems, the computer system architect usually designs computers that can be used for many different applications in many different businesses. For example, the product lines of major computer manufacturers such as IBM, Digital Equipment Corporation, and many others are the result of the efforts of teams of computer system architects.

Unless you are studying engineering, you don't need to become a computer systems architect. However, it is important that as a potential user, applications programmer, or systems analyst you understand the functions of the major units of a computer system and how they work together.

The two basic types of computers are analog and digital. Analog computers simulate physical systems. They operate on the basis of an analogy to the process that is being studied. For example, a voltage may be used to represent other physical quantities such as speed, temperature, or pressure. The response of an analog computer is based upon the measurement of signals that vary continuously with time. Hence, analog computers are used in applications that require continuous measurement and control.

Digital computers, as contrasted with analog computers, deal with discrete rather than continuous quantities. They count rather than measure. They use numbers instead of analogous physical quantities to simulate ongoing, or real-time processes. Because they are discrete events, commercial transactions are in a natural form for digital computation. This is one reason that digital computers are so widely used in business data processing.

Machines that combine both analog and digital capabilities are called hybrid computers. Many business, scientific, and industrial computer applications rely on the combination of analog and digital devices. The use of combination analog devices will continue to increase with the growth in applications of microprocessors and microcomputers. An example of this growth is the trend toward installing control systems in household appliances such as microwave ovens and sewing machines. In the future we will have complete indoor climate

control systems and robots to do our housecleaning. Analog sensors will provide inputs to the control centers of these systems, which will be small digital computers.

Speaking.

3. Answer the following questions according to the text.

1. Who designs computers and their accessory equipment? 2. What is the role of an analyst? 3. Is it necessary for a user to become a computer system architect? 4. What functions do computer systems perform? 5. What types of computers do you know? 6. What is the principle of operation of analog computers? 7. How do digital computers differ from analog computers? 8. Where are digital and analog computers used? 9. What are hybrid computers? 10. Where do they find applications?

4. Find the English equivalents of the following words and phrases in the text.

Ақпаратты енгізу, сақтау, өңдеу, басқару және шығару функциялары; танысу; жүйелік блоктар; қосалқы құрылғылар; компьютерлік жүйені жасаушы; жақсы компьютерлік оқыту; қолданудың әр түрлі салалары; цифрлық жабдықтар корпорациясы; қолданбалы бағдарламашы; жүйені жасаушы; компьютерлік жүйенің негізгі құрылғылары; физикалық шамаларды имитациялау; сигналдарды өлшеу; нақты уақыт кезінде; коммерциялық операциялар; сандық есептеу; аналогты-сандық компьютерлер; басқару жүйелерін орнату тенденциясы; тұрмыстық техника.

Writing.

5. Form nouns from the following verbs using suffixes. Translate the words.

A. -er, -or

To control, to compute, to design, to use, to manufacture, to work, to simulate, to operate, to protect, to process, to deal, to perform, to examine, to program, to execute, to transmit, to convert, to print, to consume, to record.

B. -tion, -sion

To organize, to collect, to combine, to apply (ic), to represent, to add, to corporate, to transact, to compute, to produce, to operate, to execute, to protect, to substitute, to prepare, to invent, to decide, to eliminate, to communicate, to correct, to inform.

C. -ment

To require, to measure, to equip, to invest, to accomplish, to improve, to develop, to achieve, to displace, to govern, to move.

6. Translate the sentences.

1. When entering the Internet, I always find a lot of interesting information. 2. Though never built, Babbage's analytical engine was the basis for designing today's computers. 3. When written in a symbolic language, programs require the translation into the machine language. 4. While operating on the basis of analogy, analog computers simulate physical systems. 5. When used, voltage represents other physical quantities in analog computers. 6. Being discrete events, commercial transactions are in a natural form for a digital computer. 7. As contrasted with the analyst, the computer system architect designs computers for many different applications. 8. While dealing with discrete quantities, digital computers count rather than measure. 9. When using a microcomputer, you are constantly making choices — to open a file, to close a file, and so on. 10. As known, all computer systems perform the functions of inputting, storing, processing, controlling, and outputting.

Lesson 11

Reading.

Read and learn by heart.

hardware — аппараттық құралдар, жабдықтар
software — бағдарламалық жасақтама
system software —жүйелік бағдарламалық жасақтама
application software — қолданбалы бағдарламалық жасақтама
firmware — микропроцессорлық бағдарламалық жасақтама
visible units— көрінетін бірліктер
procedure — әдіс, техника
to associate — байланыстыру, біріктіру
associated documentation — байланысты құжаттама
to execute applications programs — қосымшаларды орындау
payroll — еңбекақы төлеу
inventory control — түгендеуді бақылау
investment analysis — инвестициялық талдау
to protect — қорғау
read-only memory (ROM) — тек оқуға болатын жад (ROM)
to refer to — сілтеме; сілтеме жасау
to substitute — ауыстыру
to cause — мәжбүрлеу; себеп
to accomplish — орындау, аяқтау, аяқтау; жүзеге асыру
performance — орындау; жоғары жылдамдықтағы өнімділік

1. **Read and understand the text.**

Hardware, Software and Firmware

The units that are visible in any computer are the physical components of a data processing system, or hardware. Thus, the input, storage, processing, and control devices are hardware. Not visible is the software — the set of computer programs, procedures, and associated documentation that make possible the effective operation of the computer system. Software programs are of two types: systems software and applications software.

Systems software are the programs designed to control the operation of a computer system. They do not solve specific problems. They are written to assist people in the use of the computer system by performing tasks, such as controlling all of the operations required, to move data into and out of a computer and all of the steps in executing an applications program. The person who prepares systems software is referred to as a systems programmer.

Systems programmers are highly trained specialists and important members of the architectural team. Applications software are the programs written to solve specific problems (applications), such as payroll, inventory control, and investment analysis. The word program usually refers to an applications program, and the word programmer is usually a person who prepares applications software.

Often programs, particularly systems software, are stored in an area of memory not used for applications software. These protected programs are stored in an area of memory called read-only memory (ROM), which can be read from but not written on.

Firmware is a term that is commonly used to describe certain programs that are stored in ROM. Firmware often refers to a sequence of instructions (software) that is substituted for hardware. For example, in an instance where cost is more important than performance, the computer system architect might decide not to use special electronic circuits (hardware) to multiply two numbers, but instead write instructions (software) to cause the machine to accomplish the same function by repeated use of circuits already designed to perform addition.

Speaking.

3.Answer the following questions.

1. What is hardware? 2. What is the definition of software? 3. What are the types of software? 4. What are systems software? 5. What kind of tasks do systems software perform? 6. Who prepares systems software? 7.

What are applications software? 8. What problems do applications software solve? 9. What is firmware? 10. How can a computer system architect use firmware?

4. Find the English equivalents of the following words and phrases in the text.

Көрінетін құрылғылар; мәліметтерді өңдеу жүйесі; техникалық жабдықтар; компьютерлік бағдарламалардың жиынтығы; тиісті құжаттама; тиімді жұмыс; жүйелік бағдарламалық жасақтама; қолданбалы бағдарламалық жасақтама; жүйелік бағдарламашы; қайта есептеу; инвестицияларды талдау; қолданбалы бағдарлама; тек оқу режимінде жұмыс жасау; тұрақты сақтау құрылғы; командалардың реттілігі; электронды схема; сандарды көбейту; машинаны бірдей функцияны орындауға мәжбүр ету; қосымша орындау.

5. Remember the meanings of the new words and try to translate the phrases used with these words.

Architecture: communication architecture; computer architecture; disk architecture; microprocessor architecture; network architecture; security architecture; system architecture; virtual architecture.

Software: systems software; applications software; database software; disk software; educational software; game software; management software; simulation software.

Hardware: computer hardware; device hardware; display hardware; memory hardware; mouse hardware; network hardware; systems hardware; video hardware.

Procedure: accounting procedure; computational procedure; control procedure; data-processing procedure; decision procedure; error-correcting procedure; formatting procedure; installation procedure; management procedure; solution procedure.

Protection: computer protection; data protection; device protection; display protection; error protection; hardware protection; software protection; resource protection; security protection; system protection; virus protection.

Lesson 12

Reading.

1. Read the text carefully then:

Make a plan of the text in English, highlighting its main topics.

The plan can be drawn up in a question, title or thesis form. Check out the sample plans provided after the text; compare with your plan.

Memory

It is interesting to note that memory, one of the basic components of the computer, is often called storage. It stores the calculation program, the calculation formulae, initial data, intermediate and final results. Therefore, the functions of the computer memory may be classified in the following way. Firstly, the computer memory must store the information transmitted from the input and other devices. Secondly, memory should produce the information needed for the computation process to all other devices of the computer.

Generally, memory consists of two main parts called the main, primary or internal, memory and the secondary, or external memory. The advantage of the primary memory is an extremely high speed. The secondary memory has a comparatively low speed, but it is capable of storing far greater amounts of information than the main memory. The primary storage takes a direct part in the computational process. The secondary storage provides the information necessary for a single step in the sequence of computation steps.

The most important performance characteristics of a storage unit are speed, capacity, and reliability. Its speed is measured in cycle time. Its capacity is measured by the number of machine words or binary digits. Its reliability is measured by the number of failures per unit of time.

a. Plan in question form

1. What is memory?
2. What is the function of memory?
3. What are the main parts of memory?
4. What are advantages and disadvantages of a storage unit?
5. What are their functions?
6. What are performance characteristics of the main and secondary memory?
7. What units are performance characteristics measured by?

b. Plan in naming form

1. The definition of memory.
2. The main functions of memory.
3. Classification of memory.
4. Advantages and disadvantages of memory components.
5. The functions of memory components.
6. Performance characteristics of memory.
7. The units for measuring the performance characteristics of memory.

c. Abstract plan

1. Memory is one of the basic components of the computer.
2. Memory stores initial data, intermediate and final results.
3. It produces the information needed to other devices of the computer.
4. Memory consists of the main (internal) and the secondary (external) storage.
5. The main memory has high speed, but small capacity; the secondary memory possesses lower speed but greater capacity.
6. The main memory performs computation; the secondary memory provides information sequentially, step by step.
7. The performance characteristics — speed, capacity, and reliability — are measured by cycles, binary digits, and the number of failures per unit of time.

Writing.

2. Match the words in the left column with their interpretation on the right.

1. Primary	a) one of the performance characteristics of storage measured in binary digits
2. Secondary	b) memory that has random access to the information
3. Magnetic disk	c) combination of units of information
4. Binary codes	d) the main method of secondary storage performing both sequential and random storage
5. RAM	e) area of memory where protected programs can be read from but not written on
6. Bit	f) a fixed number of consecutive bits representing a character
7. Byte	g) the principal flexible second storage circuit element
8. ROM	h) part of memory having lower speed but greater capacity

9. Floppy i) a unit of information or binary digit

10. Capacity j) the most expensive part of memory having the least capacity and the fastest access time

Lesson 13

Reading.
Read and learn by heart these new words.

word processing —сөз (мәтінді) өңдеу
telephone dialing — телефон нөмірін теру
security — қауіпсіздік
appliance— құрылғы, құрал
maintenance — техникалық қызмет көрсету, сақтау; қанау
application software — қолданбалы бағдарламалар
to delete — жою, өшіру, жадты тазарту
to move paragraphs around — абзацтарды ауыстыру
accountant — есепші
accounting —бухгалтерлік есеп
income tax — табыс салығы
stock market forecasting — биржалық болжам
worksheet— электрондық кесте
scheduling — жоспарлау (кесте)
computer-assisted instructions — компьютерлік нұсқаулар
to meet the demands — қажеттілікті қанағаттандыру
record-keeping — есепке алу, есепке алуды жүргізу
grading — баға қою, жіктеу

1. **Read the text and indicate the areas of activity where personal computers are used.**

Application of Personal computers

Personal computers have a lot of applications, however, there are some major categories of applications: home and hobby, word processing, professional, educational, small business and engineering and scientific.

Home and hobby. Personal computers enjoy great popularity among experimenters and hobbyists. They are an exciting hobby. All hobbyists need not be engineers or programmers. There are many games that use the full capabilities of a computer to provide many hours of exciting leisure-time adventure. The list of other home and hobby applications of PCs is almost endless, including: checking account management, budgeting, personal finance, planning, investment analyses, telephone answering and dialing, home security, home environment and climate control, appliance control, calendar management, maintenance of address and mailing lists, and whatnot.

Word processing. At home or at work, applications software, called a word processing program, enables you to correct or modify any document in any manner you wish before printing it. Using the CRT monitor as a display screen, you are able to view what you have typed to correct mistakes in spelling or grammar, add or delete sentences, move paragraphs around, and replace words. The letter or document can be stored on a diskette for future use.

Professional. The category of professional includes persons making extensive use of word processing, whose occupations are particularly suited to the desktop use of PCs. Examples of other occupations are accountants, financial advisors, stock brokers, tax consultants, lawyers, architects, engineers, educators, and all levels of managers. Applications programs that are popular with persons in these occupations include accounting, income tax preparation, statistical analysis, graphics, stock market forecasting, and computer modeling. The electronic worksheet is, by far, the computer modeling program most widely used by professionals. It can be used for scheduling, planning, and the examination of "what if ' situations.

Educational. Personal computers are having and will continue to have a profound influence upon the classroom, affecting both the learner and the teacher. Microcomputers are making their way into classrooms to an ever increasing extent, giving impetus to the design of programmed learning materials that can meet the demands of student and teacher.

Two important types of uses for personal computers in education are computer-managed instruction (CMI) and computer-assisted instruction (CAI). CMI software is used to assist the instructor in the management of all classroom-related activities, such as record-keeping, work assignments, testing, and grading. Applications of CAI include mathematics, reading, typing, computer literacy, programming languages, and simulations of real-world situations.

Speaking.

3. Answer the questions.

1. What are the main spheres of PC application? 2. Do you enjoy computer games? 3. Is it necessary for a person to be an analyst or a programmer to play computer games? 4. What other home and

hobby applications, except computer games, can you name? 5. What is “a word processing program”? 6. What possibilities can it give you? 7. Can you correct mistakes while typing any material and how? 8. What other changes in the typed text can you make using a display? 9. Which professions are in great need of computers? 10. How can computers be used in education?

4. Find the English equivalents of the following words and phrases in the text.

Қолданудың көптеген салалары; мәтінді өңдеу; танымал; әуесқойлар; компьютердің мүмкіндіктері; шексіз тізім; инвестицияларды талдау; телефон нөмірін теру; жауап беру машинасы; күнтізбені жүргізу; мекен-жайларды және поштаны сақтау; қолданбалы бағдарламалар; орфографиялық қателерді түзету; сөйлемдерді өшіру; абзацтарды қайта орналастыру; есепші; биржалық брокерлер; салық консультанты; адвокаттар; тәрбиешілер; менеджерлер; бухгалтерлік есеп; табыс салығы; компьютерлік модельдеу; электрондық кестелер; жоспарлау; үлкен әсер ету; жол ашу; итермелеу; қажеттіліктерді қанағаттандыру; білім беру қызметі; компьютерлік сауаттылық; нақты өмірлік жағдайларды модельдеу.

5. Find in the text 1 or 2 words:
a) close in meaning to the following words:

Verbs: to print; to produce; to convert; to keep; to found; to erase;
to name; to change; to use; to start; to switch on; to supply; to give possibility; to involve.
Nouns: rate; analyst; possibilities; use; plays; control; post; mode; profession; consultant; teacher; director; bookkeeper; fight; producer; attack;
amateur; device; crystal; error; storage; primary (memory); monitor; characteristic; aim.
Adjectives: flexible; thrilling; main; little; general;
b) opposite meaning words to the following words:
Verbs: to finish; to switch on; to take; to delete.
Nouns: online; input; work.
Adjectives: cheap; weak; common; general; large; soft; high; easy.

Writing.
6. Decipher the following abbreviations and translate them.
PC; PU; CU; ALU; CPU; MPU; IBM; DOS; CRT; ROM; RAM; IC; SSI; MSI; LSI; VLSI; MP; CD; I/O; IOP; CMI; CAI.

7. Translate the following sentences

1. It is well-known that personal computers enjoy great popularity among experimenters and hobbyists. 2. It took years to produce a high-speed computer performing a lot of functions. 3. When making up the summary of the text, one should put down the exact title of the article, the author's name, and the date of the edition. 4. It is difficult to imagine modern life without a computer. 5. It is quite impossible to listen to your English pronunciation: you make bad mistakes while reading. 6. Concerning these substances one must say that they vary in their composition. 7. When working with these substances, one should be very careful. 8. It was once a universal practice to manufacture each of the components separately and then assemble the complete device by wiring the components together with metallic conductors. 9. It was no good: the more components and interactions, the less reliable the system. 10. It should first be made clear what the term "microelectronics" means.

Lesson 14

Reading.

1. Learn the words and word combinations by heart.

equation — теңдеу; теңестіру
list of instructions — нұсқаулар тізімі
guard — қорғау, аяқтау
appropriate sequence —сәйкес реттілік, талап етілетін (қажет) реттілік
program logic — бағдарламаның орындалуының логикалық реттілігі
flowcharting — блок-схема құру
pictorial representation — кескінді бейнелеу
predefined symbols — алдын ала анықталған белгілер
specifics — ерекше белгілер, сипаттамалық белгілер
emplate — шаблон, маска, үлгі, эталон
pseudocode — псевдокод, псевдо-бағдарлама
burden— жүк
programming rules — бағдарламалау ережелері
consume — тұтыну
emphasize— бөлектеу, астын сызу
top-down approach — жоғарыдан төмен қарай қарау

looping logic — циклдегі операциялардың логикалық диаграммасы

2. Read the text and explain your understanding of the term "Computer programming".

Computer programming

Programming is the process of preparing a set of coded instructions which enables the computer to solve specific problems or to perform specific functions. The essence of computer programming is the encoding of the program for the computer by means of algorithms. The thing is that any problem is expressed in mathematical terms, it contains formulae, equations, and calculations. But the computer cannot manipulate formulae, equations, and calculations. Any problem must be specially processed for the computer to understand it, that is — coded or programmed.

The phase in which the system's computer programs are written is called the development phase. The programs are lists of instructions that will be followed by the control unit of the central processing unit (CPU). The instructions of the program must be complete and in the appropriate sequence, or else the wrong answers will result. To guard against these errors in logic and to document the program's logical approach, logic plans should be developed.

There are two common techniques for planning the logic of a program. The first technique is flowcharting. A flowchart is a plan in the form of a graphic or pictorial representation that uses predefined symbols to illustrate the program logic. It is, therefore, a "picture" of the logical steps to be performed by the computer. Each of the predefined symbol shapes stands for a general operation. The symbol shape communicates the nature of the general operation, and the specifics are written within the symbol. A plastic or metal guide called a template is used to make drawing the symbols easier.

The second technique for planning program logic is called pseudocode. Pseudocode is an imitation of actual program instructions. It allows a program-like structure without the burden of programming rules to follow. Pseudocode is less time-consuming for the professional programmer than is flowcharting. It also emphasizes a top-down approach to program structure.

Pseudocode has three basic structures: sequence, decision, and looping logic. With these three structures, any required logic can be expressed.

Speaking.

3. Answer the questions.

1. What is programming? 2. What is the essence of programming? 3. What should be done with the problem before processing by the

computer? 4. What is a program? 5. What are instructions? 6. What are the main techniques for planning the program logic? 7. What is a flowchart? 8. What is a template and what is it used for? 9. What do you understand by “pseudocode”? 10. What are the basic structures of pseudocode?

4. Find the English equivalents of the following words and phrases in the text.

Кодталған командалар жиынтығы; компьютерлік бағдарламалаудың мәні; алгоритм көмегімен кодтау; формулалар, теңдеулер, есептеулер; арнайы тәсілмен өңдеу; командалар тізімі; қажетті реттілік; қателіктерден қорғау; логикалық реттілікті жоспарлау; жалпы техника; бағдарламаның орындалуының логикалық реттілігі; блок-схемасын құру; визуалды бейнелеу; алдын-ала анықталған таңбалар; шаблон; жалған бағдарлама; жоғарыдан төмен қарай өңдеу принципін бөліп көрсету; аз уақыт жұмсау; циклдегі операцияларды орындаудың логикалық схемасы; қажетті операциялар реттілігі.

Writing.

5. Choose from the Kazakh phrases below the meanings of the following terms in English.

Program: access program; application program; archived program; binary program; common program; compatible/incompatible program; control/management program; database program; debugging program; educational/teaching/training program; free program; general-purpose program; high-performance program; offline program; online program; operating (-system) program; processing program; protected-mode program; remote program; running program; self-loading program; simulation program; support program; utility program; virus-detection program; watch-dog program.

Екілік код; қолданбалы бағдарлама; (үйлесімсіз бағдарлама; ақысыз бағдарлама; түзету бағдарламасы; күзетші; қашықтағы бағдарлама; тренажер; қызмет көрсету бағдарламасы; көмекші; қол жеткізуге арналған бағдарлама (мәліметтер); мұрағатталған бағдарлама; мәліметтер базасымен жұмыс істейтін бағдарлама; оқулық; жоғары жылдамдықпен орындалатын бағдарлама; әмбебап бағдарлама қорғалған режимде орындалатын бағдарлама; мәліметтерді өңдеу бағдарламасы; операциялық жүйенің бағдарламасы (жүйелік бағдарлама); жұмыс істеп тұрған бағдарлама; желілік (емес) бағдарлама; өзін-өзі жүктеу бағдарламасы; жиі қолданылатын (жалпы) бағдарлама; басқару бағдарламасы; вирусты анықтау бағдарламасы.

7. Translate the following sentences.

1. I would like to be a top specialist in computer technology. 2. It is necessary that the program should be debugged by a programmer. 3. It is required that the programmer should code the instructions of the program in the appropriate sequence. 4. The manager demanded that the work should be performed in time. 5. Write down the algorithm of computer operations lest you should make errors. 6. Our teacher speaks English as if he were a real Englishman. 7. Without the Sun there would be no light, no heat, no energy of any kind. 8 .1 wish it were summer now and we could go to the seaside. 9. American scientists suggested that the quantum generator should be called laser, which is the acronym for light amplification by stimulated emission of radiation. 10. I wished you had mentioned these facts while the subject was being discussed.

Lesson 15

Reading.

1.Read and understand the text.

Programming languages.

Let's assume that we have studied the problem, designed a logical plan (our flowchart or pseudocode), and are now ready to write the program instructions. The process of writing program instructions is called coding. The instructions will be written on a form called a coding form. The instructions we write will be recorded in a machine-readable form using a keypunch, key-to-tape, or key-to-disk, or entered directly into computer memory through a terminal keyboard.

The computer cannot understand instructions written in just any old way. The instructions must be written according to a set of rules. These rules are the foundation of a programming language. A programming language must convey the logical steps of the program plan in such a way that the control unit of the CPU can interpret and follow the instructions. Programming languages have improved throughout the years, just as computer hardware has improved. They have progressed from machine-oriented languages that use strings of binary Is and Os to problem-oriented languages that use common mathematical and/or English terms.

There are over 200 problem-oriented languages. The most common of them are COBOL, FORTRAN, PL/I, RPG, BASIC, PASCAL.

1. COBOL was the most widely used business-oriented programming language. Its name is an acronym for Common Business-Oriented Language. COBOL was designed to solve problems that are oriented toward data handling and input-output operations. Of course, COBOL can perform arithmetic operations as well, but its greatest flexibility is in data handling. COBOL also was designed as a self-documenting language. Self-documenting languages are those that do not require a great deal of explanation in order to be understood by someone reading the program instructions. The self-documenting aspect of COBOL is made possible by its sentence-like structure and the very generous maximum symbolic field-name length of 30 characters. With a field-name length of up to 30 characters, the name can clearly identify the field and its purpose.

2. The FORTRAN IV language is oriented toward solving problems of a mathematical nature. The name FORTRAN comes from the combination of the words formula translation. The version of FORTRAN IV has been designed as algebra-based programming language. Any formula or those m athematical relationships that can be expressed algebraically can easily be expressed as a FORTRAN instruction. FORTRAN is the most commonly used language for scientific applications.

3. PL/I stands for programming language I. It was designed as a generalpurpose language incorporating features similar to COBOL for data handling instructions and features similar to FORTRAN for mathematical instructions. PL/I is much more than a combination of the good features of both COBOL and FORTRAN, as it has many capabilities that are unique. Yet, although PL/I is one of the most versatile and the most powerful of the programming languages, it is not the most commonly used. COBOL and FORTRAN have been available for a longer period of time than PL/I, and many more users work with those languages.

Speaking.

2. Answer the questions according to the text.

1. What is the process of writing instructions called? 2. What is a code?

3. How must instructions be written? 4. What is the foundation of any programming language? 5. How was the development of programming languages progressing throughout the years? 6. What are the most common problem oriented languages? 7. What is COBOL? 8. What functions was COBOL designed for? 9. What does FORTRAN serve for? 10. What capabilities has PL/I?

3. Find the English equivalents of the following words and phrases in the text.

Бағдарламалау тілдері; компьютерде оқылатын көрініс; ережелер жиынтығы бойынша; бағдарламаның логикалық қадамдарын ұсыну;

бағдарламалау тілдерін жетілдіру; машиналарға бағытталған тілдер; проблемалық тілдер; жалпы термин; экономикалық мәселелерді бағдарламалау үшін; мәліметтерді өңдеу; мәліметтерді енгізу-шығару операциялары; икемділік; өрісті және оның мақсаттарын анықтау; математикалық сипаттағы есептерді шешу; ғылыми қолдану салалары; әмбебап тіл; бірегей мүмкіндіктер; бай және ең қуатты бағдарламалау тілі.

Writing.

4. Find in the text and write 1 or 2 words that are close in meaning to the following.

Nouns: command; line; characteristic; form; evolution; enumeration; mistake; method; character; manual (instruction); consumption; storage; basics; abbreviation; interpretation; correlation; possibility.

Verbs: include; inform; process; protect; apply; permit; stress; suppose; learn; make up; write; key; explain; define; perfect; advance; decide; execute; demand.

Adjectives: full; incorrect; usual; necessary; accessible; required; considerable; floppy; possible.

TEXTS FOR ADDITIONAL READING

Text 1

1. Learn the new words and terms of the text.

personal computers — персональные компьютеры
competitive operating system — конкурирующая операционная система
IBM (International Business Machine) — фирма по производству компьютеров
to enter the fray — вступать в борьбу
computer of choice — лучший компьютер
to fall by the wayside — оставаться в стороне; уступать дорогу
to survive onslaught — выдерживать конкуренцию
word size — размер слова, разрядность двоичного слова
soft-copy output — вывод электронной, программно-управляемой копии
hard-copy output — вывод «твердой», печатной копии
online storage — неавтономное хранение данных в ЗУ
offline storage — автономное хранение данных отдельно от компьютера
input media — носитель для входных данных
output media — носитель для выходных данных
general-purpose — универсальный, общего назначения

stand-alone — автономный
to plug in — подключать, подсоединять
leisure activities — досуговая деятельность

2. Read the text and tell me if there are differences between personal computers and large computers and what they are.

Personal Computers

Personal computers are supposed to appear in the late 1970s. One of the first and most popular personal computers was the Apple II, introduced in 1977 by Apple Computer. During the late 1970s and early 1980s, new models and competitive operating systems seemed to appear daily. Then, in 1981, IBM entered the fray with its first personal computer, known as the IBM PC. The IBM PC quickly became the personal computer of choice, and most other personal computer manufacturers fell by the wayside. One of the few companies to survive IBM 's onslaught was Apple Computer, which is sure to remain a major player in the personal computer marketplace. In less than a decade the microcomputer has been transformed from a calculator and hobbyist's toy into a personal computer for almost everyone.

What is a personal computer? How can this device be characterized?

— First, a personal computer being microprocessor-based, its central processing unit, called a microprocessor unit, or MPU, is concentrated on a single silicon chip.

— Second, a PC has a memory and word size that are smaller than those of minicomputers and large computers. Typical word sizes are 8 or 16 bits, and main memories range in size from 16 K to 512 K.

— Third, a personal computer uses smaller, less expensive, and less powerful input, output and storage components than do large computer systems.

Most often, input is by means of a keyboard, sofit-copy output being displayed on a cathode-ray tube screen. Hard-copy output is produced on a low-speed character printer.

— A PC employs floppy disks as the principal online and offline storage devices and also as input and output media.

— Finally, a PC is a general-purpose, stand-alone system that can begin to work when plugged in and be moved from place to place.

Probably the most distinguishing feature of a personal computer is that it is used by an individual, usually in an interactive mode. Regardless of the purpose for which it is used, either for leisure activities in the home or for business applications in the office, we can consider it to be a personal computer.

3. Answer the questions using the information in the text.

1. When did the first personal computer appear? 2. What was one of the first PC model? 3. What is a personal computer? 4. What are the four main characteristics of a PC? 5. What does the term “microprocessor-based” mean? 6. What are the typical word sizes of a PC? 7. How is input carried out in personal computers? 8. What principle storage devices do PC use? 9. What
kind of a system is a PC? 10. What differs personal computers from large computer systems?

Text 2

1. **Read and retell the text in English.**

The personal computer can serve as a workstation for the individual today. Moreover, as it has become financially feasible to provide a computer for the individual worker, so also technical developments have made the interface between man and machine increasingly “friendly,” so that a wide array of computer functions are now accessible to people with no technical background.

A personal computer is a small computer based on a microprocessor; it is a microcomputer. Not all computers, however, are personal computers. A microcomputer can be dedicated to a single task such as controlling a machine tool or metering the injection of fuel into an automobile engine; it can be a word processor, a video game, or a “pocket computer” that is not quite a computer. A personal computer is something different: a stand-alone computer that puts a wide array of capabilities at the disposal of an individual.

The first generation of true personal computers, which came on the market between 1977 and 1981, had eight-bit microprocessors; later introduced systems had 16-bits ones. Now 32-bit microprocessor chips are available, and soon they will be included in complete computer systems.

Text 3.

1. Learn the new words and terms of the text.

programming language — бағдарламалау тілі
coded form — кодталған форма, кодталған көрініс

to convey — беру, хабарлау
to improve — жақсарту, жетілдіру
machine oriented language — машинаға бағдарланған тіл
business-oriented language — экономикалық мәселелерге арналған (бағдарламалау) тіл
problem-oriented language — мәселеге бағытталған тіл
string of binary — екілік ұсыну жолы
data handling — мәліметтерді өңдеу, деректерді өңдеу
field-name length — өріс атауының ұзындығы
incorporate features — ерекшеліктерді қосу
versatile — үлкен, маңызды (саны туралы)
generous — большой, значительный (о количестве)
mathematical relationship — математикалық арақатынас

8. Read the text and explain what programming languages are.

RPG II programming language

RPG II is a business-oriented language. The name stands for report program generator. RPG is considerably different from other programming languages. RPG is, in effect, a large prewritten program. The programmer simply indicates the options within the master program that are to be used and, through a set of indicators, when they are to be used.

RPG was originally referred to as a "quick-and-dirty" programming language. That is, it is quick for the programmer to write and relatively inefficient in its use of main storage and processing speed. The latest version of RPG, called RPG II, greatly improved the language and gave it additional capabilities. RPG has an advantage over COBOL in that it requires less training for a programmer to become proficient in it. For this reason, RPG is commonly used on many smaller computers and in small businesses.

2. BASIC

BASIC is the acronym for beginner's all-purpose symbolic instruction code. It was developed in Dartmouth College as an easy-to-learn programming language for students and inexperienced programmers. Its key design goal is simplicity. BASIC has become a very popular language in systems where many users share the use of a computer through terminals and it has become a universal language for personal computers.

The language BASIC is mathematically oriented, that is, its typical use is to solve problems of a mathematical nature. Because BASIC programs are usually executed from a terminal or microcomputer where input is entered
through a keyboard and printed output is relatively slow, problems of a business nature requiring large volumes of input-output data are usually not practical.

3. PASCAL

PASCAL was invented in 1970 by Professor Niklaus Wirth of Zurich, Switzerland. It was named after the mathematician Blaise Pascal, who invented one of the earliest pin mathematics, engineering, and computer science departments of colleges and universities. This language is somewhat unusual in that it was designed to be a structured language. This means that the program must be written in logical modules which are in turn called by a main controlling module. Much of PASCAL'S popularity is due to work done at the University of California at San Diego, where PASCAL has been implemented on several different computers including microcomputers.

Text 4

1. Read the texts and write abstracts in English (choose only one paragraph).

1. The conversion of symbolic languages

As we see, most of the symbolic languages are oriented toward the particular application areas of business or science (math). The one problem with all symbolic languages is that none of them can be understood by a computer. The symbolic languages may say AP, ADD, or use a "plus" sign to indicate an additional step, but the only thing that means addition to a computer is its binary machine code. We have symbolic programs that are relatively easy for humans to understand, but they cannot be understood by computers. On the other hand, we have machine code that is understood by the computer, but it is difficult for humans to use. The solution is a translator that translates the symbolic program into machine code. The translator allows the human to work with relatively easy-to-understand symbolic languages and it allows the computer to follow instructions in machine code. The translation of symbolic instructions to machine code is accomplished through the use of a program called a language processor. There are three types of language processors. They are called assemblers, compilers, and interpreters. Each translates symbolic instructions to machine code, but each does it differently.

(The translator is a program itself. It is part of a group of programs, called the operating systems, that help us to use the computer.)

2. Running the computer program

The operating system is a collection of programs provided by the computer's manufacturer that allows us to schedule jobs for the computer, to translate source programs into object programs, to sort data stored on secondary storage devices,

and to copy data from any input device to any output device. These programs are called control programs, language programs, and utility programs.

The control program (often called the supervisor, monitor, or executive) is a main-storage-resident program. Its functions are to schedule jobs, schedule input and output for our programs, and to monitor the execution of our programs practical calculators. PASCAL is a mathematically oriented programming language and, as such, is most commonly used The language processors are programs that translate source programs into object programs. There are three types of language processors: assemblers, compilers, and interpreters. Each language has its own language processor.

The service programs are programs that are commonly used in all data processing centers. They have functions that are required by everyone using a computer. Examples of service programs include linkage editors to prepare object programs for execution, a librarian to catalog programs into a library area on magnetic disk, utility programs to transfer data from device to device, and sort-merge programs for sorting data on magnetic tape or disk.

3. Testing the computer program

There are two kinds of errors or bugs with which programmers must deal. The first type is the coding error. Such errors are syntax errors that prevent the language processor from successfully translating the source program to object program code. The language processor identifies the nature and the location of the error on the source program listing, so these errors are relatively easy to find and correct. The second type of bug is the logic error. The computer program can be successfully translated, but the program does not produce the desired results. These errors are generally much more difficult to find and to correct than are coding errors. Logic errors can be avoided through careful planning of the program logic, but it is the programmer's responsibility to test thoroughly all of the program's functions, in order to verify that the program performs according to specifications.

There are many tools provided to the programmer to help in debugging the program logic. These tools are called debug packages or tracing routines. They assist the programmer in following the logic by printing out calculation results and field values used in making logic decisions in the program. In a few cases it may be necessary to use a memory dump — a printout of the instructions and date held in the computer's memory — in order to find the cause of logic errors.

Text 5

1. Read the texts (by options) and make a short annotation for each of them.

1. The World-Wide Web

People have dreamt of a universal information database since the late 1940s. In this database, not only would the data be accessible to people around the world, but it would also easily link to other pieces of information, so that only the most important data would be quickly found by a user. Only recently the new technologies have made such systems possible. The most popular system currently in use is the World-Wide Web (WWW), which began in March 1989. The Web is an Internet-based computer network that allows users on one computer to access information stored on another through the world-wide network.

As the popularity of the Internet increases, people become more aware of its colossal potential. The World-Wide Web is a product of the continuous search for innovative ways of sharing information resources. The WWW project is based on the principle of universal readership: "if information is available, then any person should be able to access it from anywhere in the world." The Web's implementation follows a standard client-server model. In this model, a user relies on a program (the client) to connect to a remote machine (the server), where the data is stored. The architecture of the WWW is the one of clients, such as Netscape, Mosaic, or Lynx, "which know how to present data but not what its origin is, and servers, which know how to extract data," but are ignorant of how it will be presented to the user.

One of the main features of the WWW documents is their hypertext structure. On a graphic terminal, for instance, a particular reference can be represented by underlined text, or an icon. "The user clicks on it with the mouse, and the referenced document appears." This method makes copying of information unnecessary: data needs only to be stored once, and all referenced to it can be linked to the original document.

2. Success of the WWW

Set off in 1989, the WWW quickly gained great popularity among Internet users. What is the reason for the immense success of the World-Wide Web? Perhaps, it can be explained by CERN's attitude towards the development of the project. As soon as the basic outline of the WWW was complete, CERN made the source code for its software publicly available. CERN has been encouraging collaboration by academic and commercial parties since the onset of the project, and by doing so it got millions of people involved in the growth of the Web.

The system requirements for running a WWW server are minimal, so even administrators with limited funds had a chance to become information providers. Because of the intuitive nature of hypertext, many inexperienced computer users were able to connect to the network. Furthermore, the simplicity of the Hyper Text Markup Language, used for creating interactive documents on the Web. Also, the nature of the World-Wide Web provided a way to interconnect computers running different operating systems, and display information created in a variety of existing media formats.

In short, the possibilities for hypertext in the world-wide environment are endless. With the computer industry growing at today's pace, no one knows what awaits us in the 21st century.

Note

CERN was originally named after its founding body the "Conseil Europeen pour la Recherche Nucléaire," and is now called "European Laboratory for Particle Physics."

3. A brief history of the Internet

In 1973 the Defense Advanced Research Projects Agency (DARPA) initiated a research program to investigate techniques and technologies for interlinking packet networks of various kinds. The objective was to develop communication protocols which would allow networked computers to communicate transparently across multiple, linked packet networks. This was called the Internetting project and the system of networks which emerged from the research was known as the "Internet" (Intercontinental Network).

During the course of its evolution, particularly after 1989, the Internet system began to integrate support for other protocol suites into its basic networking fabric. By the end of 1991 the Internet had grown to include some 5,000 networks in over three dozen countries, serving over 700,000 host computers used by over 4,000,000 people.

The bulk of the system today is made up of private networking facilities in education and research institutions, business, and in government organizations across the globe.

A secretariat has been created to manage the day-to-day function of the Internet Activities Board (IAB) and Internet Engineering Task Force (IETF). IETF meets three times a year in plenary and in approximately 50 working groups convene at intermediate times by electronic mail, teleconferencing, and at face-to-face meetings.

There are a number of Network Information Centers (NICs) located throughout the Internet to serve its users with documentation, guidance, advice, and assistance. As the Internet continues to grow internationally, the need for high quality N IC functions increases. Although the initial community of users of the Internet were drawn from the ranks of computer science and engineering, its users now comprise a wide range of disciplines in the sciences, arts, letters, business, military, and government administration.

2. **Retell the text.**

Text 6

1. Learn the vocabulary of the text.

computer literacy — компьютерлік сауаттылық
problem-solving device — есептер шығаратын құрылғы
be aware of — түсіну, хабардар болу
opportunity — мүмкіндік
basics —негіздер
application — қолдану
to restate — қайта қарау
significant — маңызды
achievements — жетістіктер
computing — есептеу, санау; компьютермен жұмыс
to embrace — қамту
dimension — өлшем
instruction — бұйрық, нұсқау
to direct the operation — жұмысты бағыттау
to process — өңдеу
subscription magazine — жазылым журналы
data processing system — деректерді өңдеу жүйесі
store manager — дүкен менеджері
to have much in common — ортақ көп нәрсеге ие болу

2. Read the text.

Computer Literacy

Informed citizens of our information-dependent society should be computer-literate, which means that they should be able to use computers everyday as problem-solving devices. They should be aware of the potential of computers to influence the quality of life.

There was a time when only privileged people had an opportunity to learn the basics, called the three Rs: reading, writing, and arithmetics. Now, as we are quickly becoming an information-dependent society, it is time to restate this right as the right to learn reading, writing, and *computing.* There is little doubt that computers and their many applications are among the most significant technical achievements of the century. They bring with them both economic and social changes. “Computing” is a concept that embraces not only the old third R, arithmetics, but also a new idea — computer literacy.

In an information society a person who is computer-literate need not be an expert on the design of computers. He needn’t even know much about how to prepare *programs,* which are the instructions that direct the operations of computers. All of us are already on the way to becoming computer-literate.

Just think of your everyday life. If you receive a subscription magazine in the post office, it is probably addressed to you by a computer. If you buy something with a bank credit card or pay a bill by check, computers help you process the information. When you check out at the counter of your store, a computer assists

the checkout clerk and the store manager. When you visit your doctor, your schedules and bills and special services, such as laboratory tests, are prepared by computer. Many actions that you have taken or observed have much in common. Each relates to some aspect of a data processing system.

3. **Read the text again then answer questions and complete assignments using the information in the text.**

1. What does “a computer-literate person” mean?
2. Are you aware of the potential of computers to influence your life?
3. What do the people mean by “the basics”?
4. What is the role of computers in our society?
5. What is “computing”?
6. What is a program?
7. Prove that we all are on the way to becoming computer-literate.
8. Give examples of using computers in everyday life.

4. **Read, translate and memorize the following expressions.**

An information-dependent society; a computer-literate citizen; an everyday problem-solving device; to be aware; to influence the quality of life; to have an opportunity; to learn the basics; to learn computing; the most significant technical achievements; to embrace computer literacy; to prepare programs; to direct the operations of a computer; to be on the way of becoming computer-literate; to process information; to have much in common; a data processing system.

Text 7

1. Read the text and choose the correct answers to the questions below to the text.

From the history of computer development in Russia

As it is well-known, Russian scientists made great contributions into the development of computers. Russian mathematician P. Chebyshev who lived in the 19th century was interested in calculators. Among many other mechanisms invented by him there was an arithmometer designed in 1876. It was one of the most unique calculating machines of the time. At the beginning of the 20th century Academic A. Krylov constructed a mechanical integrator for solving differential equations.

The first Soviet computer, a small-size computing machine (MESM) was tested in 1950 under Academician S. Lebedev. Next year it was put into operation. In a year

MESM was followed by BESM, a large-size electronic computing machine, with 8,000 operations per second.
Serial production of computers in the USSR has been started since 1953. That year U. Basilevsky headed the design and manufacture of computer STRELA. 1958 witnessed the production of M-20, computers of the first generation under the guidance of S. Lebedev. The first generation of electron tube computers was followed by the second generation of photo transistor computers, using magnetic logic elements.
Starting with 1964 semiconductor computers — URAL, BESM-4 and M-220 were produced. Under Academician Glushkov small size computers MIR, MIR-2, and DNEPR were designed and tested at the Institute of Cybernetics.
In the late 60s together with other members of the Council of Mutual Economic Assistance the Soviet Union started on the program of Unified Computer System, the program concerned with the third generation of computers with high speed performance and program compatibility.

2.
What was one of the first achievements in the sphere of calculating in Russia?
a) calculator; b) arithmometer; c) mechanical integrator
2. When was the first Soviet computer put into operation?
a) in 1950; b) in 1951; c) in 1952
3. Who headed the serial production of computers in the USSR?
a) A. Krylov; b) S. Lebedev; c) U. Basilevsky
4. Which machine was the first in the development of the first-generation computers?
a) MESM; b) STRELA; c) M-20
5. When did the production of the third-generation computers begin?
a) late 60s; b) early 70s; c) late 70s

Text 8

1. **Read the text and translate into your language**

Digital computer operation

1. A digital computer is a machine capable of performing operations on data represented in digital or number form. The individual operations performed by a digital computer are very simple arithmetic or logical processes involving the manipulation of the bits in words or characters of information. The great power of any digital computer rests in the ability to store large volumes of data and to perform these operations at extremely high speed.

In most electronic digital computers the method of number representation is based on the system of binary notation. The binary notation system is most widely used because of the convenience in constructing logic circuits and storage devices capable of handling data in this form. For example, a magnetic memory unit consists of many thousand individual magnetic cells, each of which can be energized in either of two ways to represent the binary digits 0 or 1. If these cells are grouped to form words or binary coded characters, information can be stored for processing in units of specified size. In the same way, digital data can be recorded as a series of magnetized spots on a magnetic tape or a magnetic disk.

2. The computer has pervaded most fields of human activity and is the most important innovation of our age. Born out of the technology of communication, it is capable of handling enormous amounts of information at tremendous speeds. What makes it so potent is the fact that a single mechanism can perform any information-processing task. The same mechanism can control industrial processes, guide space vehicles or help to teach children. This diversity of tasks is made possible by the simple idea of the stored program.

A program is the enumeration of determining commands. It specifies the method used for the solution of a problem in detail. When the machine is in operation, both the commands and the numbers to be processed are constantly being taken out of and put into a depository of information known as a memory.

It can be seen that the processes performed by a digital computer are essentially simple. These operations can be performed at extremely high speeds and with a high degree of coordination between the different functional units of the hardware system, and this ability means that digital computers can undertake highly complex tasks.

Text 9

1. Read and learn the words and combinations.

to maintain records — жазбаларды жүргізу
deposits and withdrawal — салымдар және алу
guidance — бақылау; басқару
on-board environment — борттық орта
pattern recognition — өрнекті тану

2. Reading.
Read and translate the text.

Application of Computers

At present a great deal of the work force of most countries is engaged in creating, processing, storing, communicating, and just working with information. Computers have become commonplace in homes, offices, stores, schools, research institutes, plants.

The use of computers in business, industry, and communication services is widespread today. Computer-controlled robots are able to improve the quality of manufactured products and to increase the productivity of industry. Computers can control the work of power stations, plants, and docks. They help in making different decisions and in management of the economy.

The work of banks depends upon computer terminals for millions of daily operations. Without these terminals, records of deposits and withdrawals would be difficult to maintain, and it would be impossible to make inquiries about the current status of customer accounts.

Computers form a part of many military systems including communication and fire control. They are applied for automatic piloting and automatic navigation. Space exploration depends on computers for guidance, on-board environment and research.

2. Computers find application in astronomy and upper atmosphere research. Weather forecasting, library information services can benefit from computers too.

It is interesting to note that computers are widely used in medicine. They became valuable medical diagnostic tools. Computers are used for optical scanning and image processing, ranging from pattern recognition to image processing. Technicians can operate computer tomography scanners, which combine x-rays with computer technology to give sectional views of the body of patients. The views then can be combined into a single image shown on the screen.

It should be noticed that learning on a computer can be fun. Students spend more time with computer-aided instruction performing the assigned task, as compared with conventional classroom.

At last air traffic control is impossible without computer application. It fully depends upon computer-generated information.

Many other uses of computers that we cannot imagine at present will become commonplace in the transition from an industrial to post-industrial, or information, society.

Text 10

1. **Read the text**

Some first computer models.

1. Babbage's analytical engine

In 1832 an English inventor and mathematician Charles Babbage was commissioned by the British government to develop a system for calculating the rise and fall of the tides.
Babbage designed a device and called it an analytical engine. It was the first programmable computer, complete with punched cards for data input. Babbage gave the engine the ability to perform different types of mathematical operations. The machine was not confined to simple addition, subtraction, multiplication, or division. It had its own "memory," due to which the machine could use different combinations and sequences of operations to suit the purposes of the operator.
The machine of his dream was never realized in his life. Yet Babbage's idea didn't die with him. Other scientists made attempts to build mechanical, general-purpose, stored-program computers throughout the next century. In1941 a relay computer was built in Germany by Conrad Zuse. It was a major step toward the realization of Babbage's dream.

2. The Mark I computer (1937—1944)

In 1944 in the United States, International Business Machines (IBM) built a machine in cooperation with scientists working at Harvard University under the direction of Prof. Aiken. The machine, called Mark I Automatic Sequence-Controlled Calculator, was built to perform calculations for the Manhattan Project, which led to the development of atomic bombs. It was the largest electromechanical calculator ever built. It used over 3,000 electrically actuated switches to control its operations. Although its operations were not controlled electronically, Aiken's machine is often classified as a computer because its instructions, which were entered by means of a punched paper tape, could be altered. The computer could create ballistic tables used by naval artillery.
The relay computer had its problems. Since relays are electromechanical devices, the switching contacts operate by means of electromagnets and springs. They are slow, very noisy and consume a lot of power.

3. The ABC (1939—1942)

The work on introducing electronics into the design of computers was going on. The gadget that was the basis for the first computer revolution was the vacuum tube, an electronic device invented early in the 20th century. The vacuum tube was ideal for use in computers. It had no mechanical moving parts. It switched flows of electrons off and on at rates far faster than possible
with any mechanical device. It was relatively reliable, and operated hundreds of hours before failure. The first vacuum-tube computer was built at Iowa University at about the same time as the Mark I. The computer, capable to perform thousands of related computations, was called ABC, the AtanasoffBerry Computer, after Dr. John Atanasoff, a professor of physics and his assistant, Clifford Berry. It used 45 vacuum tubes for internal logic and capacitors for storage. From the ABC a

number of vacuum-tube digital computers developed. Soon the British developed a computer with vacuum tubes and used it to decode German messages.

2. Swap options, read the text and express in two or three sentences the main idea of the texts proposed above.

Text 11

1. Read the text and briefly convey its content:
a) in Russian; b) in English.

Four generations of computers

The first vacuum tubes computers are referred to as first-generation computers, and the approximate period of their use was from 1950 to 1959. UNIVAC 1 (UNIVersal Automatic Computer) is an example of these computers which could perform thousands of calculations per second. Those devices were not only bulky, they were also unreliable. The thousands of vacuum tubes emitted large amounts of heat and burned out frequently.

The transistor, a smaller and more reliable successor to the vacuum tube, was invented in 1948. So-called second-generation computers, which used large numbers of transistors were able to reduce computational time from milliseconds to microseconds, or millionths of seconds. Second-generation computers were smaller, faster, and more reliable than first-generation computers. Advances in electronics technology continued, and microelectronics made it possible to reduce the size of transistors and integrate large numbers of circuit elements into very small chips of silicon. The computers that were designed to use integrated circuit technology were called third-generation computers, and the approximate time span of these machines was from 1960 to 1979. They could perform many data processing operations in nanoseconds, which are billionths of seconds.

Fourth-generation computers have now arrived, and the integrated circuits that are being developed have been greatly reduced in size. This is due to microminiaturization, which means that the circuits are much smaller than before; as many as 100 tiny circuits are placed now on a single chip. A chip is a square or rectangular piece of silicon, usually from 1/10 to 1/4 inch, upon which several layers of an integrated circuit are etched or imprinted, after which the circuit is encapsulated in plastic or metal.

Text 12

1. Give a title to each component of the text and write a short abstract to it (by options).

Steps in the development of computers

1. In 1948 due to the invention of transistors there appeared the possibility to replace vacuum tubes. The transistor occupied an important place on the way to computer development. The potential advantage of the transistor over the vacuum tube was almost as great as that of the vacuum tube over the relay. A transistor can switch flows of electricity as fast as the vacuum tubes used in computers, but the transistors use much less power than equivalent vacuum tubes, and are considerably smaller. Transistors are less expensive and more re liable. They were mechanically rugged, had practically unlimited life and could do some jobs better than electronic tubes. Transistors were made of crystallic solid material called semiconductor.

With the transistor came the possibility of building computers with much greater complexity and speed.

2. The integrated circuit constituted another major step in the development of computer technology. Until 1959 the fundamental logical components of digital computers were the individual electrical switches, first in the form of relays, then vacuum tubes, then transistors. In the vacuum tubes and relay stages, additional discrete components, such as resistors, inductors, and capacitors were required in order to make the whole system work.

These components were generally each about the same size as packaged transistors. Integrated circuit technology permitted the elimination of some of these components and integration of most of the others on the same chip of semiconductor that contains the transistor. Thus the basic logic element — the switch, or “flip-flop,” which required two separate transistors and some resistors and capacitors in the early 1950s, could be packaged into a single small unit in 1960. The chip was an important achievement in the accelerating step of computer technology.

3. In 1974 a company in New Mexico, called Micro Instrumentation Telemetry System (MITS) developed the Altair 8800, a personal computer (PC) in a kit. The Altair had no keyboard, but a panel of switches with which to enter the information. Its capacity was less than one percent that of the 1991 Hewlett-Packard handheld computer. But the Altair led to a revolution in computer electronics that continues today. Hardware manufacturers soon introduced personal computers, and software manufacturers began developing

software to allow the computers to process words, manipulate data, and draw. During the 1980s computers became progressively smaller, better, and cheaper.
Today the personal computer can serve as a work station for the individual. A wide array of computer functions are now accessible to people with no technical background.

Text 13

1. Read the text and ask your own questions according to the text.

Notes

A modem

The piece of equipment that allows a computer to communicate with other computers over telephone lines is called a modem. The modem allows the individual to access information from all over the world and use that information in everyday life. Connecting with banks, Automatic Teller Machines, cash registers to read credit cards, access travel agents, buy products, e-mail, access databases, and teleconferencing, the modems provide easy access to many services. Files can be transferred easily, by uploading to another machine, or downloading to your own machine within a matter of minutes. The computer modem can be used as a telephone answering system, and documents can be faxed from one computer to another assuring fast and easy access to important documents.
A modem takes computer information and changes it into a signal that can be sent over telephone lines. The modem is a bridge between digital and analog signals. The computer is of the digital type, and the telephone uses analog technology. The modem converts the Os and Is of the computer (offon switches) into analog signals modulating the frequency of the electronic wave or signal. The modem does just the opposite and demodulates the signal back into digital code. The modem gets its name from
MOdulate and the DEModulate. Most people believe that you need a separate phone line for a modem, but that is not true. Your modem and telephone can share one line, the problem arises when someone else needs to use the telephone while the modem is in use. Also disable call waiting, it could disrupt your modem connection while the modem is in use.
There are three kinds of modems — internal, external, and fax. All modems do the same thing, they allow computers to communicate through telephone lines. This lets computers exchange information everywhere. Internal modem is a circuit board that plugs into one of the expansion slots of the computer. Internal modems usually are cheaper than external modems, but when problems occur, fixing and troubleshooting the modem can sometimes prove to be quite difficult. External

modem attaches to the back of the computer by way of a cable that plugs into the modem port. It is usually less expensive and very portable. It can be used with other computers very easily by unplugging it and plugging it into another computer. Fax modem can be hooked up to your telephone and used to send information to your computer. Your computer can also send information to a fax machine. Most computer modems are modems with faxing capabilities.

Text 14

1. Read and translate the text in written form.

Micro computer system organization.

1. The organization of a microcomputer system is the same as that of a larger computer system. The microprocessor unit (M PU), usually concentrated in a single chip, consists of the control unit and the arithmetic logic unit. Internal memory is made up of random access memory (RAM) and read-only memory (ROM). Because RAM is only temporary storage, all microcomputers require some instructions to get started after they are turned on, and these are contained in ROM. A microcomputer includes both an MPU and internal memory.

The portion of the system software that is in ROM brings into RAM the additional instructions required to operate the microcomputer. Typically, these instructions are stored on a magnetic disk; hence, they are called a disk operating system, or DOS. This start-up process is called bootstrapping*. ROM also contains other programs that help to make personal computers easy to use, such as a programming language. Computer games are also stored in ROM cartridges.

In addition to the M PU, RAM, ROM, and associated control circuits, other components, called peripheral devices, are needed to make a complete microcomputer system The principal peripheral units are: input devices, output devices, mass storage units, and communication components. Like a DOS, the programs that control the flow of data between a microcomputer and its peripheral devices are a part of systems software.

The most common input device used with personal computers is the keyboard. Most personal computer keyboards have extra keys that perform special functions and that can be used to control the movement of a cursor on a screen. A lever-like** the device, called a joystick, is also used as an input device, commonly for playing video games.

2. The CRT (cathode-ray tube) screen used with personal computers is called a monitor. Keyboards and monitors may be part of a single unit that also contains the microcomputer and the disk drives, or they may be separate units. Besides the monitor, the most common input units are dot-matrix and letter-quality printers.

Dot-matrix printers are suitable for most microcomputer applications. Letter-quality printers are usually used for high-quality office correspondence. Both types of printers are considered to be low-speed character printers.

Mass storage units are available over a range of capacities and access times. Floppy disks, or diskettes, are the most common mass storage media. They store patterns of bits on magnetically coated, flexible plastic platters. A floppy disk platter is sealed permanently in a paper jacket with a small window for reading and writing. Hard disk storage systems are also available. They may be fixed or removable. Some mass storage units contain both floppy and hard disk devices.

Low-cost modulator-demodulator devices, called modems, that allow microcomputer systems to communicate over telephone lines have become increasingly popular. Modems permit networks of personal computer owners to exchange information or to access large data banks. These data banks may be dedicated to special applications, such as law or medicine, or they may provide a variety of consumer services.

Text 15.

1. **Read the text then do the tasks.**

The First Computer Programmer

Ada Lovelace was the daughter of the poet Lord Byron. She was taught by Mary Somerville, a well-known researcher and scientific author, who introduced her to Charles Babbage in June 1833. Babbage was an English mathematician, who first had the idea for a programmable computer. In 1842 and 1843, Ada translated the work of an Italian mathematician, Luigi Menabrea, on Babbage's Analytical Engine. Though mechanical, this machine was an important step in the history of computers; it was the design of a mechanical general-purpose computer. Babbage worked on it for many years until his death in 1871. However, because of financial, political, and legal issues, the engine was never built. The design of the machine was very modern; it anticipated the first completed general-purpose computers by about 100 years. When Ada translated the article, she added a set of notes which specified in complete detail a method for calculating certain numbers with the Analytical Engine, which have since been recognized by historians as the world's first computer program. She also saw possibilities in it that Babbage hadn't: she realised that the machine could compose pieces of music. The computer programming language 'Ada', used in some aviation and military programs, is named after her.

1. Ada Lovelace's teacher introduced her to Charles Babbage.
2. Babbage programmed the first computer.

3. Ada translated the article in 1842.
4. The Analytical Engine was electronic.
5. Luigi Menabrea designed the first computer.
6. Babbage finished the machine before he died.
7. Babbage's design was ahead of its time.
8. Ada's work was instantly recognised as being the first computer program.
9. Babbage saw that his machine could write music.
10. Ada wrote military and aviation computer programs.

Additional helpful expressions on speciality

When we talk about computers, we use the following expressions.

Expression	Meaning
to have access to the Internet	to be able to use the Internet or a computer
to spend time on the Internet	to do things on the Internet or on a computer
to be addicted to the Internet	to use the Internet too much
the computer is up and running	computer was broken, but is now working again
the Internet is down	the Internet isn't working
Bit	A bit (short for binary digit) is the smallest unit of measurement in computing. 8 bits make up 1 byte.
Parts of a computer and other related technologies	
Screen	the part of a computer where text and images appear
Keyboard	the part of the computer with buttons representing numbers and letters
Mouse	the part of the computer that you move or touch to locate information on the screen
Microphone	the part of the computer that you speak into
Wires and cables	long thin pieces of metal that connect different parts of the computer
Web page	a page on the Internet that shows information

Blog	a web page where you can write articles about topics that interest you
Operating system	the program that controls everything on the computer
Memory	the part of the computer that lets you save information
Browser	the application you need to use when you want to go on the Internet
Speakers	the part of the computer which controls the volume
Printer	equipment you use to produce physical copies of a document
Scanner	equipment that lets you take a picture of a photo or document and put it on the computer
Battery	the part of the computer that stores electricity and provides power
USB Stick	a small tool you can use to save your documents
Router	a box that lets your computer connect to the Internet
Wi-fi	technology that lets you use the Internet without using wires or cables
Important verbs to talk about computing	
Download	to copy information from the Internet to your computer
Type	to enter information via the keyboard
Turn on and switch on	to activate the computer when you want to use it
Turn off and switch off	to deactivate the computer when you are finished using it
Plug in	to connect your computer to a power source using the charger
Unplug	to disconnect your computer from a power source
Upload	to copy a document from your computer to the Internet, such as when you put pictures on Facebook

Scroll up and scroll down	to move up and down the page, like when you're viewing a webpage
Scan	to put photos and documents on the computer using a scanner.
Common computer problems	
Virus	a virus is an enemy program that infects your computer and stops it from working
Frozen and freeze	if you try to use too many applications at the same time, the computer might become frozen
Run out of space	if you download too many applications, you might not have enough memory
Abbreviations	
ADSL Asymmetric digital subscriber line (ADSL)	is a type of digital subscriber line (DSL) broadband technology that is used to connect to the Internet. It uses standard telephone lines to deliver high-speed data communications (up to 24 megabytes per second).
CAD Computer-aided design (CAD)	is a type of software that allows users to create 2D and 3D design and modelling. CAD is used by architects, engineers, artists and other professionals to create precise technical drawings.
CPU The central processing unit (CPU)	is the brains behind your computer. The CPU is responsible for performing calculations and tasks that make programs work. The higher the speed of a CPU, the faster the CPU undertakes the calculations and tasks.
DV	DV stands for digital video.
FTP File transfer protocol (FTP)	is a common method of transferring files via the internet from one host to another host.
GIF	is a graphics file format. Because GIF files are compressed, they can be quickly and easily

Graphics interchange format (GIF)	transmitted over a network. GIF is one of the main graphics formats on the Internet.
HTML Hyper-text markup language (HTML)	is a set of symbols inserted into files intended for display on the world wide web. The symbols tell web browsers how to display words and images - e.g. which colour, font and type size to use - and they direct it to link to other pages on the world wide web via hyperlinks.
ISP An internet service provider (ISP)	is a company that provides access to the Internet. In Australia, widely used ISPs include Bigpond, iinet and Dodo.
JPEG JPEG stands for Joint Photographic Experts Group,	which was the committee that created the file format known as JPEG. The format is commonly used for photos displayed on the world wide web.
LAN A local area network (LAN)	is a system that connects computers and other devices that share a common communications line and wireless link, generally within a limited geographical area such as a home or office building.
PDF Portable document format (PDF)	is a file type created by Adobe Systems Inc. PDFs can be read using free software called Adobe Acrobat Reader or another PDF reader.
POP A Post office protocol (POP)	is an Internet protocol used by your Internet service provider (ISP) to handle email. A POP account is an email account.
PPM Pages per minute (PPM)	generally refers to the speed of a printer.
RAM Random access memory (RAM)	is usually referred to as a computer's "memory" - it stores information used by programs. Generally, the larger your computer's RAM, the more programs it can run at once without slowing down.

ROM ROM stands for read-only memory.	is the part of a computer's memory that cannot be changed by a user. The contents of ROM remain even when the computer is turned off.
SAAS stands for software as a service.	is a software distribution model whereby software applications are centrally hosted and licensed on a subscription basis.
SSL secure sockets layer,	is a protocol that allows Internet users to send encrypted messages across the Internet. It is generally used when transmitting confidential information (e.g. personal data or credit card details). A web address that begins with "https" indicates that an SSL connection is in use.
SEO search engine optimisation,	is the practice of making adjustments to certain aspects of a website in an effort to improve its ranking on search engines.
URL A URL (unique resource locator) or web address	is the string of characters you type into a browser to access a particular website or other resource on the Internet. (eg. http://www.ourcommunity.com.au)
WEP Wired equivalent privacy (WEP)	is a security protocol used in wi-fi networks. It is designed to provide a wireless local area network (LAN) with a level of security similar to that of a regular wired LAN. WEP-secured networks are usually protected by passwords. (See also WAP.)
WPA Wi-Fi protected access (WPA)	is a security protocol used in wi-fi networks. It is an improvement on WEP because it offers greater protection through more sophisticated data encryption.

Additional grammar reference

Present Indefinite Tense

Шақ	Қолданылуы	Мысал	Қосымша
Present Indefinite Tense (Жалпы осы шақ)	қазақ тіліндегі ауыспалы осы шақ сияқты негізінен күнбе-күнгі болып жатқан, қайталанып тұратын әдеттегі қимыл-әрекетті білдіру үшін қолданылады	I speak English. He speaks English. They speak English.	Present Indefinite шағының сұраулы және болымсыз түрлері to do - көмекші етістігі арқылы жасалады. Do they work here? Does he work here? He does not work here? Yes, they do. - No, they do not. Yes, he does.No, he doesn't.
Present Indefinite шағының етістігі бірінші, екінші жақтың жекеше түрінде және көпше түрінде барлық жақтарда ешбір жалғаулықсыз жіктелеуі. Үшінші жақтың жекеше түрі бұл шақтың етістігіне - (e) s жұрнағын жалғау арқылы жасалады. Бұл жұрнақтың алдындағы негіздің соңғы дыбысына байланысты үш фонетикалық варианты бар: ұян дауыссыз не дауысты дыбыстан кейін – [z], қатан дауыссыз дыбыстан кейін -[s], ұзын дауыссыз дыбыстан кейін(жазылуы ss, ch, sh, x) -[iz]: to open – he opens [z] to play - he plays[z] to work – he works [s] to write – he writes [s] to teach – he teaches [iz] (кейбір ерекшеліктер : to go – he goes[gous],to do- he does[das],to say – he says[sez]).			

Exercise 1. Select the correct form. Write your answer in the blanks.

1. We (study, studies) Programming every day.
2. Aidana (study, studies) English at school.
3. They (go, goes) to the theatre very often.
4. She seldom (go, goes) to the cafe.
5. I (carry, carries) my books in a briefcase.
6. Askar (carry, carries) his laptop around.
7. He (play, plays) the piano very well.
8. My friends (play, plays) video games every Saturday.
9. Erasyl (do, does) his homework until 11 pm.
10. You (do, does) this exercise very well.
11. Diana and her brother always (try, tries) to come to school on time.
12. I (want, wants) to travel around the world.

Exercise 2. Change to the question or negative form. Write the complete verb and subject.

1. Makpal comes home by bus. (Question)
2. I get up at nine o'clock every morning. (Negative)
3. My family likes Beshbarmak. (Negative)
4. He studies Python online. (Question)
5. Teachers in Kazakhstan have more than five classes. (Negative)
6. The students want more time to finish the test. (Question)
7. Azamat talks to us in Kazakh. (Negative)
8. They live near Almaty. (Question)
9. Your father works as an engineer. (Question)
10. She wants a new phone. (Negative)
11. We know her very well. (Negative)
12. You talk to your parents every day. (Question)

Past Indefinite Tense

Шақ	**Қолданылуы**	**Мысал**	**Қосымша**
Past Indefinite Tense (Жалпы өткен шақ)	сөйлеу кезінен бұрын болып өткен ақиқат шындық істі, қимылды білдіретін етістіктің грамматикалық	I learned computer programming. She went to university. We bought a new laptop.	Past Indefinite шағының сұраулы және болымсыз түрлері (жекеше мен көпше түрінің барлық жақтары үшін) to do көмекші етістігінің өткен шақтағы did және жіктелетін етістіктің

	формасы. Past Indefinite шағындағы етістіктердің мағынасы қазақ тіліндегі жедел, бұрынғыб дағдылы өткен шақтарға сәйкес.		тұнық рай түрлері (to демеулігінсіз) арқылы жасалады. Did you finish your book? Yes, I did. No, I did not (didn`t). I did not (didin`t) finish my work.
Past Indefinite шағы етістіктер дұрыс және бұрыс болып 2 ге бөлінеді. Дұрыс етістіктер негізіне – ed жұрнағын жалғау арқылы жасалады, бұлар дұрыс етістіктер деп аталады, мысалы: to work –worked to finish-finished to open – opened - ed- жұрнағының айтылуы: а) дауысты немесе ұян дауыссыздан кейін - [d] : played, opened, entered ; б) қатаң дауыссыздан кейін - [t] : worked, washed, dressed; в) t немесе d – дан кейін - [id] : wanted, decided. Бұрыс етістіктердің арнайы әр оқылықтың соңында кестесі бар.			

Exercise 3. Change the following verbs to the past tense.

1. I walk through the playground every day.
2. She is a good programming specialist.
3. We drink coffee with all our meals.
4. Eric needs a new coat.
5. We are good friends.
6. The Browns have a new car.
7. Anna and I study in the same class.
8. You speak English fluently.
9. His father watches news at dinner.
10. Karina buys all her clothes in an online store.
11. They learn new terminology.
12. The teacher asks us many questions.

Exercise 4. Change to the question form or negative form. Use the contracted forms.

1. Professor spoke to me about it yesterday. (Negative)
2. He waited for us at the entrance. (Question)
3. I texted Akyl last Monday. (Negative)
4. The car stopped on this corner. (Question)
5. We had dinner with the Smith family last night. (Negative)
6. Children preferred to go camping. (Negative)
7. Asel bought tickets to Rome. (Negative)

8. She read about the accident in the newspaper. (Question)
9. It rained very hard last evening. (Negative)
10. He arrived late for the date. (Question)
11. I.M released his last album in March. (Question)
12. You returned the book to the library. (Question)

Future Indefinite Tense

Шақ	**Қолданылуы**	**Мысал**	**Қосымша**
Future Indefinite Tense (жалпы келер шақ)	Сөйлеу кезінен кейін болатын істі, қимылды білдіретін етістік формасы. Future Indefinite Tense қазақ тіліндегі ауыспалы келер шақтың мағынасын береді деуге болады.	He will come to Almaty next week.	You will work. He She -will work It Shall I work? Will you work? he Will she work? it I shall (shan`t) work You will not (won`t)work
Future Indefinite шағы shall (жекеше) және will (көпше түрінің I жағы үшін және басқа жақтар үшін) көмекші етістіктер арқылы жасалады. Бұл көмекші етістіктер жіктелетін тұйық етістіктің (to демеулігінсіз) алдында тұрады, мысалы: I shall be busy tomorrow. Ертең мен бос боламын.			

Exercise 5. Change to the future tense. Write the complete verb "will" and "won't".
Model: He studies in this class. He will study.
1. Sarah works in the office in Berlin.
2. I speak Korean and English well.
3.The train doesn't leave at ten o'clock.
4. She walks in the park.
5. Students eat all their meals in the cafeteria.
6. They don't have tutoring lessons at school.
7. He brings his friends to the party.
8. It opens easily.
9. He doesn't prepare for the exams in the library.
10. My nephew doesn't play the guitar well.

11. We carry all the small packages.
12. You are good at mathematics.

Exercise 6. Change to the question form. Write the complete verb and subject in the blanks. Model: He will return next week. Will he return?

1. My sister will write a detective novel.
2. The Browns will leave for New York on Tuesday.
3. My parents will be out of town all week.
4. Jessica will study at Harvard University.
5. We will move our lesson to another day.
6. I will pay $500 for shoes.
7. Erlan will be here in two hours.
8. There will be many students absent next lesson.
9. He will call her immediately.
10. You will speak English well some day.
11.The lesson will begin at ten o'clock.
12. It will snow next weekend.

Modal verbs. (Модаль етістіктер).

Can, may, must тікелей іе-әрекеттің өзін білдірмей, тұйық рай Формасындағы келесі негізгі етістік арқылы берілген іс-әрекеттің болу мүмкіндігін, қажеттігін білдіреді		
Can	модаль етістігі белгілі бір іс-әрекетке қабілеттілікті, шама келуді білдіреді	I can do it today.
May	модаль етістігі әлде бір іс-әрекеттің рұқсат етілуін білдіреді	May I come in ?
Must	модаль етістігі белгілі бір іс-әрекеттің керектігін, міндеттілігін білдіреді	You must read this book.

Модальді етістіктерінің тұйық рай формасы жоқ. Олардан кейін келетін тұйық райдағы негізгі етістік to демеулігінсіз қолданылады. Жіктеу кезінде модаль етістіктерінің жіктік жолғаулары болмайды.		
Affirmative	Negative	Interrogative
Болымды сөйлемде модальді етістіктер есімдіктен кейін жазылады	Болымсыз сөйлемде not демеулігі модальді етістіктерден кейін келеді.	Сұраулы сөйлемдерде модальді етістіктері бастауыштық алдынан келеді.
I can translate this. You must know programming. They may take this computer.	I can not translate this. You must not know programming. They may not take this computer.	Can I translate this? Must you know programming? May they take this computer?

Exercise 7. Translate into Kazakh.

1) He can knit the sweater.
2) You can answer these questions. They are very easy.
3) This computer is too expensive for me. I can't afford it.
4) She can create websites and apps for Android. She hopes she can find the job she is looking for.
5) Can Din go to have lunch with me? –He can’t, he is busy.
6) May I invite Guzel to the meeting?
7) Johnny must stop smoking! If he doesn’t, he is going to have serious problems with his health.
8) If you have finished your work, you may go.
9) Don`t worry! This is not urgent. - Not urgent! You must be joking!
10) Don`t walk alone at night: you may get robbed.
11) May Lily go to the ice cream shop with Mike?
12) We must not argue with the boss.

Exercise 8. Complete the sentences. Use the modal verbs *can, may or must*.

1) You … not eat in the library.
2) … my friend borrow your notes? – I am afraid not: I need them.
3) We don’t have much time: we … go.
4) … she speak Kazakh? – No, unfortunately she … .
5) Kurulai … still live in Chicago.
6) Only a person who knows this subject very well … answer these questions.
7) Kara and Nate are busy. They … be editing the video about their travels.

8) She … not come to the university today. She is sick.
9) What time is it? – It … be about eight o`clock, but I am not sure.
10) My father … miss the dinner. He has to write a paper.
11) We … fight for our rights.
12) No other actor … play this role so emotionally.

Зат есімнің жасалу жолдары (жұрнақтар)

Ағылшын тілінде сөзжасамның бірнеше түрі бар.

Ешқандай өзгеріссіз жасалатын сөздер. Олар айтылуында да, жазылуында да зат есім және етістік, сын есім және етістік бола алады.	
Мысалы	answer - жауап, to answer - жауап беру, dirty - кір, лас, to dirty – кірлету, free - бос, to free - босату, walk - серуен, to walk - серуендеу.
Екпіннің өзгеруінің көмегімен жасалатын сөзжасамдар	
Мысалы	‘transport - көлік, to transport - тасу, ‘import - импорт, to import – импорттау
Әріптің өзгеруінің көмегімен жасалатын сөздер	
Мысалы	woman – women, advice – advise, proof – prove.
Жұрнақтар мен префикстердің көмегімен жасалатын сөздер. Префикстер сөздің басында, ал суффикстер сөздің соңында келеді. Суффикстер бір сөз табынан екінші сөз табын жасай алады.	
Мысалы	Зат есімнің бірнеше жұрнақтары бар. – ability, - ibility: possibility, - age: passage, - al: arrival, -ance, - ence: importance, difference, - dom: freedom, - ee, -er, -or: teacher, doctor, - hood: childhood, - ian: historian, - ion, - ation, - tion, - sion, - ssion: collection, production, submission, - ism: tourism, - ist: artist, terrorist, - ment: agreement, government, - ness: oldness, darkness, - our: colour, - ship: friendship, - th: depth, - ty: safety, -ure, ture: creature, departure, mixture.

Ағылшын тілінде зат есім сияқты сын есімнен зат есім тудыратын жұрнақтар бар.			
сын есім жұрнақтары - ance, - ence, -ant, - ent, important - маңызды, importance маңыздылық, - dom, wise – данышпан , wisdom - даналық, - ness, dark - қараңғы, darkness,- қараңғылық - ty, active - белсенді, белсенділік – activity.			
Префикстер			
dis- sub- mis- co- counter- re- auto- vise-	disable subway misbehaviour coauthor counterstrike rewrite autobiography vicerector		
Суффикстер арқылы			
Түбір зат есімнен		**Түбір сын есімнен**	
-er -ess -hood -ship - (e)ry -let -ette -itte -(i)an -ese -ist -ism -ful -less -ish -al -ous	Londoner waitress childhood friendship Chemistry Booklet Kitchenette Muscovite Russian Japanese violinist heroism useful helpless foolish dangerous musical	-ness -ty -dom	happiness property freedom
		Түбір етістіктен	
		-er(or) -ant(ent) - (a)tion - ing -ment -al -able -y -ive	worker, actor assistant organization building movement refusal readable sleepy attractive
Бірігу арқылы		**Конверсия** **(сөз табының өзгеруі)**	

Зат е.+зат е. Сын е.+зат е Үстеу+зат е. Етістік+зат е. Зат е.+етістік	Rainbow Blackboard Afternoon Knitwear Handshake	to doubt to love comic Rich	doubt love (a) comic (the)rich

Exercise 9. Make as many words as possible by adding prefixes and suffixes. Translate the resulting words into Kazakh.

Example: help-helpful, helpless, helpfulness, unhelpful, helplessness

Түбір сөз	**suffixes**	**prefixes**
possible thought	-ful	un-
stress popular	-ity	mis-
understand hope	-ness	im-
success taste	-ment	in-
conscious use	-able	dis-
care like		

Exercise 10. Choose the right variant.

1. We have some _____agreement about what happened yesterday.
   A. dis
   B. mis
   C. un
2. My sister`s _____-husband is filing a divorce.

A. pre
B. ex
C. post

3. They were very _____satisfied with the service at the hotel.

A. un
B. mis
C. dis

4. The quality of the program was very poor so it had to be ____done.

A. pre
B. un
C. re

5. We are trying to increase aware_____ about climate change issues.

A. ment
B. ness
C. ing

6. Minshuk couldn't hide his disappoint_____when he lost the competition.

A. ness
B. ment
C. y

7. I will never tolerate rude_____ .

A. ness
B. ment
C. ence

8. Arai is studying to become a psycholog_____ .

A. er
B. y
C. ist

9. She was an effective politic_____ .

A. ist
B. ian
C. er

10. Music and art classes aim to develop children's creativ_____ .

A. ment

B. ship
C. ity

11. Diana can't accept critic_____about her new book.

A. al
B. ism
C. ing

12. To _____order the album, you should visit our website.

A. re
B. pre
C. de

Exercise 11. Make a noun from the given words.

1. educate
2. discuss
3. dark
4. televise
5. administer
6. manage
7. similar
8. careless
9. improve
10. happy
11. elect
12. govern

Есімше (Participle I, II)

Есімше (көсемше) – етістік пен сын есімнің өзіндік ерекшеліктерін үйлестіретін етістіктің жақсыз түрі. Ағылшын тілінде есімшенің екі түрі бар		
Participle I (осы шақ есімше)	Participle I тұлғасындағы етістіктер тұйық етістікке –ing жалғауын жалғау арқылы жасалады.	Осы шақ есімшесі (Present participle) қазақ тілінде көсемше жұрнағы арқылы жасалады.

		-ып,-іп,-п жұрнағы арқылы жасалады. ***Компьютер ойнап отырған бала менің балам.***
Participle II (өткен шақ есімше)	Participle II зат есімнің белгілі бір қимылға қатысты белгісін білдіреді. Participle II түрі әртүрлі жолмен жасалады көбінесе негізгі етістікке -en,-n жалғауын жалғау арқылы және түбір дауыстының мүлдем өзгеруі арқылы жасалады. Ал дұрыс етістіктер негізгі етістікке -d, -ed жалғауын жалғау арқылы жасалады	Есімше II немесе өткен шақ есімшесі (Past participle) . Өткен шақ есімшесі –қан,-кен,-ған,-ген жұрнақтары арқылы өйткен есімшесі жасалады. ***Үстелдің үстінде сынған телефон болды.***
Қосымша: Есімше сөйлемде анықтауыш, баяндауыш, пысықтауыш және толықтауыштың қызметін атқарады.		

Exercise 11. Fill in the correct participle form. (Present Participle, Past Participle or Perfect Participle)

1. She was sitting on a couch reading a magazine.
2. Having worked in the company for many years, he knew everyone and everything.
3. The cup filled with milk stood on the table.
4. Not having seen each other for ages, they had a lot to talk about.
5. Born into a rich family, she got everything she wished for.
6. Being the child of poor people, he often went to bed hungry.
7. Regretting his words, he apologised.
8. Well done, we are very proud of you.
9. Having parked the car, he went to a restaurant.
10. Having watched the film a dozen times, she knew the dialogues by heart.

Exercise 12. Translate the sentences into Kazakh.

1. A letter sent from London today will be in Almaty tomorrow.
2. Some of the questions put to the lecturer yesterday were very important.
3. The girl putting the book on the shelf is the new librarian.
4. Having taken a dictionary, he began to translate the text.
5. A line seen though this crystal looks double.

6. A teacher seeing a mistake in a student's essay always corrects it.
7. The word said by the student was not correct.
8. The man standing at the door and saying goodbye to his friends is a well-known scientist.
9. A word spoken in time may have important results.
10. The student speaking good English must help their classmates.
11. The speaking doll interested the child very much.
12. While speaking to Almaz some days ago, I forgot to ask him about his sister.

Active Voice and Passive Voice.

Ағылшын тілінде екі етіс бар: Active Voice (ырықты етіс) және Passive Voice (ырықсыз етіс).		
Ырықты етіс	Іс-әрекеттің иесі, орындаушысы белгілі, қимыл субъект арқылы істелетінін білдіретін етіс ырықты етіс деп аталады.	They built a new house last year.
Ырықсыз етіс	Сөйлемде іс -әрекеттің атқарушысы, қимыл иесі арнайы айтылмай, қимыл өздігінен істелгендігі көрініп тұрса, ондай етіс ырықсыз етіс деп аталады. Passive Voice көмекші етістік **to be + Participle II** (өткен шақ есімшесі) арқылы жасалады.	The new house was built last year.
Ырықсыз to be көмекші етістігінің сәйкес шақ түрлерінің тұлғасы мен мағынасы етістіктің есімше II (Participle II) арқылы жасалады. Осылайша ырықсыз етісте етістікті жіктеген кезде тек to be көмекші етістігі ғана өзгереді, ал мағыналық етістіктің II есімше (Participle II) өзгеріссіз қалады. **Ырықсыз етісте келесі шақтар қолданылады:**		
Present Simple Passive Past Simple Passive Future Simple Passive Present Continuous Passive Past continuous Passive Present perfect Passive Future Perfect Passive Past Perfect Passive Future-in-the- Past Passive		am/is/ are asked was/were asked will/ shall be asked am/is/ are being asked was/were being asked have /has been asked will/shall have been asked had been asked should /would be asked

Сұраулы сөйлемде бірінші көмекші етістік бастауыштың алдына қойылады.	Was the new house built last year?
Болымсыз сөйлемде бірінші көмекші етістіктен кейін not демеулігі қойылады.	The house wasn't built in a day.
Егер сөйлемге іс -әрекетті жасаған тұлғаны қосатын болсақ, ол сөйлемге by көмекші сөзі арқылы енгізіледі, ал бір зат арқылы жасалатын болса with көмекші сөзін қолданамыз.	The new house was being built by the construction company.
Ырықсыз етіс модальды етістіктерменде қолданылады, сөйлемде көмекші to be (to демеулігісіз) және өткен шақтағы есімше модальды етістіктерден кейін жұмсалады.	Some information can be given about the job by the constructor.

13. Change Active sentences to Passive

1. My students showed me some holiday pictures.
2. Someone will build a new house here.
3. Aiman tapped him on the hand with her pen.
4. They delivered more parcels because people bought more goods in e-shops.
5. They spend a lot of money on food.
6. My son decorated this room yesterday.
7. Don't enter the room. They are decorating the walls.
8. The teacher is going to tell them an interesting story.
9. They will buy a new computer soon.
10. I'm afraid I can`t wash the dress in hot water.
11. I think they make these cars in Japan.
12. You must not drop litter in the street in Almaty or you'll get a fine.

14. Fill in the correct passive form of the verb.

1. The postbox (empty) every day.
2. The stamps (postmark) at the post office.
3. The letters (sort) into the different towns.
4. The mail (load) into the train.
5. The letters (deliver).
6. Romeo and Juliet (write) by Shakespeare.
7. The books (not publish) yet.

8. As soon as I got home, I realized that my wallet (steal).
9. The building (be) torn down when we got there.
10. Progress in many fields of science (make) in the last decade.

Check your partner
Quiz-game "Do you know more about computers"?
Divide into two groups group A and group B and give answers to the following questions.

1. What are the main functional units of digital computers?
2. What types of storage do you know?
3. What is a binary number system?
4. What is storage media?
5. How is storage capacity measured (in what units)?
6. What do you know of electronic memories?
7. What can you say about electromechanical memories?
8. How do you understand the term "access time"?
10. What storage devices do you know?
II. What is the function of the CPU?
12. What two functional units does the CPU consist of?
13. What components does the control unit include?
14. What devices have the arithmetic-logical unit?
15. What is the ALU function?
16. What is the function of CU?
17. What is the heart (brain) of a microprocessor?
18. What is the purpose of input devices?
19. How do you understand the term "input-output environment"?
20. What groups can I/O devices be classified according to their speed?
21. What devices are used for inputting information?
22. What is a touch pad?
23. What is a scanner used for?
24. What types of printers do you know?
25. When did the first personal computer appear?
26. What differs PCs from large computer systems?
27. What is a personal computer?
28. What professions are in great need of computers?
29. What is modem and what is it used for?
30. What is programming?
31. What is a program?
32. What techniques for planning the program logic do you know?
33. What do you understand by pseudocode?
34. What is a code?

35. What is the foundation of any programming language?
36. What programming languages do you know?

Keys to the grammar exercises

Lesson 3 1. Look at the phrases and try to guess their meaning.

1. ***to pin down*** force someone to be specific and make their intentions clear
2. ***career streams*** a model of career development for employees
3. ***scope out*** to look at (someone or something) especially in order to get information
4. ***by testing*** ***r***evealing a person's capabilities by putting them under strain; challenging.
5. ***to budget*** *an estimate of income and expenditure for a set period of time.*
6. *carry out* *perform a task*

Lesson 4. Read the sentences and give T (true), F (false) answers.

1. Computers are designed to do just one job. F
2. Programming is a special skill whose quality is tested by the quality of the resulting program or software. T
3. Microsoft Word is an image editing program that allows you to work with graphic images. F
4. Programming involves tasks such as: analysis, generating algorithms, profiling algorithms' accuracy etc. T
5. Computer programming is a boring and not rewarding career. F
6. Software is essential to a computer because it controls everything the computer does. T
7. The programs are lists of instructions that will be followed by the control unit of the central processing unit. T

8. Computers can manipulate formulae, equations and calculations. F

Lesson 5. Complete the sentences with prepositions.

1. They should be aware of the potential of computers **to influence** the quality of life.
2. The precise definition of “computer literacy” can vary from group to group.
3. Computer literacy is considered a very important skill to possess.
4. Another common definition of computer literacy is the knowledge and skills required for basic use of computer hardware, software and the Internet.
5. They bring with them both economic and social changes. "Computing" is a concept that embraces not only the old third R, arithmetic's, but also a new idea — computer literacy.
6. In an information society a person who is computer-literate need not be an expert on the design of computers.
7. When you check out at the counter of your store, a computer assists the checkout clerk and the store manager.
8. All of us are already on the way to becoming computer-literate.
9. If you are computer literate, you understand the capabilities and limitations of computers and know how to use them wisely.
10. Use computers in your career, and understand the many ethical, legal, and societal implications of technology today.

Text 15. 1. T, 2. F, 3. F, 4. F, 5. F, 6. F, 7 T, 8. F, 9. F, 10. F.

Exercise 1. 1. study 2. studies 3. go 4. goes 5. carry 6. carries 7. plays 8. play 9. does 10. do
11. try 12. want

Exercise 2. 1. Does Mia come home by bus? 2. I do not (don’t) get up at nine o’clock every morning. 3. My family does not (doesn’t) like Beshbarmak. 4. Does he study Python online? 5. Teachers in Kazakhstan do not (don’t) have more than five classes. 6. Do the students want more time to finish the test? 7. Alex does not (doesn’t) talk to us in Spanish. 8. Do they live near Almaty? 9. Does your father work as an engineer? 10. She does not (doesn’t) want a new phone. 11.We do not (don’t) know her very well. 12. Do you talk to your parents every day?

Exercise 3. 1. walked 2. was 3. drank 4. needed 5. were 6. had 7. studied 8. spoke 9. watched 10. bought 11. learned 12. asked

Exercise 4. 1. Professor didn’t speak to me about it yesterday. 2. Did he wait for us at the entrance? 3. I didn’t text Akyl last Monday. 4. Did the car stop on this corner? 5. We didn’t have dinner with the Smith family last night. 6. Children

didn't prefer to go camping. 7. Asel didn't buy tickets to Rome. 8. Did she read about the accident in the newspaper? 9. It didn't rain very hard last evening. 10. Did he arrive late for the date? 11. Did I.M release his last album in March? 12. Did you return the book to the library?

Exercise 5. 1.will work 2. will speak 3. won't leave 4. will walk 5. will eat 6. won't have
7. will bring 8. will open 9. won't prepare 10. won't play 11. will carry 12. won't be

Exercise 6. 1. Will my sister write a detective novel? 2. Will the Browns leave for New York on Tuesday? 3. Will my parents be out of town all week? 4. Will Jessica study at Harvard University? 5. Will we move our lesson to another day? 6. Will I pay $500 for shoes? 7. Will Erlan be here in two hours? 8. Will there be many students absent next lesson? 9. Will he call her immediately? 10. Will you speak English well some day? 11.Will the lesson begin at ten o'clock? 12. Will it snow next weekend?

Exercise 9.

1. impossible, possibility, impossibility
2. stressful , distress , distressful
3. thoughtful , thoughtfulness, thoughtless, thoughtlessness
4. disuse, useful, misuse, useless, uselessness
5. dislike, likeness, unlikeness, unlike
6. tasteless, tasteful, tastefulness, distaste, distasteful
7. misunderstand, understandable, understandability
8. hopeless, hopeful, hopelessness, hopefulness
9. careless, careful, carelessness, carefulness
10. successful , unsuccessful
11. consciousness, unconscious, unconsciousness
12. popularity, unpopular, unpopularity

Exercise 10. 1A 2. B 3. C 4. C 5. B 6. B 7. A 8. C 9. B 10. C 11. B 12. B

Exercise 11. 1. education 2. discussion 3. darkness 4. television 5. administration 6. management 7. similarity 8. carelessness 9. improvement 10. happiness 11. election 12. government

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