

## **ТЕКСТЫ ДЛЯ САМОСТОЯТЕЛЬНОГО ПЕРЕВОДА**

**16 – 20**

1. Прочитайте и переведите тексты 16 – 20.

2. Тексты следует переводить устно со словарем. Во время перевода выписывайте незнакомые слова по образцу в виде краткого словаря. Словарь составляйте в рабочей тетради.

3. Данные тексты Вы будете сдавать устно во время практических занятий. При сдаче каждого текста требуется прочитать и перевести один из абзацев, указанный преподавателем. Перевод текста выполняется устно с использованием составленного словаря.

## **TEXT 16. THE DEFINITION OF A COMPUTER**

[1] The term "computer" literary means any automatic device capable of performing calculations without human intervention. In actual practice a computer is used as a part of a system involving other machines, programs, human beings, and procedures. The operations performed by a computer are called data processing, or computing. An electronic computer is a machine that can perform mathematical work and can store and select information that has been fed into it. Such a machine can do a great amount of complicated work in a phenomenally short time.

[2] A computer, for example, can add or subtract hundreds of thousands times a second, multiply thousands times a second, divide hundreds times a second. Specialists have estimated that in making arithmetical calculations man makes one mistake per 200 digits. Electronic computers make one mistake in millions of digits. Electronic circuits work thousands times more rapidly than nerve cells in the human brain. A problem that might take the human brain two years to solve can be solved by a computer in one minute.

[3] The heart of the electronic computer lies in its large-scale integrated circuits or chips. A computer must be given certain instructions to work properly. This process is called "programming". Computers can be designed for specialized purposes, such as directing manufacture of tools and parts, guiding airplane flights, solving mathematical problems, keeping bank accounts, even playing chess.

[4] Many types of scientific work have been greatly speeded up by the use of computers. If there were no computers to make the necessary mathematical calculations, it would have taken years to complete some scientific research work. A good example of this is the study of fusion process which progresses much more rapidly than expected thanks to specially designed computers. Computers have made weather forecast more accurate by quick analysis of complex data of temperature, humidity, air pressure, winds and rainfall.

## **TEXT 17. TYPES OF COMPUTERS**

[1] Computers can be classified according to some aspects. First of all, they may generally be divided into special-purpose machines and general-purpose machines. Special-purpose computers are able to perform only a certain number of functions. They are usually highly efficient and faster than general-purpose computers but more restricted in their application. The general-purpose computer is capable of carrying out a wide variety of instructions. Programmers use their expertise and ingenuity to employ the instructions in any way that they choose.

[2] The second way of classifying computers is the following. There are two classes of electronic computers: analog, which are faster but less accurate, and digital, which are slower but more exact. In analog computers numbers are represented by physical quantities. These numbers are the measures of those quantities. Analog machines are specialized for solving particular problems, such as solution of differential equations. On the other hand, digital computers work directly with numbers in digital form. They count numbers ("digit" means a symbol for a number). They can perform the operations of arithmetics: addition, subtraction, multiplication and division.

[3] Analog computers are widely used for the investigation of mechanical processes in the system of automatic regulation. They are designed to accept physical forces such as electrical voltage, weights, pressures, speeds of rotation, or temperature, and record them along a scale. Digital machines have a wider application. They can be used in any process connected with counting or what is known as "logical analysis", such as sorting out, sifting, and comparing information. The instructions - translated into mathematical terms - must be fed into the machine.

[4] A third way of classifying computers is by capacity. Medium and large-scale computers are usually called mainframes. Next in size are business minicomputers. Smallest of all are the microcomputers, often called personal computers.

## **TEXT 18. THE STRUCTURE OF A COMPUTER**

[1] The earliest computers were huge electronic devices filling a complete room. They were frequently referred to as "giant brains". Modern computers through improved technology occupy only a small fraction of the space required for earlier machines. The complete electronic circuitry that is required to perform all the functions of a computer can be contained on a small electronic chip, called microprocessor, no larger than a human fingernail.

[2] An electronic computer forms a large complicated device. Generally it consists of several thousands or more circuits connected together. The failure of any one part puts the machine out of operation. Computers are used successfully in research and industrial work due to their exactness and speed in calculation. All the electronic computers, both digital and analog machines, consist of five main parts. The first part is an arithmetic unit which can perform the arithmetic operations at a very high speed.

[3] The second part is the memory which holds the numbers forming the initial data. The memory unit is divided into a number of registers each of which holds one number. These numbers are of standard length, usually from 9 to 12 decimals. The third part of a computer is the control unit that takes the coded instructions in the correct sequence. Inside the computer the numbers and instructions are stored as electronic pulses. A problem must be fed into the machine, however, in a form in which it can readily be prepared by human operators.

[4] The fourth part of a computer is the unit which does the feeding. This unit is called the input. Usually the input consists of a reader, which converts information that is stored either on hard, or on laser discs into a pulse form. Both the data and the coded numerical instructions are fed into the machine by means of this unit. The fifth part of a computer is an output unit by means of which final answers are produced. The most common forms of output in the past were punched cards, films, floppy discs and printed material. Nowadays these are compact discs and flash drives.

## **TEXT 19. COMPUTER APPLICATION**

[1] There are different kinds of computers and they are applied differently in various branches of human life. All computers are used largely in research and industrial work thanks to their accuracy and calculation speed. Some do only one job ever and ever again. These are special-purpose computers. One such computer automatically controls the movements of anti-aircraft cannon. It was built for this purpose alone, and cannot do anything else.

[2] But there are some computers that can perform many different jobs. They are called general-purpose computers. These are the "big brains" that solve the most difficult problems of science. They answer the questions about rockets and planes, bridges and ships long before these things are even built. Today there are computers small enough to carry in one's pocket or about the size of a typewriter. These new computers are called personal computers. We use them in our everyday life.

[3] Computers help space programmes, armed forces, business and industry, sports and medicine, art and education. Computers are the most efficient servants man has ever had and there is no limit for their application in improving men's lives and saving time for leisure. Computers are capable of doing extremely complicated work in all branches of learning. They can solve the most complicated mathematical problems or put thousands of unrelated facts in order. As computers work accurately and at high speeds, they save research workers years of hard work.

[4] Electronic computers have become very useful at routine clerical work in offices and factories. You can find computers on every desk in the modern office. We cannot overestimate their role in performing monotonous and dull work of typing and retyping different documents and letters. The computer is a universal information processing machine. The installation of computers in certain organizations has already greatly increased their efficiency. Computers are million times faster than humans in performing computing operations.

## **TEXT 20. MACHINE LANGUAGE OF A COMPUTER**

[1] A machine language is the natural instruction set of a computer which bears little resemblance to the algebraic form in which mathematical expressions are normally written. This language makes the operation of the computer possible. It is known as the binary number system and was originally used to represent and handle numbers only. Nowadays it is used to handle letters and symbols as well. Binary system uses only two symbols, 1 and 0, rather than the ten decimal numbers (0-9), and the twenty-six letters of the alphabet we normally use.

[2] The decimal numbers are compared with the corresponding binary symbols. The symbol 1 in the binary system can be used to represent one, two, four, eight, or sixteen depending on its position or place in a special chart. The binary system is not so practical for ordinary numerical problems as the decimal system because more digits are required to express numbers. But this system suits modern computers because some of them can store millions decimal digits and operate with a lightning speed.

[3] The basic unit of information with which digital computers operate is the bit. For many purposes, however it is better not to be specific about how the information is coded into bits. A byte is between 6 and 10 bits and corresponds to a storage unit necessary to contain the binary code. The store also contains a numerical quantities and data which are to be processed. It also has a program or list of instructions or commands which are to be performed.

[4] It is the machine language that greatly helps the arithmetic unit normally perform the operation of addition, subtraction, multiplication and division and certain other special operations. The input and output devices are to supply information and to obtain it from the computer. These devices play a significant part in making the capacity of a computer effective. In converting information from one form to another these units employ the machine language.