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Федеральное государственное бюджетное образовательное учреждение  
высшего образования**

**МОСКОВСКИЙ ГОСУДАРСТВЕННЫЙ УНИВЕРСИТЕТ  
ГЕОДЕЗИИ И КАРТОГРАФИИ**

## **УЧЕБНО-МЕТОДИЧЕСКИЙ КОМПЛЕКС**

**для студентов факультета прикладной космонавтики и фотограмметрии,  
направление подготовки «ИНФОРМАЦИОННЫЕ СИСТЕМЫ И ТЕХНОЛОГИИ»**

# **МЕТОДИЧЕСКОЕ ПОСОБИЕ ПО АНГЛИЙСКОМУ ЯЗЫКУ**

## **I**

**для студентов 2-го семестра**

**Москва  
2019**

Данное пособие предназначено для студентов бакалавриата 1-го курса (2-го семестра) факультета прикладной космонавтики и фотограмметрии, обучающихся по направлению подготовки «информационные системы и технологии».

Основная цель пособия – способствовать развитию профессиональных компетенций через углубленное развитие компетенции чтения и понимания информации, получаемой из оригинальной литературы по специальности, а также развитию компетенции профессионального перевода в сфере информационных систем и технологий через совершенствование навыков владения устной речью и способности использовать профессионально-ориентированную риторику.

Предложенная система предтекстовых и послетекстовых упражнений иллюстрируемого материала способствует интенсивному и углубленному пониманию содержания и активному усвоению текстового материала.

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# Текст 1

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## 1. Ознакомьтесь с терминами текста

calculating device — вычислительное устройство  
multiple — кратный  
abacus — счеты  
slide rule — логарифмическая линейка  
logarithm table — логарифмическая таблица  
calculus — исчисление; математический анализ  
general-purpose — общего назначения, универсальный  
to cut out the human being altogether — полностью исключить человека  
to manipulate — обрабатывать, преобразовывать; управлять  
data processing — обработка данных (информации)  
tabulate the census - занести данные по переписи (населения) в таблицу  
means of coding — средства кодирования (шифровки)  
to punch the holes — пробивать отверстия  
punched card — перфокарта  
to perform — выполнять, производить (действие); осуществлять;  
unit of data — единица информации  
keyboard terminals — терминал (вывод) с клавишным управлением  
proliferation — размножение, быстрое увеличение

## 2. Найдите в тексте ответы на следующие вопросы:

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 invent?
10. How were those electromechanical machines called and why?
11. What kind of computers appeared later?

### 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 into the 16<sup>th</sup> 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 17<sup>th</sup> and 18<sup>th</sup> 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 both by Isaak Newton, an Englishman, and G. Leibnitz, a German mathematician. The first real *calculating machine* appeared in 1820 as the result of several people's experiments.

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 twentieth 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 H. 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 twentieth 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.

**3. Найдите в тексте следующие словосочетания; используйте их для пересказа текста:**

This is why; to count in tens; to go on using; to find easy ways of calculating; the way of

multiplying and dividing; slide rule; logarithm tables; branch of mathematics; to invent independently; a gifted mathematician; a general-purpose problem-solving machine; human being; to provide; to solve the problem; data processing; to tabulate the census successfully; a means of coding; by punching holes into cards; to manipulate punch card data; unit record machines; to perform calculations; for scientific purposes/computations; to accept input data; to replace by keyboard terminals; proliferation of computers.

## Текст 2

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### 1. Ознакомьтесь с терминами текста

analog computer — аналоговый компьютер  
digital computer — цифровой компьютер  
to aim guns — наводить орудия на цель  
to figure out — вычислять  
at a fast rate — с высокой скоростью  
memory/storage — запоминающее устройство  
to store data and instructions — запоминать информацию и команды  
stored program computer — компьютер с занесенной в память программой  
binary code — двоичный код  
condition — режим, состояние, условие  
vacuum tube — электронная (вакуумная) трубка (лампа)  
to amplify — усиливать  
to simulate — моделировать; имитировать  
voltage — напряжение  
pressure — давление, сжатие  
hybrid computer -смешанного типа, аналого-цифровой компьютер  
discrete — дискретный; отдельный  
continuous quantity — непрерывная величина  
on-going process — продолжающийся, постоянный, непрерывный процесс  
to rely — основываться на ч.-л.; полагаться  
to install — устанавливать; размещать; монтировать; настраивать  
household appliances — домашние приборы/устройства  
microwave oven — микроволновая печь  
indoor climate control system — система регуляции температуры в доме

### 2. Найдите в текстах ответы на следующие вопросы:

- I
1. When was the first analog computer built?
  2. Where and how was that computer used?
  3. When did the first digital computer appear and who was its inventor?
  4. What is ENIAC? Decode the word.
  5. What was J. Neumann's contribution into the development of computers?
  6. What were the advantages of EDVAC in comparison with ENIAC?
- II
1. What types of computers do you know?

2. What is the principle of operation of analog computers?
3. How do digital computers differ from analog computers?
4. Where are digital and analog computers used?
5. What are hybrid computers?
6. Where do they find application?
7. What functions do all computer systems perform?

## I. THE FIRST COMPUTERS

In 1930 the first **analog** computer was built by American named V. 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 of the first digital computer, was invented by H. Aiken in 1944. 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).



J. Eckert and J. Maushly

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 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.

## II. TYPES OF COMPUTERS

There are three basic types of computers: analog, digital, and hybrid.

**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 house-cleaning. Analog sensors will provide inputs to the control centers of these systems, which will be small digital computers.

All computer systems perform the functions of inputting, storing, processing, controlling and outputting the information.

**3. Найдите в текстах следующие словосочетания; используйте их для пересказа текстов:**

I. Technical developments; to take place; to figure out mathematical problems; at a very fast rate; the Electronic Numerical Integrator and Calculator; important achievement in developing computers; to keep instructions in memory; a particularly significant achievement; as contrasted with; to store data; the Electronic Discrete Variable Computer; a binary code; to simplify the design; as well as; to make possible; to control and amplify electronic signals; instead of.

II. To simulate on-going processes; to represent physical quantities; speed; pressure; voltage; measurement; to vary continuously; to require; to deal with; discrete quantities; to combine capabilities; computer applications; to increase with the growth; to install systems; household appliances; sewing machines; indoor climate control systems; to do house-cleaning; to provide inputs; to perform inputting, storing, processing, controlling and outputting.

## Текст 3

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1. Прочитайте внимательно текст составьте реферат на английском языке. Для составления реферата используйте следующие клише:

*The text/article under review... (gives us a sort of information about...)*

*The article deals with the problem ...*

*The subject of the text is...*

*At the beginning the author describes... (dwells on ...; explains ...; touches upon ...; analyses ...; comments ...; characterizes ...; underlines ...; reveals ...; gives account of...).*

*The article begins with the description of..., a review of..., the analysis of....*

*The article opens with...*

*Then (after that, further on, next) the author passes on to..., gives a detailed (thorough) analysis (description), goes on to say that....*

*To finish with, the author describes....*

*At the end of the article the author draws the conclusion that...; the author sums it all up (by saying...*

*In conclusion the author...*

### FIVE GENERATIONS OF COMPUTERS

The computer age began with ENIAC, the first general purpose electronic digital computer developed by J. Mauchly and J. Eckert in 1947. It used decimal numbering system.

**The first generation computers** were based on **vacuum tubes** and could calculate data in millisecond. Vacuum tubes were the only electronic component available during those days. The computers were very large in size and consumed a large amount of energy. They were not very reliable, had low speed. They required air conditioning and constant maintenance. The computers used punch cards for input.

**The second-generation computers** used **transistors**. The scientists at Bell laboratories developed transistor in 1947. These computers were smaller in size, they used less energy and were not heated. They had better speed and could calculate data in microseconds. These computers used Assembly language instead of machine language. Their accuracy improved but they also required constant maintenance and used punch cards for input. They were used only for specific purpose.

**The third generation computers** used the **integrated circuits**. Jack Kilby developed the concept of integrated circuit in 1958 and in 1961 the first IC was invented and used. The size of an IC was about 1/4 square inch. A single IC chip contains thousands of transistors. The computer became smaller in size, faster, more reliable and less expensive. UNIVAC was the example of the third generation computers.

**The fourth generation computers** started with the invention of **Microprocessor**. The Micro-



processor contained thousands of ICs. Ted Hoff produced the first microprocessor in 1971. The technology of integrated circuits improved rapidly. The Large and Very Large Scale Integration circuits were designed. They greatly reduced the size of computer. The size of modern Microprocessors is usually one square inch. It can contain millions of electronic circuits. The examples of fourth generation computers are Apple Macintosh & IBM PC. This computer can calculate data in nanoseconds. It doesn't require any air conditioning. All types of high level languages can be used in this type of computers.

**The fifth generation computers** are based on the technique of **Artificial Intelligence**. Computers can understand spoken words and imitate human reasoning. They can respond to its surroundings using different types of sensors. Scientists are constantly working to increase the processing power of computers. They are trying to create a computer with real IQ with the help of advanced programming and technologies. IBM Watson computer is an example. The advancement in modern technologies will revolutionize the computer in future.

## Текст 4

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1. Прочитайте текст о возникновении беспроводной связи и сформулируйте пять вопросов к нему. Задайте ваши вопросы товарищу и дайте ответы на его вопросы.

### WIRELESS COMMUNICATION



G. Marconi



N. Tesla



A. Popov

Heinrich Hertz constructed a primitive radio system capable of transmitting and receiving space waves through free space. In 1893, Nikola Tesla, in America, first demonstrated the possibility of **wireless**

**communications**. He proved that messages could be transmitted without wires. He established a system which was composed of a transmitting coil (катушка) and a receiving coil. At last, in 1895, the Russian scientist A. S. Popov demonstrated his first radio receiver.

In March 1897 G. Marconi, an Italian inventor, transmitted wireless telegraphy signals over a distance of two miles and later he established the first transatlantic radio communication between Canada and England. For this achievement he was awarded the Nobel Prize. Early uses

of communication were marine for sending telegraphic messages using Morse code between ships and land. Another use of radio was the development of detecting and locating aircraft and ships by the use of radar.

Today radio takes many forms, including wireless networks and mobile communications of all types, as well as radio broadcasting.

**2. Прочитайте отрывок о том, что понимают под термином «информационные технологии» и вместо пропусков употребите необходимые производные от слов, предложенных справа.**

Understanding Information Technology

Information technology is \_\_\_\_\_ attached with our lives today because half the efforts that we have to make in our \_\_\_\_\_ lives are now being done and completed by \_\_\_\_\_ gadgets and machines. For instance, the \_\_\_\_\_ iPhone that can allow people to use the internet any time he needs it for \_\_\_\_\_. Information technology is a term that embraces all \_\_\_\_\_ of technology used to create, store, exchange, and use \_\_\_\_\_ in its \_\_\_\_\_ forms. It is a convenient term, for including both telephony and \_\_\_\_\_ technology in the same word. The \_\_\_\_\_ pragmatic side to having information technology at hand is \_\_\_\_\_ \_\_\_\_\_ of time and a better quality of life.

- CLOSE
- DAY
- TECHNOLOGY
- INNOVATE
- ASSIST
- FORM
- INFORM, VARY
- COMPUTE,
- MANY
- LITTLE, CONSUME

## Текст 5

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**1. Ознакомьтесь с терминами текста**

Hardware — аппаратное обеспечение; аппаратура; оборудование

software — программное обеспечение; программные средства

to relate — связывать; устанавливая отношения

a broad view — широкий взгляд, обзор

unit — устройство; модуль, блок; узел; элемент; ячейка

input — ввод; устройство ввода; вводить; подавать на вход

to insert — вставлять; вносить; включать

storage = memory — память; запоминающее устройство

available — доступный; имеющийся в наличии

at the appropriate time — в нужное время

arithmetic-logical unit — арифметико-логическое устройство

output — вывод; устройство вывода; выводить; подавать на выход

to remove — удалять; устранять; вынимать; исключать

control unit — блок управления

cause — заставлять; вынуждать; быть причиной; причина; основание  
to feed (fed, fed) — подавать; питать; вводить (данные)  
to interpret — интерпретировать; истолковывать  
to issue commands — выдавать команды  
pulse — no-pulse — (есть) импульс — холостой импульс

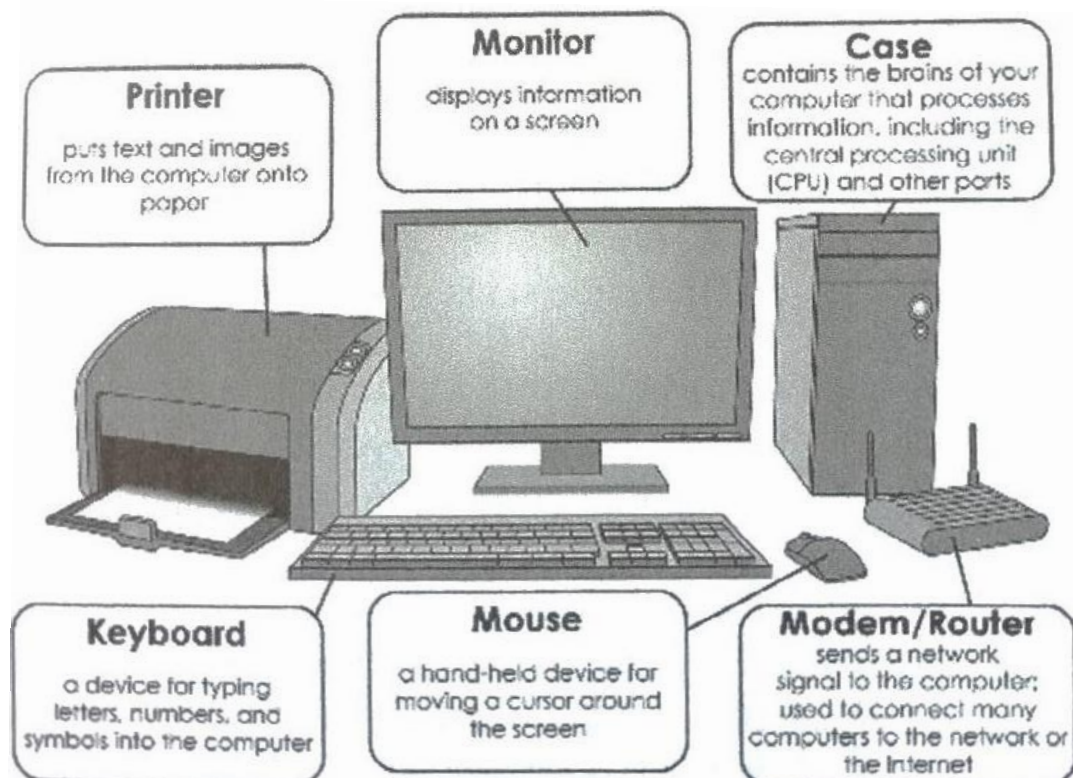
2. Прочитайте текст и назовите основные функциональные блоки компьютера и их назначение.

3. Найдите в тексте ответы на следующие вопросы:

1. What represents the functional organization of a computer?
2. What can we get by studying the functional organization?
3. What is the function of the input device?
4. What does memory serve for?
5. What is the task of the arithmetic-logical unit?
6. What is the function of the output?
7. What is the main purpose of the control unit?
8. How do all units of the computer communicate with each other?
9. What is the additional job of the input?
10. What is the additional function of the output?

### FUNCTIONAL UNITS OF DIGITAL COMPUTERS

A computer is really a system of many parts working together. The physical details, which you can see and touch, are called hardware. Software, on the other hand, refers to the instructions, or programs, that tell the hardware what to do. The illustration below shows the most common hardware in a desktop computer system.



All computer operations can be grouped into five functional categories. The method in which these five functional categories are related to one another represents the functional organization of a digital computer. By studying the functional organization, a broad view of the computer is received.

The five major functional units of a digital computer are: 1. *Input* — to insert outside information into the machine; *Storage or memory* — to store information and make it available at the appropriate time; 3. *Arithmetic-logical unit* — to perform the calculations; 4. *Output* — to remove data from the machine to the outside world and 5. *Control unit* — to cause all parts of a computer to act as a team.

Figure 5 shows how the five functional units of the computer work together. A complete set of instructions and data are usually fed through the input equipment to the memory where they are stored. Each instruction is then fed to the control unit. The control unit interprets the instructions and issues commands to the other functional units to cause operations to be performed on the data. Arithmetic operations are performed in the arithmetic-logical unit, and

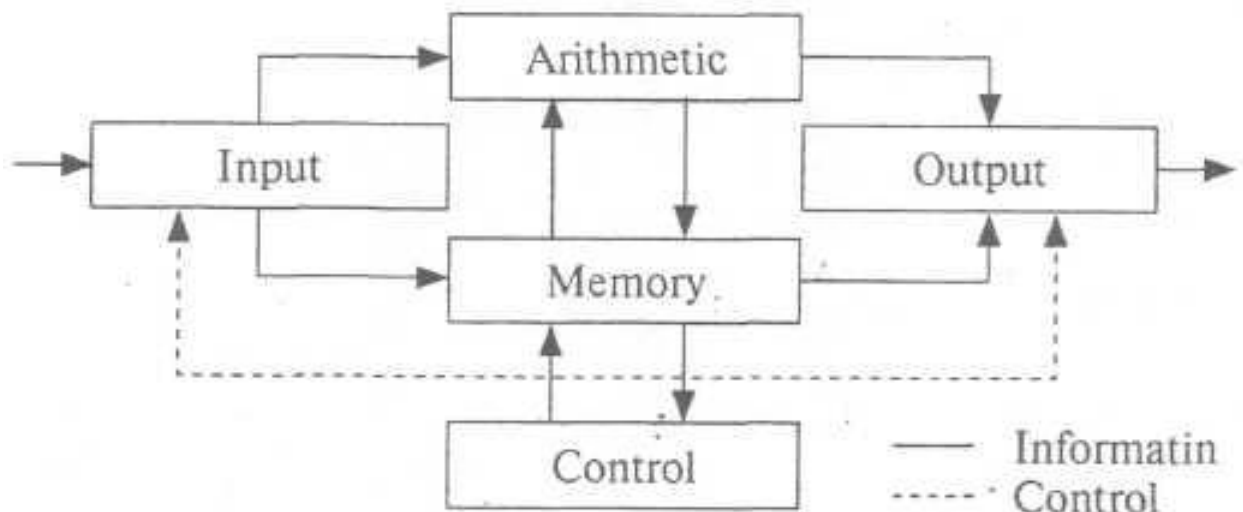


Fig. 5 Functional units of a computer

the results are then fed back to the memory. Information may be fed from either the arithmetic unit or the memory through the output equipment to the outside world.

The five units of the computer must communicate with each other. They can do this by means of a machine language which uses a code composed of combinations of electric pulses. These pulse combinations are usually represented by *zeros* and *ones*, where the *one* may be a pulse and the *zero* — a no-pulse. Numbers are communicated between one unit and another by means of these one-zero or pulse-no pulse combinations. The input has the additional job of converting the information fed in by the operator into machine language. In other words, it translates

from our language into the pulse — no-pulse combinations understandable to the computer. The output's additional job is converting the pulse — no-pulse combinations into a form understandable to us, such as a printed report.

**4. Найдите в тексте следующие словосочетания; используйте их для пересказа текста:**

To be related to one another; to represent the functional organization; to receive a broad view; input unit; storage/memory; arithmetic-logical unit; output (unit); control unit; to insert/to feed outside information; to store; to make information available; at the appropriate time; to perform the calculations; to remove data; to cause computer parts to act as a team; a set of instructions; input equipment; to issue commands; to cause; outside world; with each other; by means of; combinations of electric pulses; pulse-/no-pulse combinations; to convert.

## Текст 6

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**1. Ознакомьтесь с терминами текста**

central processing unit (CPU) — центральный процессор (ЦП)  
instruction set — набор команд, система команд  
precisely — точно  
activity — деятельность; работа; действия операции  
to issue — посылать (сигнал); выводить, выдавать (сообщение)  
response — ответ; отклик; реакция; отвечать; реагировать  
to interpret — интерпретировать; истолковывать;  
according to — согласно; в соответствии с level — уровень; степень;  
мера; выравнивать  
input-output port — порт ввода-вывода control unit (CU) — устройство управления  
arithmetic-logic unit (ALU) — арифметико-логическое устройство switch —  
переключатель; коммутатор; переключать; переходить  
direct — направлять; адресовать; указывать; прямой; непосредственный  
step-by-step operations — пошаговые операции  
exponentiation — возведение в степень  
call for — требовать; предусматривать  
to load — загружать; выполнять загрузку  
internal memory — внутренняя память; внутреннее ЗУ  
random access memory (RAM) — оперативное запоминающее устройство (ОЗУ)

**2. Прочитайте текст и скажите, какой компонент составляет сердце компьютерной системы и в чем заключается его функция.**

**3. Найдите в тексте ответы на следующие вопросы:**

1. What is the central processing unit?
2. What components make up the heart of the computer system?

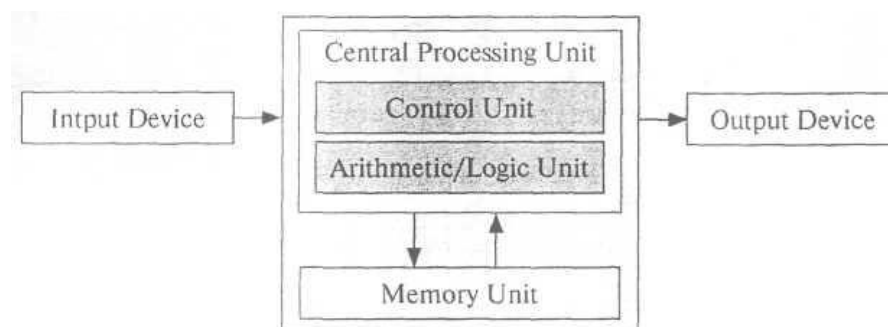
3. What is the function of the CPU?
4. In what way does the CPU control the operation of the whole system?
5. Name the sequence of operations the CPU performs (use five verbs).
6. What are the CPU functional units made of?
7. What is the function of the CU?
8. What operations are performed in the ALU?
9. Where are data processed?
10. What are the data to be processed loaded into?

### **CENTRAL PROCESSING UNIT**

The main unit inside the computer is the central processing unit (CPU). This unit is responsible for all events inside the computer. It controls all internal and external devices. The instruction set determines the machine language of the CPU, performs arithmetic and logical operations, that are called instruction set of the processor. The instruction set determines the machine language for the CPU. The more complicated the instruction set is, the slower the CPU works.

So as we see, the CPU coordinates all the activities of the various components of the computer. It defines which operations should be carried out and in what order. The CPU controls the operation of the entire system by issuing commands to other parts of the system and by acting on responses. When required it reads information from the memory, interprets instructions, performs operations on the data according to the instructions, writes the results back into the memory and moves information between memory levels or through the input-output ports.

In digital computers the CPU can be divided into two functional units called the control unit (CU) and the arithmetic-logic unit (ALU). These two units are made up of electronic circuits with millions of switches that can be in one of two states, either on or off.



The function of the CU within the central processor is to transmit coordinating control signals and commands. The control unit is that part of the computer that directs the sequence of step-by-step operations of the system, selects instructions and data from memory, interprets the program instructions, and controls the flow between main storage and the arithmetic-logic unit.

The ALU, on the other hand, is that part of the computer in which the actual arithmetic

operations, namely, addition, subtraction, multiplication, division and exponentiation, called for in the instructions are performed.

Programs and the data, on which the CU and the ALU operate, must be in internal memory in order to be processed. Thus, if located in secondary memory devices, such as disks or tapes, programs and data are first loaded into internal memory.

**4. Найдите в тексте следующие словосочетания или их эквиваленты; используйте их для пересказа текста:**

The central processing unit; to make up the heart; to carry out basic instructions; to coordinate activities; to determine; in what order; to issue commands; when required; to perform operations; according to the instructions; to be made up of electronic circuits; the states of switches — on or off; to transmit coordinating commands; the control unit; the sequence of step-by-step operations; to control the flow; on the other hand; addition, subtraction, multiplication, division and exponentiation; to process; internal memory; to load.

## Текст 7

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**1. Прочитайте текст и**

**а) установите соответствие между абзацами текста (1—5) и предложенными заголовками (А — F). Один заголовок лишний;**

- A. Logical part of the CPU.
- B. Division of ALU into separate components.
- C. Functions of ALU. F. Fulfillment of division and multiplication.
- D. The role of gates in the ALU.
- E. Memory in the state of flux.

**б) составьте реферат на английском языке.**

### AN ARITHMETIC LOGIC UNIT

**1.** An arithmetic logic unit (ALU) is one of the most important components in a microprocessor. It is the part of a computer's CPU that allows the computer to make numerical calculations and logical decisions. Input comes into one of these units through a specific channel and passes through a number of circuits that complete the necessary computations. Once the information has been processed according to the instructions of the program, it is returned to the computer's memory in its new form.

**2.** Boolean functions are used in the logic component of the arithmetic logic unit. Computers use these functions to test information in order to make logical decisions. Subjecting information to these logic tests allows the unit to make the requested alterations (изменения)



to data. In order to make changes to data, the unit receives both the data and the instructions, then performs the requested task before sending the data back to the computer's memory.

3. The arithmetic part usually performs simple addition and subtraction operations. More complex mathematical functions, such as division and multiplication, are often performed by completing a series of subtractions or additions. This unit can also make comparisons between different values.

4. The computer's memory is often accessed by the arithmetic logic unit. This memory, which is often referred to as random access memory, or RAM, is always in a state of flux (поток). This happens because the unit accesses the memory and makes changes to it frequently in order to follow instructions given by various programs.

5. In some cases, the arithmetic and logical functions are divided up and processed in two discrete central processing unit components, an arithmetic unit and a logic unit. Many computers also contain multiple arithmetic logic units that can complete a variety of functions quickly or, in some cases, simultaneously. Dividing these processes up requires more resources and space in the CPU, though it can make the processes run more smoothly.

## Текст 8

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### 1. Переведите текст.

#### THOMAS ALVA EDISON



The name of Thomas Alva Edison, a self-taught inventor, is widely known *due to* his numerous inventions. When a child Edison used the cellar (чердак) of his parents' house *instead of a* laboratory. *In spite of* his lack of schooling Edison became one of the greatest inventors of his time. Edison lost his hearing *because of a* railroad accident. He communicated with other people *by means of* a phono — graph, a special device of his own invention.

*Irrespective* — of his limited education Edison took interest in most technical problems of his time. *Owing to* his remarkable capacity for work he perfected his knowledge in most fields of engineering. The wide-spread use of his incandescent filament lamp could become possible only *in connection with* and *thanks to* the development of Edison and his phonograph an effective system of electric light distribution. Edison made numerous experiments and *in addition to* that read much on the subject.



2. **Сделайте сообщение о какой-нибудь исторической личности, используя выделенные курсивом словосочетания.**

## Текст 9

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### 1. Ознакомьтесь с терминами текста

Retention. — (со) хранение, удержание  
coupled with — соединенный, связанный, спаренный  
temporarily or permanently — временно или постоянно  
performance characteristics — рабочие характеристики  
a storage unit — запоминающее устройство, блок памяти  
to measure in cycle time — измерять в герцах (число колебаний в секунду)  
binary digits — двоичные цифры  
the number of failures — количество отказов  
immediate access — прямой доступ; мгновенный доступ  
Random Access Memory (RAM) — оперативное запоминающее устройство (ОЗУ)  
Read Only Memory (ROM) — постоянное запоминающее устройство (ПЗУ)  
promptly — быстро, сразу; своевременно  
volatile — энергозависимый; изменяемый  
the power supply — источник питания; электропитание  
randomly — произвольно  
application — приложение; применение; прикладная программа  
embedded circuitry — встроенные электронные схемы  
permanent of storage — постоянное запоминающее устройство  
overwrite; upgrade; modify — переписывать; расширять (обновлять); преобразовывать  
available — доступный, имеющийся в наличии  
carry out its execution — осуществлять выполнение (программы)  
hard disk drives — дисковод для жестких дисков; ЗУ на жестком диске

### 2. Найдите в тексте ответы на вопросы:

1. What main function does computer memory provide?
2. What are the most important performance characteristics of a storage unit?
3. How are speed, capacity and reliability measured?
4. How is computer memory classified?
5. What is primary memory used for?
6. What two main components does primary memory include?
7. What is the difference between RAM and ROM?
8. How can a computer execute an application stored in secondary memory?
9. What are popular secondary memory devices?
10. What are primary memory devices?

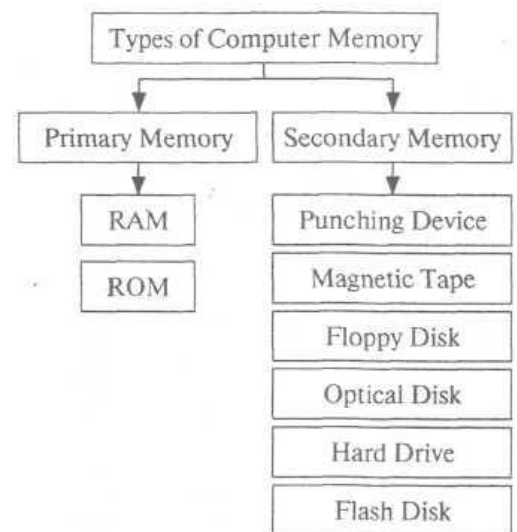
### 3. Прочитайте текст и расскажите, что вы узнали о типах запоминающего устройства компьютера. Переведите текст.

#### COMPUTER MEMORY

Computer memory provides one of the main functions of the modern computer, that of

information retention. It is one of the fundamental components of all modern computers coupled with a central processing unit.

Computer memory is a physical electronic device that is used to store applications and data, temporarily or permanently, as required by a computer or its user. It enables a person to retain the information stored on the computer. Without a memory device the processor would not be able to find a place which is needed to store the calculations and processes. 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. Computer memory can be primarily classified into two types: Primary Memory and Secondary Memory.



*Primary, main or internal memory* is used for immediate access of data by the processor. The advantage of the primary memory is an extremely high speed. The primary storage takes a direct part in the computational process.

Primary memory can be divided into two types — Random Access Memory (RAM) and Read Only Memory (ROM). A RAM chip is used as primary memory in most computers today.

RAM is a memory responsible for storing data on a temporary basis, so that it can be promptly accessed by the processor as and when needed. It is volatile in nature, which means that memory retains its contents as long as the power supply is on. But when the system is switched off, the RAM loses all stored information. RAM stores data randomly and the processor accesses these data randomly from the RAM storage. The information stored in the RAM is usually loaded from the computer's hard disk, and includes data related to the operating system and certain applications. The data remains stored on secondary storage though, and can be retained when the system is running again. Most modern computers use an embedded RAM circuitry on the motherboard which reads data in bursts. Unlike RAM, ROM is a permanent form of storage. ROM stays active regardless of whether power supply to it is turned on or off. As the name itself suggests, data can only be accessed and read by the user, not overwritten, upgraded, or modified.

*Secondary or external memory* is available on mass storage devices for permanent data storage.

Data stored on a secondary device is retained even when it is not supplied any power. This data can be transported in most cases, and looks and appears the same on any machine, irrespective of where the data was first copied onto the secondary storage device. The secondary memory has a comparatively low speed, but it is capable of storing far greater amount of information than the main memory. The secondary storage provides the information necessary for a single step in the sequence of computation steps. Unlike primary memory, secondary memory is not directly accessible by the computer. When a computer needs to run or execute an application stored in secondary memory, it first brings it to primary memory storage for a while, to control and carry out its execution. Once execution of the application is done, the processor releases the application and restores its control and memory data with the secondary memory device. Popular secondary memory devices include hard disk drives, flash drives (pen drives, memory cards etc.)

**4. Найдите в тексте следующие словосочетания; используйте их для пересказа текста:**

Computer memory; to provide functions; information retention; to couple with the central processing unit; to store applications and data; it enables to retain data; to store calculations temporarily; important performance characteristics; speed, capacity and reliability; to measure by the number of failures; immediate access of data; the advantage of primary memory; when needed; volatile memory; power supply; to switch the system off; to access data randomly; an embedded circuitry; to read data in bursts; unlike RAM; regardless of; permanent data storage; irrespective of; comparatively low speed; sequence of computational steps; to execute an application; to carry out.

## Текст 10

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**1. Ознакомьтесь с терминами текста**

input and output (I/O) environment — среда ввода-вывода (информации)  
the supplied data — введенные данные  
primary storage — первичное ЗУ, первичная память  
to provide users — обеспечивать, снабжать пользователей  
to convert the input data — преобразовывать входную информацию  
internal/external — внутренний/внешний  
bar-code scanner/bar-code reader — устройство считывания штрих-кода  
regardless of — не смотря на; независимо от  
to transform data into the binary codes — преобразовывать данные в двоичные коды  
input-output interface — интерфейс (сопряжение, место стыковки) ввода-вывода  
to match characteristics — сопоставлять (соответствовать) параметры

the requirements — требования  
to convert to human acceptable form — преобразовывать в приемлемую для человека форму

**2. Найдите в тексте ответы на следующие вопросы:**

1. What operations are performed by input and output units?
2. What is the main function of an input device?
3. To what storage are data and instructions entered?
4. What operation is carried out in the primary storage?
5. Into what form is information converted in the computer?
6. What is the function of input interfaces?
7. What is the main job of an output unit?
8. What must be done with the results before supplying them into outside world?
9. Enumerate the functions performed by the output unit.

**3. Прочитайте текст и расскажите об устройствах ввода и вывода информации. Переведите текст.**

### **INPUT- OUTPUT ENVIRONMENT**

Data and instructions enter the computer system before any computation can be performed on the supplied data, and information must leave it. These operations are performed by input and output (I/O) units that link the computer to its external environment.

The input unit contains devices with the help of which we enter data into the computer. This unit makes link between user and computer. All data and instructions enter and leave the central processing unit through primary storage. Input-output devices are needed to link primary storage to the environment, which is external to the computer system. So input, devices are used to enter data into primary storage translating the information into the form understandable by computer. Output units accept data from primary storage to provide users with information or to record the data on a secondary storage device. Some devices are used for both the input and output functions.

So data is usually entered from a keyboard in a manner similar to typing, and this differs from the way in which data are entered by a bar-code scanner, which is another type of input device. However, regardless of the form in which they receive their input, all input devices must provide a computer with data that are transformed into the binary codes that the primary memory of the computer is designed to accept. This transformation is accomplished by units called input interface. Input interfaces are designed to match the unique physical or electrical characteristics of input devices to the requirements of the computer system.

The job of an output unit is just the reverse of that of an input unit. It supplies information and results of computation to the outside world. Thus, it links the computer with the external

environment. As computers work with binary code, the results produced are also in the binary form. Hence, before supplying the results to the outside world, it must be converted to human acceptable (readable) form. This task is accomplished by units called output interfaces.

In short, the following functions are performed by an output unit.

1) It accepts the results produced by the computer which are in coded form and cannot be easily understood by us; 2) it converts these coded results to human acceptable form and 3) it supplies the converted results to the outside world.

**4. Найдите в тексте следующие словосочетания; используйте их для пересказа текста:**

Input-output environment; to perform computation; the supplied data; to link to external environment; to enter data and instructions into the computer; primary storage; secondary storage; to record the data; in a manner similar to typing; to differ from the way; a bar-code scanner; however; regardless of; to transform into the binary codes; to accept; to accomplish; to convert to human acceptable (readable) form; to supply the converted results to the outside world.

## Текст 11

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**1. Прочитайте текст и**

**a) установите соответствие между абзацами текста (1—5) и предложенными заголовками (A — F). Один заголовок лишний;**

- I. Memory devices for large and small computer systems.
- II. Comparison of storage disks and tapes.
- III. Types of memory used for primary and secondary storage.
- IV. Secondary storage hardware.
- V. The principle of storage devices classification.
- VI. The main circuit elements of primary storage.

**b) составьте реферат на английском языке.**

### STORAGE DEVICES

1.Storage media are classified as primary storage or secondary storage on the basis of combinations of cost, capacity, and access time. The cost of storage devices is expressed as the cost per bit of data stored. The time required for the computer to locate and transfer data to and from a storage medium is called the access time for that medium. Capacities range from a few hundred bytes of primary storage for very small computers to many billions of bytes of archival storage for very large computer systems.

2. Memories may be classified as electronic or electromechanical. Electronic memories have no moving mechanical parts, and data can be transferred into and out of them at very high speeds. Electromechanical memories depend upon moving mechanical parts for their operation, such as mechanisms for rotating magnetic tapes and disks. Their data access time are longer than are those of electronic memories; however they cost less and have larger capacities for data storage. For these reasons most computer systems use electronic memory for primary storage and electromechanical memory for secondary storage.

3. Primary storage has the least capacity and is the most expensive; but it has the fastest access time. The principal primary storage circuit elements are solid-state devices: magnetic cores and semiconductors. For many years magnetic cores were the principal elements used in digital computers for primary storage. Because data can be accessed randomly, semiconductor memories are referred to as random-access memory.

4. There is a wide range of secondary storage devices. Typical hardware devices are rotating electromechanical devices. Magnetic tapes, disks, and drums are the secondary storage hardware most often used in computer systems for sequential processing. Data are recorded in the form of small magnetized "dots" that can be arranged to represent coded patterns of bits.

5. Magnetic disk storage has replaced magnetic tape as the main method of secondary storage. As contrasted with magnetic tapes, magnetic discs can perform both sequential and random processing. Magnetic discs are the pre-dominant secondary storage media. They include flexible, or floppy discs, called diskettes.

## Текст 12

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### 1. Найдите в тексте ответы на следующие вопросы:

- a. What devices are used for inputting information into the computer?
- b. What is the function of a keyboard?
- c. How does the mouse operate and what is its function?
- d. What is used in portable computers instead of manipulators?
- e. What is the touch pad's principle of operation?
- f. Where do graphical plotting tables find application?
- g. What is scanner used for?
- h. Due to what device can we get photos of high quality?

### 2. Переведите текст.

#### THE VARIETY OF INPUT DEVICES

There are several devices used for inputting information into the computer: a keyboard, some

coordinate input devices, such as manipulators (a mouse, a track ball), touch panels and graphical plotting tables, scanners, digital cameras, TV tuners, sound cards etc.

When personal computers first became popular, the most common device used to transfer information from the user to the computer was *the keyboard*. It enables in-putting numerical and text data. Later there appeared manipulators, a mouse and a track ball, that are usually used while operating with graphical interface. Each software program uses these buttons differently.

*The mouse* is an optic-mechanical input device. The mouse has three or two buttons which control the cursor movement across the screen. The mouse provides the cursor control thus simplifying user's orientation on the display. The mouse's primary functions are to help the user draw, point and select images on his computer display by moving the mouse across the screen.

In portable computers *touch panels or touch pads* are used instead of manipulators. Moving a finger along the surface of the touch pad is transformed into the cursor movement across the screen.

*Graphical plotting tables (plotters)* find application in drawing and inputting manuscript texts. You can draw, add notes and signs to electronic documents by means of a special pen. The quality of graphical plotting tables is characterized by permitting capacity, that is the number of lines per inch, and their capability to respond to the force of pen pressing.

*Scanner* is used for optical inputting of images (photos, pictures, slides) and texts and converting them into the computer form.

*Digital video cameras* have been spread recently. They enable getting video images and photographs directly in digital computer format. Digital cameras give possibility to get high quality photos.

*Sound cards* produce sound conversion from analog to digital form. They are able to synthesize sounds. Special game-ports and joysticks are widely used in computer games.

## Текст 13

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- 1. Прочитайте текст и расскажите, чем отличается MEMORY от STORAGE. Назовите 5—6 отличий.**

Memory and storage are two terms that are used to mean the same thing in computer technology. There is however a distinction between the two terms.

Memory can refer to any device that stores data and instructions either temporarily or permanently for execution. It includes cache, primary and secondary memory. Storage on the

other hand includes storage devices such as optical disks, hard disk drives and memory cards which store data and programs permanently. The stored data and programs can be accessed by the memory for processing.

Memory can be upgraded by installing higher capacity chips. They are relatively expensive as they use high speed technology. Upgrading storage is cheaper since storage devices use slower technology.

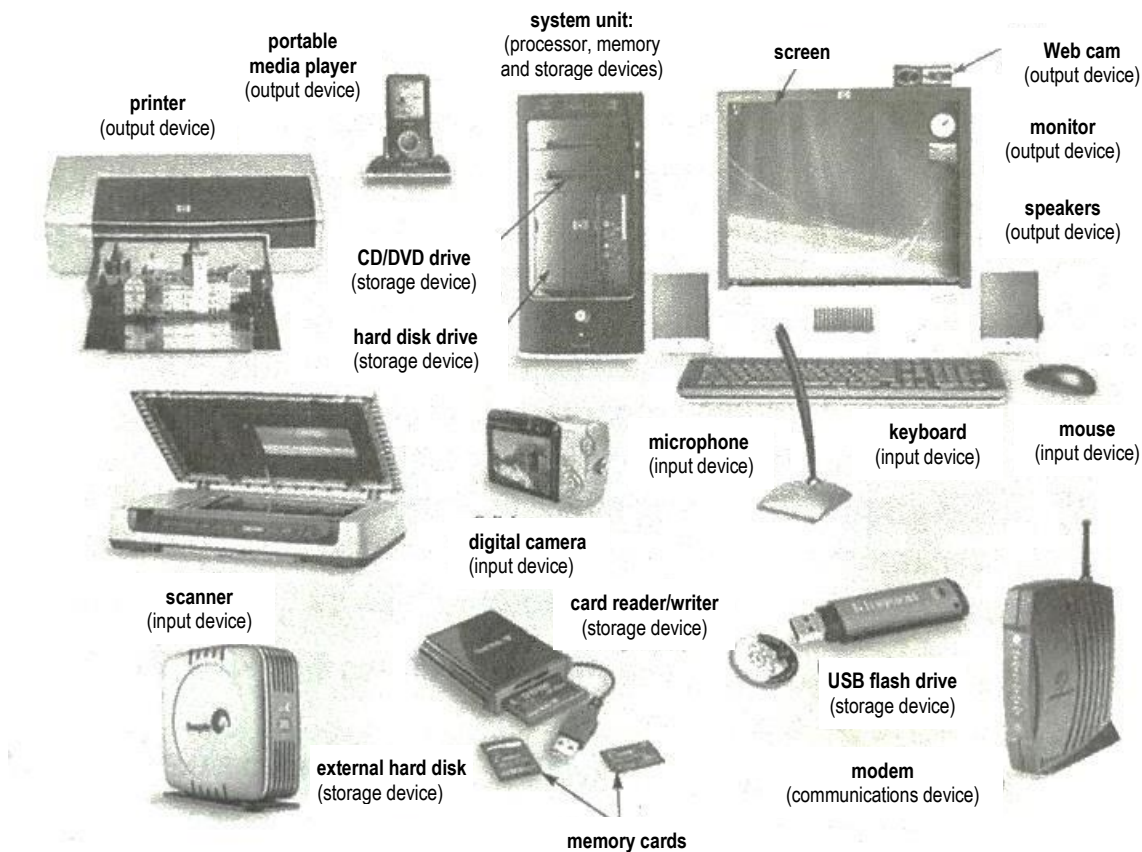
Main memory in a computer is storage that will be erased when a computer is turned off. Backing storage is memory that will save information when the computer shuts down.

Computer memory facilitates short-term data access while computer storage enables long-term data access.

Memory is quite fast. The access of data and instructions by the processor needs to be extremely fast to enable efficiency of the computer system. Access to data and programs in storage is relatively slow.

The computer system needs installed memory to run. The memory is the location where all data and instructions needed to execute a program are stored. The storage on the other hand is optional (произвольная).

## 2. Пользуясь рисунком, назовите компоненты компьютерной системы и их функции.





## Текст 14

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### 1. Ознакомьтесь с терминами текста

a single silicon chip — силиконовая микросхема  
to boot up — загружать(ся), запускать компьютер  
to work currently — работать в данный момент  
circuit board — монтажная плата  
motherboard — материнская плата  
intermediary — посредничество; промежуточный  
hard drive (disk) — запоминающее устройство на жестком диске; привод, дисковод  
as opposed to — в отличие от long-term storage — долговременное хранение;  
долговременная память  
the power supply — источник питания; электропитание  
sound cards — звуковая карта  
respectively — соответственно  
insert — вставлять, вводить, включать  
to run programs directly — запускать (работать) программу прямо  
(непосредственно)  
make it suitable — делать пригодным, подходящим  
as compared with — по сравнению с  
running spreadsheets — выполнять вычисления с помощью электронных таблиц  
database management — управление (работа с) базой данных  
accounting — расчет; учет; подсчет  
graphic designing — графическое проектирование

### 2. Найдите в тексте ответы на следующие вопросы:

1. What innovations made the appearance of personal computers possible?
2. When were integrated circuits invented and who contributed to their appearance?
3. How have the capabilities of the PCs been changed since 1960s-1970s?
4. What basic components do PCs consist of?
5. What is the role of microprocessor in personal computers?
6. What is the motherboard?
7. What is the function of the power supply?
8. What do sound and graphic cards serve for?
9. What are the abilities of PCs at home?
10. How are personal computers used in business?

### 3. Прочитайте текст и расскажите, что вы узнали о персональных компьютерах. Переведите текст.

#### PERSONAL COMPUTERS

Personal computers were made possible due to two technical innovations in the field of microelectronics: the integrated circuit, which was developed in 1959 and the microprocessor that first appeared in 1971. The IC permitted the miniaturization of computer-memory circuits, and the microprocessor decreased the size of a computer's CPU to the size of a single silicon

chip. The capabilities of the PC have changed greatly since the introduction of electronic computers.

All PCs have several basic components that allow them to function and be used. The microprocessor controls everything the computer does, and every process has to go through it first. Computers also have memory, both long-term (read-only memory or ROM) and temporary (random-access memory or RAM), as well as data storage. ROM contains the basic software that allows the computer to boot up and generally does not change; RAM is used to store information that the computer is currently working with, such as open programs.

The microprocessor and memory are contained as part of a large circuit board called the motherboard. The motherboard also acts as an intermediary between the microprocessor and other systems on the computer, such as drives and ports. The hard drive or hard disk is where programs and files are stored. As opposed to the RAM, the hard drive has a large capacity and is meant for long-term storage. This is where the majority of data in personal computers is located.

Another important part that is common to all personal computers is the power supply, which regulates the amount of electricity that the PC is using at a given time. Most computers also have sound cards and graphics cards as well, which are small circuit boards that connect to the motherboard to process audio and video data, respectively. Some modern PCs also include a CD-ROM or DVD-ROM drive, where a disk containing programs or files can be inserted. Programs can be run directly from the CD or DVD, which acts as a form of external data storage for a PC.

A personal computer (PC) is a computer whose price, size, and features make it suitable for personal use. Personal computers are intended for use by one user, as compared with servers. A personal computer, for example, will typically include the ability to play music and display graphics quickly. In business personal computers are used for accounting, running spreadsheets, database management and many purposes like that. At home, PCs are used for playing games, surfing internet, doing studies, graphic designing and other educational purposes.

**4. Найдите в тексте следующие словосочетания; используйте их для пересказа текста:**

To make possible; due to technical innovations; the integrated circuit; computer-memory circuits; to permit; to reduce; the size of a single silicon chip; the capabilities; both long-term and temporary memory; read-only memory; random-access memory; as well as data storage;

to boot up the computer; to work with information currently; circuit board; motherboard; intermediary; the hard drive; as opposed to; as compared with; respectively; the power supply; sound cards; to include; to contain; to connect; to insert; to run a program; to run spreadsheets; to intend; to account; database management; like that; to surf internet; external data storage; for example; to make it suitable; educational purposes.

## Текст 15

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### 1. Ознакомьтесь с ключевыми терминами текста

Word processing — обработка текста

Internet browsing — просмотр компьютерной сети

Internet faxing — передача сообщений по интернету

multimedia playback — воспроизведение, исполнение многими средствами

operating environment — операционная среда, рабочая среда

desktop computer — настольный компьютер

expansion capabilities — добавленные возможности

to tend — стремиться, иметь тенденцию

heat constraints — ограничения нагрева

integrated speakers — входящие в состав, встроенные динамики (звуковые колонки)

an electrical outlet — выход; вывод; электрическая розетка

Laptop computer — наколенный компьютер

notebook — блокнотный компьютер

in terms of — в смысле; с точки зрения

processing power — скорость обработки; быстроедействие; вычислительные возможности,

web-based applications — прикладные программы, использующие всемирную информационную сеть

feature — свойство, особенность, характерная черта

touch screen — сенсорный экран

a stylus — пишущий узел; иголка; матричный

to share many traits — иметь много общих свойств, черт

to lack the versatility — не доставать, (не хватать) многофункциональности

a consumer electronics device — потребительский электронный прибор

consistency — совместимость; согласованность; постоянство

### 2. Найдите в тексте следующие словосочетания; используйте их для пересказа текста:

1. What purpose tasks can personal computers perform?

2. Is it necessary for the user of a personal computer to have profound knowledge of programming?

3. What categories can personal computers be divided into?

4. What can you say about desktop computers?

5. What are laptop computers?

6. What is the difference between stationary personal computers and notebooks?

7. What are personal digital assistants mainly used for?
8. What are the advantages of personal computers?

3. Прочитайте текст и расскажите о различных видах персональных компьютеров. Переведите текст.

### TYPES OF PERSONAL COMPUTERS

**Personal computers** are normally operated by one user at a time to perform such general purpose tasks as word processing, Internet browsing, Internet faxing, e-mail and other digital messaging, multimedia playback, computer game play, computer programming, etc. The user of a modern personal computer may have significant knowledge of the operating environment and application programs, but is not necessarily interested in programming.

Personal computers are generally divided into categories based on their size, portability, and capabilities.

#### **Stationary computers.**

**Desktop computers**, or desktops, are the largest personal computers. Often they are designed to fit on a desk. They frequently have the most expansion capabilities and tend to be the fastest, due to the free size and heat constraints compared to other types of personal computers. They tend not to include integrated monitors, speakers, key-boards, or other devices, using expansion ports to connect those components.

**Portable computers** are designed for portability, and so are lighter than desktops. Most portable computers contain batteries so that they can be used for short periods without access to an electrical outlet.

**Laptop computers**, also called notebook computers, are small personal computers designed for mobility. Usually all of the peripherals needed to operate the laptop are built into a single unit. They are operated with a keyboard and mouse, and are often nearly comparable to similar desktop computers in terms of processing power.

### Examples and types of computers



**Netbooks** are small, light and inexpensive laptop computers suited for general computing and accessing web-based applications. They have low weight and low cost. In the short period since their appearance in late 2007, netbooks have reduced in size and gained features, now approaching to new smaller, lighter notebooks.

**Notebooks:** Notebooks computers are very light in weight as compared to laptop computers. Its weight is less than six pounds. The basic difference between the personal computer and notebooks is display screen.

**Tablet computers** are notebooks, first introduced in the early 90s popularized by Microsoft. Its touch screen allows the user to operate the computer with a stylus or digital pen, or a fingertip, instead of a keyboard or mouse. Tablet PCs are often used where normal notebooks are impractical or unwieldy.

**Personal digital assistants (PDAs)** are handheld devices that share many traits with other portable computers. They are often used for checking email but lack the versatility of computers, and are limited in terms of their software choices. They are often smartphones, and are sometimes considered a consumer electronics device.

**Advantages of pc's:** A personal computer may be the storage of your important data and files. It may be your handy book. It may help you solve problems faster than an ordinary human being can do. It has speed, storage, reliability, consistency and communications. It helps you to find useful information using the Internet. It helps in businesses, factories, offices, schools and homes. It helps you organize your data and information in a better way. It has much more computing and calculating power than an ordinary human. It may help your work to be much easier.

**4. Найдите в тексте следующие словосочетания; используйте их для пересказа текста:**

To perform general purpose tasks; word processing; Internet browsing; Internet faxing; e-mail; digital messaging; multimedia playback; significant knowledge; operating environment; application programs; necessarily; portability and capabilities; due to; heat constraints; compared to; desktop computers; laptop computers; notebooks; netbooks. Access to an electrical outlet; the peripherals; to build into a single unit; a keyboard; in terms of processing power; inexpensive; suited for computing; web-based applications; low weight and low cost; to reduce in size; to gain features; to approach; difference; tablet computers; personal digital assistants; handheld devices; touch screen; advantages; handy book; reliability; consistency; speed, storage, calculating power.

## Текст 16

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### 1. Прочитайте текст и составьте реферат на его основе.

#### 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, as well as small business and engineering and scientific.

**Home and hobby.** PC enjoys great popularity among experimenters and hobbyists. All hobbyists need not to be engineers or programmers. There are a lot of games providing many hours of exciting leisure-time adventure. The list of other home and hobby applications of PCs is almost endless, including: 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 what not.

**Word processing.** At home or at work, applications software, called a word processing program, enables you to correct mistakes in spelling or grammar. Using the cathode-ray tube 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 desk-top use of PCs. Examples of other occupations are lawyers, architects, engineers, educators and all levels of managers. Applications programs that are popular with persons in these occupations include statistical analysis, graphics 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.** PCs are having and will continue to have a profound influence upon the classroom, affecting both the learner and the teacher. Microcomputers help in designing 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, and computer-assisted instruction. 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

## Текст 17

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1. Установите соответствие между абзацами текста (1—6) и заголовками (A — G). Запишите свои ответы. Используйте каждую цифру только один раз. В задании один заголовок лишний.

- I. Benefits for poor countries.
- II. Small size has a great role.
- III. Better to write than to phone.
- IV. How it works.
- V. Mobile phones' functions.
- VI. Disadvantages of mobile phones.
- VII. The most popular mobile phone.

### MOBILE PHONES

1. A mobile phone is a device that can make and receive telephone calls over a radio link while moving around. It is connected to a cellular network provided by a mobile phone operator who allows access to the public telephone network. The first hand-held mobile phone was demonstrated by Martin Cooper of Motorola in 1973, using a handset weighing about 1 kg.

2. In addition to telephony, modern mobile phones also support a wide variety of other services such as text messaging, multimedia message service, email, Internet access, short-range wireless communications, business applications, gaming and photography. Mobile phones that offer these and more general computing capabilities are referred to as smartphones.

3. As the years passed, the devices became smaller and much lighter. The first smartphone appeared in 1996. It added personal digital assistance (PDA) functionality to the basic mobile phone at the time. Miniaturization and increased processing power of microchips enabled to add more features to phones, and smartphone became a standard phone today.

4. Mobile phones need a small microchip called a Subscriber Identity Module, or SIM card, to function. The SIM card is approximately the size of a small postage stamp. The SIM card does not only store data like telephone numbers but also allows users to change phones by removing the SIM card from one mobile phone and inserting it into another mobile phone.

5. The most commonly used data application on mobile phones is SMS text messaging. The first SMS text message was sent from a computer to a mobile phone in 1992 in the UK. The first mobile news service, delivered via SMS, was launched in Finland in 2000. Mobile news services are expanding with many organizations providing "on-demand" news services by SMS.

6. Mobile phones are used for keeping in touch with family members, conducting business, and having access to a telephone in an emergency. Some people carry more than one cell phone for different purposes, such as for business and personal use. Mobile phones have spread more quickly than any other technology and can improve the life of the poorest people in developing countries. They provide access to information in places where the Internet is not available.

## Текст 18

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1. Прочитайте текст о смартфоне и сформулируйте пять вопросов к нему. Поменяйтесь вопросами с вашим товарищем и дайте ответы на его вопросы.

### A SMARTPHONE

A smart-phone is a mobile phone (also known as cell phones) built on a mobile operating system, with more advanced computing capability and connectivity than a feature phone. Thus it has the following features: the abilities to place and receive voice calls and create and receive text messages, as well as the feature of personal digital assistants (PDAs), such as an event calendar, media player, videogames, GPS (Global Positioning System) navigation, digital camera and digital video camera. Most smartphones can access the Internet and can run a variety of third-party software components applications. The display is often a touchscreen, which enables the user to use a virtual keyboard to type words and numbers and press onscreen icons to activate "app" features. The first smartphone called Simon was designed by IBM and released to the public in 1993.

## Текст 19

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1. Прочитайте текст и выразите составные предлоги, указанные в скобках, по-английски. Выберите необходимые вам предлоги из перечня:

*as for, due to, by means of, according to, in spite of, in order to, because of, in contrast to, in case, in front of, instead of, owing to, thanks to, in addition to, in connection with, irrespective of.*

### NIKOLAI LOBACHEVSKY

The Great Russian Mathematician, Nikolai Lobachevsky, created one of the greatest masterpieces of mathematics — non-Euclidean geometry. (Из-за) his great discovery N. Lobachevsky was called "Copernicus of Geometry". (Благодаря) his remarkable capacities in





mathematics as well as in other subjects, Lobachevsky was admitted to the university at the age of 14. (Что касается) his progress there, it was so rapid that at the age of 19 he took his master's degree and was appointed assistant professor. (В дополнение к) the courses in mathematics he lectured on astronomy and physics. (Несмотря на) his new duty as a rector of the university, N. Lobachevsky continued to work in the library and the museum. (Благодаря) his energy and

courage he didn't lose his head and saved the university library from fire which destroyed half Kazan.

Lobachevsky learned architecture (для того чтобы) see that the work on reconstruction of Kazan University was done well. (В отличие от) Euclid N. Lobachevsky proved that several parallels to the given line can pass through a point outside that line. (В соответствии с) Lobachevsky's theory there are no absolute truths in our conceptions of space and time.

## Текст 20

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### 1. Ознакомьтесь с ключевыми терминами текста

- I. intermediate — промежуточный; вспомогательный  
high-level language — язык высокого уровня  
to interpret into bytes — переводить (интерпретировать; истолковывать) в байты  
a source code — исходный код; исходная программа  
software engineering — разработка программного обеспечения  
implementation — реализация; осуществление; разработка;  
внедрение software development process — процесс разработки программного обеспечения  
to integrate security — включить безопасность  
initiation — запуск; приведение в действие  
disposition — удаление; устранение; размещение  
System Development Life Cycle (SDLC) — жизненный цикл разработки системы
- II. maintenance — эксплуатация; техническое обслуживание  
to work out a tentative program flow — разработать пробный ход выполнения программы  
handling — обработка; регулирование; управление  
approach — подход; метод; принцип  
Modular Programming — модульное программирование  
errors = bugs — ошибки, дефекты; недоработки  
removing errors = debugging — устранение ошибок; отладка (программы)  
unit testing- блочное тестирование  
integration testing — проверка целостности  
error-free — не содержащий ошибок  
up to date — современный; обновленный; последней версии

**2. Найдите в тексте ответы на следующие вопросы:**

1. What is programming?
2. What is a computer program?
3. What kind of language can computer understand?
4. What language do humans use?
5. What is the software development process?
6. What is the most effective way to protect information?
7. What is the System Development Life Cycle?
8. What stages are involved in program development?
9. Characterize each of the stages.

**3. Прочитайте текст и расскажите, что представляет собой программирование.**

**WHAT IS PROGRAMMING?**

I. In the most basic sense, programming means creating a set of instructions for completing some specific task. Computer program is a set of instructions that guide a computer to execute a particular task. It is like a recipe for a cook in making a particular dish. The recipe contains a list of ingredients called the data, and a list of steps that guide the computer what to do with the data. So programming is the technique of making a computer to perform something you want to do.

We know computer understands binary languages with digits 1s and 0s. These binary languages are difficult to understand by humans; so we generally use an intermediate language instead of binary language. Again the program uses high-level language that is interpreted into bytes that the computer understands. So a programmer writes a source code and uses a tool or interpreter that allows the computer to read, translate and execute the programs to perform a function.

In software engineering, programming (the implementation) is regarded as one phase in a software development process. The software development process is a set of steps that a software program goes through when developed. The most effective way to protect information and information systems is to integrate security into every step of the system development process, from the initiation of the system to its disposition. The multistep process that starts with the initiation, analysis, design, and implementation, and continues through the maintenance and disposition of the system, is called the System Development Life Cycle (SDLC).

II. We have considered the aims of program designs, now let's see the stages involved in program development. They are: problem definition, solution design, program coding or writing, program testing and program documentation and maintenance.

**Problem Definition** is very essential in programming and it begins with recognition of a need for

information by a user or an organization. The programmer is expected to analyze the problem thoroughly in order to understand what is required for its solution. Generally, if you describe a problem carefully at the beginning of the programming process, your program will be better and might cost less to develop.

**Solution Design** is the next step of program developing. It's very useful to take each step or segment of the problem definition and then work-out a tentative program flow. When you approach the solution by handling each segment separately, you can concentrate on developing an efficient and logical flow for that segment. This approach is called "Modular Programming", where a program is divided into parts or modules for easy development and maintenance.

**Program Coding.** Next step of program development is the coding or writing of the program itself in a specific programming language. It is also necessary to know that some languages are better suited for some types of problems solution.

**Program Testing** usually includes the following: debugging, compiling and testing.

*Debugging.* Errors in programs are usually called bugs and the processing of removing errors in your programs is called debugging.

*Compiling.* The program should be translated before the computer can execute it. Compiling is one way of translating your program. The other is by using interpreters.

*Testing.* Usually, for a large program, there are various stages of testing, such as: unit testing, integration testing, system testing and user testing.

**Program Documentation and Maintenance.** There is no good programming without documentation. The documentation should consist of all written descriptions and explanations of the program and other materials associated with the development. Maintenance includes any activity aimed at keeping programs in working condition, error-free, and up-to-date.

**4. Найдите в текстах следующие словосочетания; используйте их для пересказа текстов:**

I. In the most basic sense; creating a set of instructions; to complete a task; to execute a task; like a recipe; to contain a list of ingredients; to guide; technique; to understands binary languages; digits; instead of; intermediate language; to interpret into bytes; a source code; software engineering; the implementation phase; is regarded as; the most effective way; to protect; to integrate security; the initiation of a project; disposition; maintenance and disposal of the system; the System Development Life Cycle;

II. Program documentation and maintenance; recognition of a need for information; to

analyze the problem thoroughly; in order to understand; required for the solution; to work out a tentative program flow; to approach the solution; to handle each segment separately; modular programming; easy development and maintenance; it is necessary to know; debugging, compiling and testing; to remove errors; debugging; unit testing; integration testing; system testing; user testing; maintenance; to consist of descriptions; to aim the activity at; to keep programs in working conditions; error-free; up-to-date program.

## Текст 21

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### 1. Ознакомьтесь с ключевыми терминами текста.

Network bandwidth — пропускная способность сети  
user interaction — диалог системы с пользователем  
cleaning up temporary files — удаление временных файлов  
eliminating memory leaks — устранение утечек памяти  
prevention of error propagation — предотвращение распространения ошибок  
result from — возникать из-за  
buffer overflows/underflows — переполнение/исчерпание буфера  
robustness — устойчивость (к изменениям условий)  
to anticipate — предвидеть; упреждать; ожидать  
due to errors — из-за (вследствие; по причине)  
corrupt — портить, искажать; искаженный, испорченный  
power outages — отключение (сетевого) питания  
usability — простота использования; применимость  
portability — портативность; переносимость  
to run the source code (program) — выполнять исходную программа  
to compile — собирать; составлять; выполнять  
programming facilities — средства программирования  
behavior — режим работы; ход выполнения  
maintainability — удобство эксплуатации; удобство сопровождения  
to fix bugs — устранять ошибки, недоработки  
security holes — недоработки в системе защиты  
in this regard — в этом отношении

### 2. Найдите в тексте ответы на следующие вопросы:

1. What properties must the final program satisfy?
2. What is efficiency?
3. What is meant by reliability?
4. What does reliability depend on?
5. What situations does robustness include?
6. What does usability imply?
7. What can make or break the success of usability?
8. What is portability?
9. What does maintainability mean?
10. Why is the property of maintainability so important in soft development system?

3. Прочитайте текст и расскажите о требованиях, предъявляемых к современному программированию.

### FUNDAMENTAL REQUIREMENTS TO MODERN PROGRAMMING

Whatever the approach to software development may be, the final program must satisfy some fundamental requirements. The following requirements are among the most important:

**Efficiency** is the amount of system resources, such as processor time, memory space, slow devices (disks), network bandwidth and to some extent even users interaction. This also includes careful management of resources, for example cleaning up temporary files and eliminating memory leaks.

**Reliability** means how often the results of a program are correct. This depends on conceptual correctness of algorithms, and minimization of programming mistakes. In other words, it depends on prevention of error propagation resulting from data conversion and prevention of errors resulting from buffer overflows, underflows and zero division.

**Robustness** is how well a program anticipates problems due to errors. This includes situations such as incorrect, inappropriate or corrupt data, unavailability of needed resources such as memory, operating system services and network connections, user error, and unexpected power outages.

**Usability** implies the ease with which a person can use the program for its intended purpose or in some cases even unanticipated purposes. Such problems can make or break its success even regardless of other problems. This involves a wide range of textual, graphical and sometimes hardware elements that improve completeness of a program's user interface.

**Portability** is the range of computer hardware and operating system platforms on which the source code of a program can be compiled and run. This depends on differences in the programming facilities provided by the different platforms, including hardware and operating system resources, expected behavior of the hardware and operating system, and availability of platform specific compilers for the language of the source code.

**Maintainability** is considered to be the ease with which a program can be modified by its present or future developers in order to make improvements, fix bugs and security holes, or adapt it to new environments. Maintainability is the ease with which a product can be maintained in order to correct defects or their cause, to prevent unexpected breakdowns, to maximize efficiency, reliability, and safety and to meet new requirements.

4. Найдите в тексте следующие словосочетания; используйте их для пересказа текста:

Whatever the approach to software development may be; to satisfy fundamental requirements; efficiency; reliability; robustness; usability; portability; maintainability; processor time; memory space; network bandwidth; cleaning up temporary files to some extent; users interaction; careful management of resources; eliminating memory leaks; to depend on; conceptual correctness of algorithms; prevention of error propagation; data conversion; buffer overflows; buffer underflows; to anticipate errors; incorrect, inappropriate, corrupt data; unavailability of needed resources; unexpected power outages; to imply the ease; intended or unanticipated purposes; regardless of; source code; differences in the programming facilities; expected behavior of the hardware; availability of compilers; in order to make improvements; to fix bugs and security holes; to adapt to new environments; to correct defects or their cause; to prevent unexpected breakdowns to meet new requirements.

## Текст 22

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1. Прочитайте текст и составьте реферат на английском языке; используйте упр.1 на стр.6,7

### THE CONVERSION OF SYMBOLIC LANGUAGES

As we see, most of the symbolic languages are oriented toward the particular application areas of business or science. 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 addition 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.

## Текст 23

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1. Прочитайте текст и составьте реферат на английском языке; используйте упр.1 на стр.6,7

### **RUNNING THE COMPUTER PROGRAM**

The operating system is a collection of program 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.

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 disc, utility programs to transfer data from device to device, and sort-merge programs for sorting data on magnetic tape or disk.

## Текст 24

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1. Прочитайте текст и составьте реферат на английском языке; используйте упр.1 на стр.6,7

### **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 data held in the computer's memory — in order to find the cause of logic errors.

## Текст 25

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**1. Прочитайте текст и установите соответствие между абзацами текста (1—5) и предложенными заголовками (A — F). Один заголовок лишний.**

- A. Storing instructions in the computer memory.
- B. The invention of a computer.
- C. The machine for processing punched cards.
- D. The first computer program.
- E. Presentation of logic by decimal numbers.
- F. The first programmable machine.

### **BRIEF HISTORY OF PROGRAMMING**

The earliest programmable machine, that is a machine that can change its "program", was the Jacquard Loom, which was developed in 1801. The machine used a series of cards with holes punched in them. The hole pattern represented the pattern that the loom had to follow in weaving\* cloth. These patterns were used with a variety of machines called unit record equipment to perform data processing task. The unit record equipment were programmed by changing the wiring of plug-boards (соединение штепсельных плат). Early computers used similar programming methods.

Charles Babbage adopted the use of punched cards around 1830 to control his Analytical Engine. Mathematician Ada Lovelace, a friend of Babbage, supplemented the engine with a set of notes, in 1842. These notes included an algorithm to calculate a sequence of numbers to be carried out by a machine. Many scientists consider this algorithm to be the first computer program.

In the 1880s, Herman Hollerith invented the recording of data on a medium that could then be read by a machine. To process the punched cards, first known as "Hollerith cards" he invented



the keypunch, sorter\*\*, and tabulator unit record machines.\*\*\* These inventions were the foundation of the data processing industry. In 1896 he founded the *Tabulating Machine Company* (which later became the core of IBM).

The first computer codes were specialized for their applications. In the first decades of the 20th century, numerical calculations were based on decimal numbers. It was realized that logic could be represented with numbers, not only with words.



Herman Hollerith

Charles Babbage

John von Neumann

A significant breakthrough came when John von Neumann suggested that the instructions might be stored in the computer's memory, just like the data. Eventually, the sequence of instructions, called stored programs, was stored in the computer's memory and the art of computer programming was born.

Примечание:

- \* weaving loom — ткацкий станок
- \*\* sorter — программа сортировки
- \*\*\* unit record machines — табулятор

## Текст 26

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### 1. Ознакомьтесь с ключевыми терминами текста

to meet different needs — удовлетворять различные потребности  
to evolve — развивать (ся); разрабатывать (ся); усовершенствовать(ся).  
low-level programming languages — языки программирования низкого уровня  
high-level programming languages — языки программирования высокого уровня  
a tedious process — громоздкий, трудоемкий процесс  
Assembly language — язык Ассемблера  
to run a program — запускать, выполнять программу  
to convert into machine code — преобразовывать в машинный код  
application development — разработка прикладных программ  
functionality — функциональные возможности

### 2. Найдите в тексте ответы на следующие вопросы:

1. What is a programming language?
2. What are the types of programming languages according to their generations?

3. What are the first-generation languages?
4. How is programming carried out in machine code?
5. How do the second-generation languages differ from the first-generation languages?
6. What is a characteristic feature of the third-generation languages?
7. What do you know about the fourth-generation languages?
8. What distinguishes compiled languages from interpreted ones?
9. What is the runtime program of an interpreted language?
10. What do interpreted languages require to run a program?

### 3. Прочитайте текст и расскажите о поколениях языков программирования.

#### PROGRAMMING LANGUAGES

I. As it is known, software developers create software using one of several programming languages (PL). A programming language is an artificial language that provides a way for a programmer to create structured code. The code communicates logic in a format that can be executed by the computer hardware. Over the past few decades, many different types of programming languages have evolved to meet many different needs. One way to characterize programming languages is by their "generation."

#### **Generations of Programming Languages.**

Early languages were specific to the type of hardware that had to be programmed; each type of computer hardware had a different low-level programming language. In these early languages, very specific instructions had to be entered line by line — a tedious process.

**First-generation languages** are called machine code. In machine code, programming is done by directly setting actual ones and zeroes (the bits) in the program using binary code.

Assembly language is **the second-generation language**. Assembly language gives English-like phrases to the machine-code instructions, making it easier to program. An assembly-language program must be run through an assembler, which converts it into machine code.

**Third-generation languages** are not specific to the type of hardware on which they run and are much more like spoken languages. Most third-generation languages must be compiled, a process that converts them into machine code. Well-known third-generation languages include BASIC, C, Pascal, and Java.

**Fourth-generation languages** are a class of programming tools that enable fast application development using intuitive interfaces and environments. Many times, a fourth-generation language has a very specific purpose, such as database interaction or report-writing. These tools can be used by those with very little formal training in programming and allow for the quick development of applications and/or functionality. Examples of fourth-generation

languages include: Clipper, FOCUS, FoxPro, SQL, and SPSS.

II. Besides classifying a program language based on its generation, it can also be classified by whether it is compiled or interpreted. A computer language is written in a human-readable form.

**In a compiled language**, the program code is translated into a machine-readable form called an executable that can be run on the hardware. Some well-known compiled languages include C, C++, and COBOL.

**An interpreted language** is one that requires a runtime program to be installed in order to execute. This runtime program then interprets the program code line by line and runs it. Interpreted languages are generally easier to work with but also are slower and require more system resources. Examples of popular interpreted languages include BASIC, PHP, PERL, and Python. The web languages of HTML and JavaScript would also be considered interpreted because they require a browser in order to run. The Java programming language is an interesting exception to this classification, as it is actually **a hybrid** of the two. A program written in Java is partially compiled to create a program that can be understood by the Java Virtual Machine (JVM). Each type of operating system has its own JVM which must be installed, which is what allows Java programs to run on many different types of operating systems.

**4. Найдите в тексте следующие словосочетания; используйте их для пересказа текста:**

An artificial language; to create a structural code; to be executed; to meet different needs; low-level programming languages; to be entered line by line; to convert a program into machine code; binary code; Assembly language; to run a program; to enable fast application development; many times; a specific purpose; compiled and interpreted languages; human-readable form; to install a runtime program; require a browser; in order to execute; partially compiled.

## Текст 27

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**1. Ознакомьтесь с ключевыми терминами текста.**

Merit — достоинство; заслуга; качество

demerit — недостаток

mnemonics code — символический код

Procedural-Oriented language — процедурный язык

flexibility — гибкость; адаптируемость; разнообразие (возможностей)

a desired outcome — требуемый результат

step ahead- шаг вперед  
query language — язык запросов

**2. Найдите в тексте ответы на следующие вопросы:**

1. What are the two main types of programming languages?
2. What languages does low level language consist of?
3. What are the merits of machine language?
4. What are its demerits?
5. What makes assembly language easier to program?
6. Name three merits of Assembly language.
7. What are demerits of assembly language?
8. What makes high level languages easy to learn?
9. How can high level languages be further categorized?
10. Which of three types of high level languages do you find the most attractive? Give your arguments.

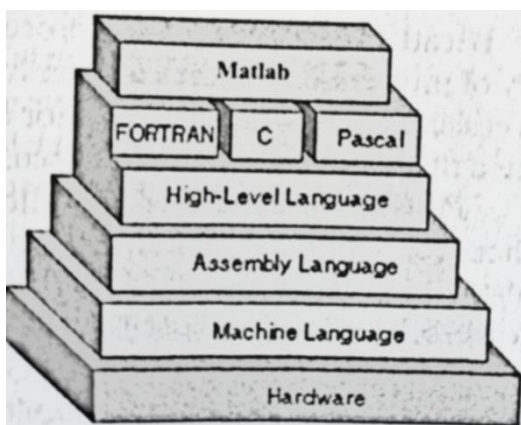
**3. Прочитайте текст и расскажите о том, какие бывают языки программирования.**

### TYPES OF PROGRAMMING LANGUAGES

I. There are two types of programming languages, which can be categorized into the following ways: *low level languages* and *high level languages*.

Low level language is the most understandable language used by computer to perform its operations. It can be further categorized into: Machine Language and Assembly Language.

**Machine Language** (1GL-first Generation of languages) consists of strings of binary numbers (i.e. 0. and 1s) and it is the only one language the processor directly understands. *Merits* of machine language include very fast execution speed and efficient use of primary memory. It also doesn't need larger memory. But it has some *demerits*: it is very difficult to program using 1GL since all the instructions are to be represented by 0s and 1s. Use of this language makes programming time consuming. It is difficult to find error and to debug. It can be used by experts only.



**Assembly Language** (2GL) is also known as low-level language. Assembly language gives English-like phrases to the machine-code instructions, making it easier to program. An assembly-language program must be run through an assembler, which converts it into machine code. *Merits* of Assembler: It makes programming easier than 1GL since it uses mnemonics code for programming. E.g.: ADD for

addition, SUB for subtraction, DIV for division, etc. It makes programming process faster. Error

can be identified much easily compared to 1GL. Its *demerits*: programs written in this language are not directly understandable by computer, so translators should be used. Being machine dependent language, programs written in this language are very less or not portable.

**II. High level language.** Instructions of this language closely resemble to human language or English like words. It uses mathematical notations to perform the task. The high level language is easier to learn. It requires less time to write and is easier to maintain the errors. The high level language is converted into machine language by one of the two different languages translator programs — interpreter or compiler. High level language can be further categorized as: Procedural-Oriented language (3GL), Problem-Oriented language (4GL) and Natural language (5GL).

***Procedural Programming*** is a methodology for modeling the problem being solved, by determining the order of the steps that must be followed in order to reach a desired outcome or specific program state. These languages are designed to express the logic and the procedure of a problem to be solved. It includes languages such as Pascal, COBOL, C, FORTRAN, etc. *Merits*: Because of their flexibility, procedural languages are able to solve a variety of problems. Programs written in this language are portable. *Demerits*: It is easier but needs higher processor and larger memory. It needs to be translated therefore the time for its execution increases.

***Problem-Oriented language*** allows the users to specify what the output should be, without describing all the details of how the data should be manipulated to produce the result. This is one step ahead from 3GL. These are result-oriented and include database query language. It includes: Visual Basic, C#, PHP, etc. The objectives of 4GL are: to increase the speed of developing programs, to reduce errors while writing programs. *Merits*: Programmer doesn't need to think about the procedure of the program. So, programming is much easier. *Demerits*: It is easier but needs higher processor and larger memory. It needs to be translated therefore its execution time is more.

***Natural languages*** are still in developing stage where we could write statements that would look like normal sentences. *Merits*: Easy to program. Since, the program uses normal sentences, they are easy to understand. The programs designed using 5GL will have artificial intelligence (AI). The programs would be much more interactive and interesting. *Demerits*: It is slower than previous generation language as it should be completely translated into binary code which is a tedious task. Highly advanced and expensive electronic devices are required to run programs developed in 5GL. Therefore, it is an expensive approach.

**4. Найдите в тексте следующие словосочетания; используйте их для пересказа текста:**

I. Low level languages; high level languages; the most understandable language; Machine language; Assembly language; strings of binary numbers; fast execution speed; merits and demerits; to consume; to debug; to run a program; to convert into machine code; mnemonics code; addition; subtraction; division; to identify errors; being machine dependent language;

II. To resemble; mathematical notations; to maintain the errors easily; interpreter and compiler;

Procedural-Oriented language; Problem-Oriented language; Natural language; to determine the order of steps; to follow; to reach; to solve; to include; because of flexibility; to increase the time of execution; database query language; to reduce; therefore; artificial intelligence previous generation ; language; to require; an expensive approach.

## Текст 28

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**1. Прочитайте текст и составьте реферат на английском языке.**

### **SYSTEMS-DEVELOPMENT LIFE CYCLE**

As it is known the System-development Life Cycle contains the following phases.

**1. Preliminary Analysis** is the review of the request. A key part of this step is a feasibility analysis, which includes an analysis of the technical feasibility (is it possible to create this?), the economic feasibility (can we afford to do this?), and the legal feasibility (are we allowed to do this?). This step is important in determining if the project should even get started.

**2. System Analysis.** In this phase, one or more system analysts determine the specific requirements for the new system. Procedures are documented, key players are interviewed, and data requirements are developed in order to get an overall picture of exactly what the system is supposed to do. The result of this phase is a system-requirements document.

**3. System Design.** In this phase, a designer takes the system-requirements document created in the previous phase and develops the specific technical details required for the system. The business requirements are translated into specific technical requirements. The design for the user interface, database, data inputs and outputs, and reporting are developed here. The result of this phase is a system-design document. This document will have everything a programmer will need to actually create the system.

**4. Programming.** The code finally gets written in the programming phase. Using the system-design document as a guide, a programmer develops the program. The result of this phase is an initial working program that meets the requirements laid out in the system-analysis phase and the design developed in the system-design phase.

**5. Testing.** In the testing phase, the software program developed in the previous phase is put through a series of structured tests. The first is a unit test, which tests individual parts of the code for errors or bugs. Next is a system test, where the different components of the system are tested to ensure that they work together properly. Finally, the user-acceptance test allows the users to ensure that it meets their standards. Any bugs, errors, or problems found during testing are addressed and then tested again.

**6. Implementation.** Once the new system is developed and tested, it has to be implemented in the organization. This phase includes training the users, providing documentation, and conversion from any previous system to the new system.

**7. Maintenance.** This final phase takes place to have a structured support process in place: reported bugs are fixed and requests for new features are evaluated and implemented; system updates and backups are performed on a regular basis.

## Текст 29

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1. Прочитайте текст и установите соответствие между абзацами текста (1—7) и предложенными заголовками (A — H). Один заголовок лишний.

- A A language effectively used for creating desktop applications and games.
- B The oldest languages used today.
- C An easy in learning language in high demand today, having wide application capabilities.
- D An academic language seldom used by most application developers for embedded systems,
- E Numerous languages used nowadays.
- F A universal language for personal computers
- G A language capable of automatic memory management
- H A simple readable language, having long-term compatibility.

### VARIETY OF PROGRAMMING LANGUAGES

1. There are hundreds of programming languages in use today. It is difficult to determine which programming languages are most widely used. One language may occupy the greater number of programmer hours, a different one has more lines of code, a third may utilize the most CPU time, and so on. Some languages are very popular for particular kinds of applications.

**2. FORTRAN (Formula Translation), LISP (List Processor) and COBOL (Common Business-Oriented Language)** are considered as the oldest languages that are used today. Designed in 1957— 1959, they are high-level programming languages that were created by scientists, mathematicians and business computing professionals. They are used for scientific and engineering applications (FORTRAN), data handling, input-output and arithmetic operations (COBOL), artificial intelligence (AI) research (LISP).

**3. BASIC** (the acronym for **B**eginner's **A**ll-purpose **S**ymbolic **I**nstruction **C**ode) was developed 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.

**4. Java** is one of the most popular and widely used programming languages for web development. This is a high-level general purpose object-oriented language that had made a project for interactive television. Java's popularity with developers is due to the fact that the language is based in readability and simplicity. Java has staying power since it has long-term compatibility, which makes sure older applications continue to work now into the future. Java is used for Web programming, Web development, software development, development of graphical user interface applications.

**5. JavaScript** is another favorite programming language, used for creating and developing websites. It allows developers to add interactive elements to their website. This language is capable of controlling the browser, editing content on a document that has been displayed, allowing client-side scripts to communicate with users and also asynchronous communication. It is used very widely and effectively in creating desktop applications as well as for developing games. One of the best things about JavaScript is that it is accepted and supported by all the major browsers without the need of any compilers or plug-ins.

**6. Python** is a high- level, general- purpose programming language dynamic in nature, which means that a developer can write and run the code without the need of a compiler. The language is considered easy for beginners to understand and learn. Some features of this language include automatic memory management, large library, dynamic type system and support of many paradigms. It is used for Web applications, software development, and computer security.

**7. Ruby** is a high level, general purpose, object-oriented programming language. Designed in 1995 by Yukihiro Matsumoto, Ruby is a dynamic programming language that is used for the



creation or programming of mobile applications and websites. Ruby is popular due to its ease of learning, it's very straightforward. It is not only simple to understand but also easy to write. Ruby is a teaching program, designed to make programming more productive and enjoyable. Ruby knowledge is in high demand these days.

# English-Russian Vocabulary (Англо-русский учебный словарь)

## Abbreviations

*adj* — adjective — прилагательное  
*adv* — adverb — наречие  
*cj* — conjunction — союз *n*  
noun — существительное  
*pl* — plural — множественное число  
*prep* — preposition — предлог  
*pron* — pronoun — местоимение  
*v* — verb — глагол

## A

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- academia** *n* ..... научные круги; профессура
- accept** *v* ..... принимать, одобрять, признавать
- acceptable** *adj* ..... приемлемый, подходящий, допустимый
- acceptance** *n* ..... принятие, одобрение, согласие
- access** *n* ..... доступ, обращение;
- v* ..... иметь (получить) доступ
- gain access (to)** ..... получить доступ (к)
- accomplish** *v* ..... выполнять
- accomplish a task** ..... выполнять задание
- account** *n* ..... аккаунт, учетная запись;  
отчет, доклад, описание, рассказ; счет
- take into account** ..... принимать во внимание, учитывать
- account for (smth)** *v* ..... составлять; объяснять (что-л.);  
отчитываться (в чем-л.) отвечать (за что-л.)
- accurate** *adj* ..... точный, тщательный
- accurately** *adv* ..... точно; тщательно
- achieve** *v* ..... достигать, добиваться
- ad** ..... *сокр. от advertisement*
- adjust** *v* ..... регулировать; настраивать; корректировать
- adjustment** *n* ..... регулирование, настройка; корректировка
- advantage** *n* ..... преимущество; выгода, польза

**take advantage of smth**..... воспользоваться чем-л.

**advert** ..... *сокр. от advertisement*

**advertise v** ..... рекламировать, помещать объявление

**advertisement n** ..... реклама, объявление

**affect v** ..... действовать, воздействовать, влиять

**aid n** ..... помощь, содействие

**aids** ..... вспомогательные средства, пособия

**visual aids** ..... наглядные пособия;  
визуальные вспомогательные средства

**align v** ..... выравнивать, располагать по одной линии

**align left (right)** ..... выравнивать по левому краю (по правому краю)

**allow v** ..... разрешать; давать разрешение,- позволять

**alter v** ..... изменять, перестраивать, преобразовывать

**alteration n** ..... изменение, перестройка, преобразование

**amend v** ..... изменять, вносить поправки, редактировать

**amendment v** ..... поправка; изменение

**analog form** ..... аналоговая форма

**animation n** ..... анимация (создание движущихся изображений на экране дисплея); мультипликация

**annotate v** ..... давать примечание; комментировать, снабжать комментарием; аннотировать

**anticipate v** ..... опережать, упреждать, предупреждать

**apart from adv** ..... не говоря уже о, кроме, не считая

**app** ..... *сокр., от application*

**appear v** ..... показываться, появляться;  
казаться, производить впечатление

**appearance n** ..... внешний вид; появление

**applet n** ..... прикладная мини программа; апплет

**appliance n** ..... прибор, приспособление, устройство

**household appliances** ..... бытовая техника, бытовые приборы

**application n** ..... приложение, прикладная программа;  
применение, использование

**application program** ..... прикладная программа, приложение

**interactive application** ..... интерактивное приложение;  
интерактивная прикладная программа

**run an application**.....запустить (использовать) приложение

**spreadsheet application**..... табличное приложение

**apply** *v* ..... использовать, применять;  
прилагать, прикладывать

**approach** *n* ..... подход, позиция, метод;  
*v* ..... подходить, приближаться;  
обращаться (к кому-л.); братья, взятыя

**approach to the problem** ..... подход (путь) к разрешению проблемы

**approximate** *v* ..... приближать; приближенно равняться;  
*adj*.....приблизительный, приближенный; приближающий,

**assess** *v* .....оценивать, давать оценку

**assign** *v* ..... назначать, присваивать; давать

**assign a task**..... давать задание

**assistant** *n*..... помощник, ассистент

**personal digital assistant** ..... «персональный цифровой секретарь»,  
карманный персональный компьютер

**attach** *v* ..... прикреплять, присоединять, подсоединять

**attachment** *n* .....прилагаемый файл;  
прикрепление, присоединение; приспособление, приставка

**attempt** *n*..... попытка; проба;  
*v*..... пытаться, делать попытку

**augment** *v*..... прибавлять, дополнять; увеличивать(ся)

**authentication** *n*.....аутентификация,  
подтверждение прав доступа (сервис в системе контроля доступа);  
подтверждение подлинности; опознавание

**available** *adj* ..... доступный; имеющийся в наличии, наличный

**availability** *n* ..... доступность; наличие; готовность;  
возможность использования

**average** *n* ..... среднее (число);  
*adj*..... средний; обычный;  
*v* ..... в среднем равняться

**on average** ..... в среднем

**aware** *adj*.....знающий, осведомленный

**be aware (of)** .....знать, быть осведомленным (сведущим) в чем-л.

## *B*

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- backbone** *adj* ..... стержневой, основной, базовый; магистральный;  
*n* ..... магистраль; магистраль сети, магистральный кабель
- backup** *n* ..... резервирование; резервная копия;  
резервное устройство; поддержка;  
*adj* ..... вспомогательный, резервный, дублирующий
- band** *n* ..... полоса (частот); диапазон
- bandwidth** *n* ..... полоса (частот); полоса пропускания;  
пропускная способность (канала)
- be made up of** ..... состоять из
- beneficial** *adj* ..... выгодный; полезный
- benefit** ..... выгода, польза; извлекать пользу, выгоду
- board** *n* ..... плата; (коммутационная) доска;  
панель; пульт; стол; щит
- circuit board** ..... монтажная плата
- bold** *adj* ..... жирный, полужирный (о шрифте)
- boot** *n* ..... (начальная) загрузка (компьютера);  
*v* ..... загружать; выполнять начальную загрузку
- broadband** *n* ..... широкополосная передача
- browse** *v* ..... просматривать (*напр.*, файл)
- browser** *n* ..... браузер (программа для навигации и просмотра Интернет-сайтов)
- bug** *n* ..... ошибка (в программе или системе)  
**fix bugs** ..... устранять (исправлять, корректировать) ошибки
- burn** *v* ..... записывать файлы на компакт-диск
- bus** *n* ..... шина, магистральная шина, магистраль;  
канал (передачи информации)
- external bus** ..... внешняя шина
- internal bus** ..... внутренняя шина
- universal serial bus (USB)** ..... универсальная последовательная шина, интерфейс USB (*ю-эс-бу*)
- button** *n* ..... кнопка mouse button - кнопка мыши

## C

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<b>cable</b> <i>n</i> .....	кабель, кабельный шнур
<b>cancel</b> <i>v</i> .....	отменять; аннулировать
<b>capability</b> <i>n</i> .....	способность
<b>capable</b> <i>adj</i> .....	способный
<b>capacity</b> <i>n</i> .....	емкость; мощность, нагрузка, производительность
<b>memory capacity</b> .....	емкость памяти
<b>caption</b> <i>n</i> .....	подпись (под иллюстрацией); надпись
<b>card</b> <i>n</i> .....	плата; карта
<b>expansion card</b> .....	плата расширения, расширительная плата
<b>carry out</b> <i>v</i> .....	выполнять
<b>carry out a task</b> .....	выполнять задание
<b>case</b> <i>n</i> .....	регистр (клавиатуры)
<b>lower case</b> .....	нижний регистр
<b>upper case</b> .....	верхний регистр
<b>cause</b> <i>n</i> .....	причина;
<i>v</i> .....	вызывать, являться причиной
<b>character</b> <i>n</i> .....	знак, символ; цифра, буква
<b>charge</b> <i>n</i> .....	заряд; ( <i>pl</i> ) расходы;
<i>v</i> .....	заряжать
<b>be charged with</b> .....	поручать
<b>be in charge of</b> .....	руководить; отвечать за (кого-л., что-л.)
<b>charger</b> <i>n</i> .....	зарядное устройство
<b>chart</b> <i>n</i> .....	диаграмма, схема, таблица, график
<b>pie chart</b> .....	секторная диаграмма
<b>chip</b> <i>n</i> .....	кристалл; микросхема, интегральная схема
<b>memory chip</b> .....	кристалл памяти
<b>chunky</b> <i>adj</i> .....	громоздкий
<b>circuit</b> <i>n</i> .....	схема, цепь, контур
<b>integrated circuit</b> .....	интегральная схема
<b>click</b> <i>v</i> .....	нажать кнопку мыши, выполнить щелчок мышью
<b>click on an icon</b> .....	выбрать пиктограмму, щелкнуть на иконке

<b>cloud computing</b>	..... облачные вычисления, «облака» (модель предоставления вычислительных ресурсов через Интернет)
<b>cloud computing technology</b>	..... технология облачных вычислений
<b>code</b> <i>n</i>	..... код; (машинная) программа
<b>assembly code</b>	..... ассемблерный код
<b>binary code</b>	..... двоичный код
<b>machine code</b>	..... машинный код
<b>source code</b>	..... исходный код
<b>codec</b> <i>n</i>	..... кодек, кодек-декодер (блок аппаратуры цифровой передачи речевых сигналов по телефонным каналам); компрессор-декомпрессор (данных)
<b>collocation</b> <i>n</i>	..... сочетание слов; устойчивое словосочетание
<b>compatibility</b> <i>n</i>	..... совместимость; соответствие
<b>compatible</b> <i>adj</i>	..... совместимый
<b>compilation</b> <i>n</i>	..... компилирование; компиляция; собрание (материала, фактов)
<b>compile</b> <i>v</i>	..... компилировать, составлять; собрать (материал, факты и т.п.)
<b>compile time</b>	..... время компиляции, время работы компилятора; период (этап) компиляции
<b>compiler</b> <i>n</i>	..... компилятор, компилирующая программа
<b>complete</b> <i>adj</i>	..... полный, законченный, завершённый;
<i>v</i>	..... заканчивать, завершать
<b>complex</b> <i>adj</i>	..... сложный, составной, комплексный; трудный
<b>complexity</b> <i>n</i>	..... сложность; что-л. сложное
<b>compress</b> <i>v</i>	..... сжимать; уплотнять
<b>compression</b> <i>v</i>	..... сжатие; уплотнение
<b>data compression</b>	..... сжатие (уплотнение) данных
<b>compromise</b> <i>v</i>	..... компрометировать, дискредитировать (защищенную информацию в результате ее несанкционированного раскрытия или утраты)
<b>computer</b> <i>n</i>	..... компьютер
<b>desktop computer</b>	..... настольный компьютер
<b>general-purpose computer</b>	..... универсальный компьютер
<b>laptop computer</b>	..... лэптоп, переносной персональный компьютер
<b>mainframe computer</b>	..... мэйнфрейм; мощный центральный компьютер, используемый для решения сложных вычислительных задач

<b>networked computer</b>	сетевой компьютер
<b>notebook computer</b>	ноутбук, переносной персональный компьютер
<b>personal computer</b>	персональный компьютер
<b>standalone computer</b>	автономный компьютер
<b>tablet computer</b>	планшетный компьютер; планшет
<b>conceal</b>	<i>v</i> скрывать; укрывать
<b>conduct</b>	<i>v</i> проводить; ставить (опыты); вести; руководить
<b>confine</b>	<i>v</i> ограничивать
<b>conform</b>	<i>v</i> соответствовать
<b>connect</b>	<i>v</i> соединять, присоединять; включать, подключать
<b>connection</b>	<i>n</i> соединение, связь, присоединение; включение, подключение
<b>connector</b>	<i>n</i> соединитель, (штепсельный) разъем
<b>console</b>	<i>n</i> пульт (управления); пульт оператора; консоль
<b>consume</b>	<i>v</i> потреблять, расходовать
<b>consumer</b>	<i>n</i> потребитель
<b>consumption</b>	<i>n</i> потребление; расход
<b>power consumption</b>	потребляемая мощность
<b>contain</b>	<i>v</i> содержать в себе, вмещать
<b>content</b>	<i>n</i> содержание, сущность; контент; ( <i>pl</i> ) содержание, содержимое; объем, количество; оглавление
<b>contribute</b>	<i>v</i> способствовать, содействовать; делать вклад
<b>contribution</b>	<i>n</i> вклад; содействие
<b>make a contribution to smth</b>	сделать вклад во что-л
<b>convenience</b>	<i>n</i> удобство
<b>convenient</b>	<i>adj</i> удобный, подходящий
<b>conventions</b>	<i>n</i> условные обозначения
<b>convert</b>	<i>v</i> преобразовывать; превращать
<b>couple</b>	<i>n</i> пара; <i>v</i> спаривать, сцеплять, соединять
<b>coupled</b>	<i>adj</i> связанный, соединенный, сочлененный
<b>create</b>	<i>v</i> создавать, творить
<b>creation</b>	<i>n</i> создание; разработка





**deployment** *n* ..... использование, применение

**desktop** *n* ..... рабочий стол; настольный компьютер

**desktop publishing (DTP)** ..... настольная издательская система (НИС),  
настольная редакционно-издательская система (система, предназначенная  
для верстки печатных изданий: книг, газет, журналов, проспектов и т.д.)

**desktop publishing software** ..... программное обеспечение для настольных  
издательских систем

**detect** *v* ..... обнаруживать, выявлять

**determination** *n* ..... определение; установление

**determine** *v* ..... определять, устанавливать

**develop** *v* ..... разрабатывать, развивать, совершенствовать

**developer** *n* ..... разработчик

**development** *n* ..... разработка, развитие, совершенствование

**under development** ..... (находящийся) в процессе разработки

**device** *n* ..... устройство; прибор; приспособление;  
механизм; аппарат

**input device** ..... устройство ввода

**input/output device** ..... устройство ввода/вывода

**output device** ..... устройство вывода

**pointing device** ..... устройство управления позицией;  
координатное устройство; указательное устройство

**diagram** *n* ..... диаграмма; схема; график, графическое представление

**differ** *v* ..... отличаться, различаться

**difference** *n* ..... отличие, различие

**digit** *n* ..... цифра; разряд

**digital** *adj* ..... цифровой

**digital form** ..... цифровая форма

**dimension** *n* ..... размер; величина; объем

**give a dimension to smth** ..... придавать размах (масштаб) чему-л.

**take the dimensions of smth** ..... измерить что-л.

**directory** *n* ..... директория; папка; каталог; справочник

**disadvantage** *n* ..... недостаток; ущерб; невыгодное положение

**disconnect** *v* ..... разъединять, размыкать

**disk** *n* ..... диск

**floppy disk** *n* ..... гибкий диск

**hard disk** *n* ..... жесткий диск  
**diskette** *n* ..... дискета  
**distinct** *adj* ..... явный, отчетливый; различный, разный  
**distinct (from)** *adj* ..... отличный (от других)  
**distinction** *n* ..... различие; разграничение  
**distribute** *v* ..... распределять, распространять  
**distribution** *n* ..... распределение, распространение  
**diverse** *adj* ..... разнообразный, разный  
**diversity** *n* ..... разнообразие, многообразие  
**domain** *n* ..... область; домен; зона  
**download** *v* ..... загружать, скачивать  
**downloadable** *adj* ..... доступный для скачивания  
**downsizing** ..... уменьшение размеров;  
перенос (прикладных систем) с больших компьютеров на малые  
**drag** *v* ..... перетаскивать, передвигать (фрагмент изображения по экрану)  
**drag an icon** ..... передвигать иконку  
**draw** *v* ..... чертить, вычерчивать  
**drawing** *n* ..... чертеж, рисунок, изображение  
**assembly drawing** ..... сборочный чертеж  
**drive** *n* ..... накопитель (на дисках), дисковод; привод, передача  
**disk drive** ..... дисковод  
**flash drive** ..... устройство флэш-памяти, флэш-накопитель, флэшка  
**durability** *n* ..... долговечность, прочность  
**durable** *adj* ..... долговечный, прочный

## *E*

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**edit** *v* ..... редактировать  
**edit data** ..... редактировать данные  
**editor** *n* ..... редактор, программа редактирования  
**text editor** ..... текстовый редактор, редактор текста  
**eject** *v* ..... выдавать (*напр.*, отпечатанный лист из принтера); испускать  
**eliminate** *v* ..... устранять, исключать

**elimination** *n* ..... устранение, исключение

**embedded** *adj* ..... вложенный; встроенный

**emerge** *v* ..... появляться, возникать

**emergence** *n* ..... появление, возникновение

**employ** *v* ..... предоставлять работу, нанимать (на работу);  
использовать, применять

**employee** *n* ..... служащий, работающий по найму

**employer** *n* ..... работодатель, наниматель

**employment** *n* ..... работа, служба, занятость;  
прием (на работу); применение, использование

**enable** *v* ..... давать (создавать) возможность

**encompass** *v* ..... заключать (в себе), охватывать

**encounter** *v* ..... (неожиданно) встретиться; сталкиваться, наталкиваться

**encrypt** *v* ..... кодировать, шифровать  
(с целью защиты информации от несанкционированного просмотра или  
использования, особенно при передаче по линиям связи)

**encryption** *n* ..... кодирование, шифрование

**full disk encryption (FDE)** ..... полное шифрование диска,  
полнодисковое шифрование

**engage** *v* ..... занимать, заниматься (чем-л.)

**be engaged in smth** ..... заниматься чем-л.

**engine** *n* ..... машина; движущий механизм; двигатель

**search engine** ..... система поиска,  
поисковая система (в Интернете), поисковик

**enhance** *v* ..... улучшать, усовершенствовать

**enhancement** *n* ..... усовершенствование; улучшение;  
модернизация; расширение (*напр.*, возможностей программных средств)

**ensure** *v* ..... обеспечивать, гарантировать

**enter** *v* ..... вводить, заносить, вписывать, записывать

**enterprise** *n* ..... учреждение; предметная область (базы данных)

**environment** *n* ..... окружение, обстановка, среда, атмосфера;  
окружающая среда

**desktop environment** ..... среда настольной системы,  
среда рабочего стола

**envision** *v* ..... представлять себе; предвидеть

**equal** *adj* ..... равный, одинаковый;

*v* .....равняться  
**equally** *adv* ..... в равной степени; равным образом, одинаково  
**equation** *n* ..... уравнение  
**equip** *v* .....оборудовать, оснащать  
**equipment** *n* ..... оборудование, оснащение  
**erase** *v* ..... стирать (запись), разрушать (информацию)  
**error** *n* .....ошибка, погрешность  
     **compile-time error** .....ошибка этапа трансляции  
     (семантическая или синтаксическая ошибка, делающая дальнейшую  
     трансляцию программы невозможной)  
     **run-time error** .....ошибка периода исполнения  
     (ошибка в программе, обнаруживаемая только во время ее исполнения)  
     **error-prone** ..... предрасположенный к ошибкам  
**evaluate** *v* ..... оценивать; давать оценку  
     **evaluation** *n* .....оценка; оценочная функция  
**execute** *v* ..... исполнять, выполнять  
**expand** *v* .....расширять(ся), распространять(ся)  
     **expansion** *n* ..... расширение, растягивание  
**expertise** *n* .....специальные знания;  
     профессиональные знания, знания эксперта; практический опыт; экспертиза,  
     экспертный анализ  
**exploit** *v* ..... использовать; эксплуатировать  
**exploration** *n* ..... исследование, изучение  
     **explore** *v* ..... исследовать, изучать; выяснять  
**extract** *v* .....извлекать, выделять  
**e-zine** *n* ..... электронный журнал

## *F*

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**facilitate** *v* .....облегчать, способствовать  
**facility** *n* ..... устройство, приспособление, оборудование;  
     возможность, условие  
**feature** *n* ..... особенность, признак, свойство, характерная черта;  
     *v* ..... показывать  
**finite** *adj* ..... ограниченный; конечный

**fire** *v* ..... запускать(ся), срабатывать, возбуждать(ся)

**firewall** *n* ..... межсетевой экран (МЭ), брандмауэр, защитная система, заслон, «огненная стена»

**firewire** *n* ..... скоростной последовательный интерфейс

**fit** *v* ..... пригонять, приспособливать; помещаться; собирать, монтировать

**fix** *n* ..... исправление (ошибки в программе); местоположение;  
*v* ..... исправлять; настраивать, наладивать

**fix an error** ..... исправить ошибку

**fix bugs** ..... устранять (исправлять, корректировать) ошибки

**fix a problem** ..... уладить проблему

**flame** *n* ..... «наезд» (ругань в сети в чей-л. адрес); скандальное послание

**flaw** *n* ..... дефект, недостаток; изъян

**flexibility** *n* ..... гибкость

**flexible** *adj* ..... гибкий

**flowchart** *n* ..... блок-схема

**follow** *v* ..... придерживаться, следовать; соблюдать

**font** *n* ..... шрифт

**font size** ..... размер шрифта

**footer** *n* ..... подстрочное примечание; нижний колонтитул

**former** *adj* ..... первый (из двух названных)

**framework** *n* ..... база, основа, структура, каркас, оболочка, конструкция

**fraud** *n* ..... обман, мошенничество

**frequency** *n* ..... частота; повторяемость

**frequent** *adj* ..... частый

## *G*

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**gain** *v* ..... получать, приобретать; добиваться

**gain access (to)** ..... получить доступ (к)

**gateway** *n* ..... сетевой шлюз (аппаратный маршрутизатор или программное обеспечение для сопряжения компьютерных сетей, использующих разные протоколы);

	межсетевой переход (интерфейс)
<b>Internet gateway</b> .....	интернет-шлюз
<b>goal</b> <i>n</i> .....	цель, задача
<b>achieve a goal</b> .....	достичь цели
<b>graph</b> <i>n</i> .....	график, диаграмма
<b>bar graph</b> .....	гистограмма (диаграмма в виде столбцов)
<b>line graph</b> .....	диаграмма в виде ломаной линии

## *H*

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<b>handle</b> <i>v</i> .....	обрабатывать, оперировать, манипулировать
<b>handout</b> <i>n</i> .....	раздаточный материал
<b>hardware</b> <i>n</i> .....	(аппаратное) оборудование, аппаратные средства; железо, технические средства, техническое обеспечение
<b>header</b> <i>n</i> .....	заголовок, рубрика, «шапка»; верхний колонтитул
<b>heavy-duty</b> <i>adj</i> .....	(работающий) в тяжелом режиме; предназначенный для работы в тяжелом режиме
<b>highlight</b> <i>v</i> .....	выдвигать на первый план; придавать большое значение; ярко освещать
<b>highway</b> <i>n</i> .....	канал информации; магистральная шина, магистраль
<b>information highway</b> .....	информационная магистраль
<b>hitherto</b> <i>adj</i> .....	прошлый;
<i>adv</i> .....	до настоящего времени, до этого времени, до сих пор
<b>hook up</b> <i>v</i> .....	соединять, подключать, связывать
<b>hookup</b> <i>n</i> .....	присоединение, подключение
<b>hop</b> <i>n</i> .....	транзитный участок (линии передачи); пересылка (принятого сообщения в сеть); ретрансляция, транзит
<b>host</b> <i>n</i> .....	хост (устройство, подключенное к сети и использующее протоколы TCP/IP); главный компьютер; ведущий компьютер
<b>hypermedia</b> <i>n</i> .....	гиперсреда, гипермедиа (расширенный по сравнению с гипертекстом метод организации мультимедийной информации, охватывающий разные среды)
<b>hypertext</b> <i>n</i> .....	гипертекст, обобщенный текст (многоуровневый способ представления информации при помощи связей между документами)

**keyboard** *n*.....клавиатура, клавишная панель  
**keypad** *n*..... малая клавиатура  
**kickstand** *n*..... подставка, стойка

## *I*

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**icon** *n*.....значок, пиктограмма (на экране компьютера), иконка  
**idle** *adj*.....неработающий;  
простаивающий, бездействующий; резервный; свободный  
**image** *n*.....изображение, образ; вид  
**still image**.....неподвижное (статическое) изображение,  
неподвижный кадр; стоп-кадр; видеокادر; фотографическое изображение,  
фотоснимок  
**implement** *v*.....выполнять, осуществлять, реализовывать  
**implementation** *n*.....выполнение, реализация  
**increase** *n*.....возрастание, увеличение;  
*v*.....возрастать, увеличивать  
**indentation** *n*.....структурированное расположение текста,  
введение отступов  
**infinite** *adj*.....бесконечный  
**input** *n*.....входные данные; ввод, вход;  
*v*.....вводить данные  
**insert** *v*.....вставлять; вкладывать  
**install** *v*.....устанавливать, монтировать, собирать; располагать, размещать  
**installation** *n*.....установка, инсталляция (программного обеспечения);  
устройство, система  
**integrate** *v*.....объединять в единое целое, интегрировать  
**integrity** *n*.....целостность; сохранность  
**data integrity**.....целостность данных  
**interconnect** *v*.....(взаимо)связывать  
**interface** *n*.....интерфейс, устройство сопряжения;  
*v*.....сопрягать, согласовывать;  
соединять, связывать с компьютером  
**investigation** *n*.....исследование; изучение, расследование  
**investigate** *v*.....исследовать, изучать; расследовать



**involve** *v* ..... быть связанным, вовлекать  
**involvement** *n* ..... вовлечение  
**irrespective (of)** ..... безотносительно (к чему-л.);  
независимо (от чего-л.)  
**isochronous** *adj* ..... изохронный  
**italics** *n* ..... курсив  
**bold italics** ..... полужирный курсив

## ***K***

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**key** *n* ..... клавиша;  
*v* ..... набирать на клавиатуре  
**function key** ..... функциональная клавиша

## ***L***

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**lack** *n* ..... отсутствие, нехватка, недостаток, дефицит;  
*v* ..... испытывать недостаток, нуждаться, не иметь  
**language** *n* ..... язык  
**assembly language** ..... язык ассемблера  
**declarative language** ..... декларативный язык  
**high-level language** ..... язык высокого уровня  
**Hypertext Markup Language (HTML)** ..... язык гипертекстовой разметки,  
язык HTML  
**imperative high-level language** ..... императивный высокоуровневый язык  
**low-level language** ..... язык низкого уровня, низкоуровневый язык  
**machine language** ..... машинный язык  
**object-oriented language** ..... объектно-ориентированный язык  
**programming language** ..... язык программирования  
**scripting language** ..... язык сценариев  
**laptop** ..... лэптоп, переносной персональный компьютер  
**latter** *adj* ..... последний (из двух названных)  
**layer** *n* ..... слой; уровень (иерархии)

**layered** *adj* ..... разделенный на уровни, многоуровневый;  
разделенный на слои, многослойный

**layout** *n* ..... расположение, схема расположения,  
планировка, компоновка, план

**keyboard layout** ..... раскладка клавиатуры;  
схема расположения клавиш на клавиатуре

**lead (led)** *v* ..... руководить, возглавлять, управлять

**lead to** *v* ..... приводить (к чему-л.), вызвать (что-л.),  
быть причиной (чего-л.), иметь результатом

**link** *n* ..... связь, звено, связующее звено;  
*v* ..... соединять, связывать

**log in** *v* ..... входить в систему

**log out** *v* ..... выходить из системы

**loop** *n* ..... цикл (программы);  
*v* ..... организовывать цикл или циклы (в программе)

**infinite loop** ..... бесконечный цикл (части) программы  
(напр., в результате ошибки)

**loudspeaker** *n* ..... динамик; громкоговоритель

## ***M***

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**mainboard** *n* ..... материнская плата, системная плата

**maintain** *v* ..... обслуживать; содержать в исправности;  
поддерживать, сохранять

**maintenance** *n* ..... текущее обслуживание;  
текущий ремонт; (техническое) обслуживание; эксплуатация (системы);  
сопровождение (напр., системы программного обеспечения); подержание,  
сохранение

**major** *adj* ..... главный; большой, более важный;  
*v* ..... специализироваться по какому-л. предмету

**malware** *n* ..... вредоносное программное обеспечение (средство)

**margin** *n* ..... поле (печатной страницы); край, граница

**master** *n* ..... ведущее (задающее) устройство; «хозяин»; оригинал, эталон

**match** *v* ..... согласовывать, приводить в соответствие;  
подгонять, подбирать; сочетать; выравнивать;  
*n* ..... совпадение

**measure** *n* ..... мера; степень;

*v* ..... измерять, иметь размеры  
**measurement** *n* ..... размер, измерение  
**media** *n pl.* ..... от medium; среда  
**rich media** ..... рич-медиа  
 (технология изготовления рекламных материалов, обычно использующая  
 Flash и Java)  
**medium** (*pl*) **media** *n* ..... средство, способ; среда  
**memory** *n* ..... память, запоминающее устройство  
**flash memory** ..... флэш-память,  
 энергонезависимая память, которая сохраняет свое содержимое без  
 питания и регенерации  
**Compact Disk Read-Only Memory (CD-ROM)** ..... ПЗУ на компакт-диске,  
 компакт-диск  
**non-volatile memory** ..... энергонезависимая память  
**Random Access Memory (RAM)** ..... память с произвольной выборкой  
**Read Only Memory (ROM)** ..... постоянная память  
**volatile memory** ..... энергозависимая память  
**minor** *adj* ..... незначительный, второстепенный;  
*v* ..... изучать непрофилирующий предмет  
 (в качестве второй специальности)  
**mode** *n* ..... режим (работы); способ, метод, принцип (работы)  
**modem** *n* ..... модем  
**dial-up modem** ..... модем коммутируемой линии передачи  
**modularity** *n* ..... модульность, модульный принцип (организации)  
**monitor** *n* ..... монитор; дисплей  
**CRT (Cathode Ray Tube) monitor** ..... ЭЛТ-монитор, монитор на основе  
 электронно-лучевой трубки  
**LCD (Liquid Crystal Display) monitor** ..... ЖК-монитор,  
 жидкокристаллический монитор  
**LED (Light-Emitting Diodes) monitor** ..... LED-монитор, монитор на основе  
 светоизлучающих диодов  
**motherboard** *n* ..... материнская плата, системная плата  
**mount** *v* ..... устанавливать, монтировать  
**mouse pad** ..... коврик для мыши  
**multiple** *adj* ..... многократный, множественный; многочисленный  
**multitude** *n* ..... множество; большое число

## N

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<b>Net (the) <i>n</i></b> .....	Интернет
<b>surf the Net</b> .....	исследовать сеть, осуществлять поиск в сети
<b>network <i>n</i></b> .....	сеть; сетка; схема
<b>cellular network</b> .....	сотовая сеть
<b>notation <i>n</i></b> .....	запись; представление; система обозначений; нотация
<b>notebook</b> .....	ноутбук, переносной персональный компьютер
<b>notification <i>n</i></b> .....	уведомление, извещение
<b>number (the) <i>n</i></b> .....	число, количество
<b>a number of</b> .....	ряд, некоторое число

## O

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<b>obtain <i>v</i></b> .....	получать, приобретать
<b>obtain an order</b> .....	получать заказ
<b>occur <i>v</i></b> .....	случаться, происходить
<b>operate <i>v</i></b> .....	приводить в действие; работать, функционировать, производить операции
<b>operation <i>n</i></b> .....	операция, действие; работа, функционирование; режим работы; эксплуатация
<b>be in operation</b> .....	действовать, функционировать, работать
<b>come into operation</b> .....	начинать действовать (работать); быть пущенным в эксплуатацию
<b>order <i>n</i></b> .....	заказ; порядок;
<i>v</i> .....	заказывать
<b>in order to</b> .....	для того, чтобы
<b>output <i>n</i></b> .....	выходные данные, выходящая информация (на компьютере); вывод, выход; производительность;
<i>v</i> .....	выводить, подавать на выход
<b>outsourcing</b> .....	привлечение внешних исполнителей для решения собственных проблем (напр., для разработки проекта)

## *P*

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<b>pan</b> <i>v</i> .....	панорамировать
<b>password</b> <i>n</i> .....	пароль
<b>path</b> <i>n</i> .....	путь, дорожка, тракт, канал; маршрут (в сети)
<b>pattern</b> <i>n</i> .....	образец, модель; схема; структура; шаблон; рисунок
<b>peripheral</b> <i>n</i> .....	периферийное устройство (оборудование), внешнее устройство
<b>perform</b> <i>v</i> .....	выполнять, производить
<b>performance</b> <i>n</i> .....	выполнение, исполнение; работа, функционирование; (рабочая) характеристика; производительность
<b>photocopier</b> <i>n</i> .....	ксерокс, фотокопировальное устройство
<b>piconet</b> <i>n</i> .....	пикосеть, сеть беспроводного доступа с сотами очень малых размеров
<b>pin</b> <i>n</i> .....	(контактный) штырек; штекер; вывод; контакт; пуансон; штифт
<b>pitch</b> <i>n</i> .....	наклон, уклон; угол наклона; <i>v</i> .....
	иметь наклон, уклон; изменять угол наклона
<b>plotter</b> <i>n</i> .....	плоттер; графопостроитель
<b>plug in (into)</b> <i>v</i> .....	вставлять в контактное гнездо
<b>point</b> <i>n</i> .....	точка, пункт; точка (знак); <i>v</i> .....
	указывать, показывать
<b>pointer</b> <i>n</i> .....	указатель; стрелка (курсор в форме стрелки)
<b>port</b> <i>n</i> .....	порт (многозарядный вход или выход устройства)
<b>power</b> <i>n</i> .....	мощность; энергия; способность; производительность
<b>precise</b> <i>adj</i> .....	точный, определенный; тщательный
<b>precisely</b> <i>adv</i> .....	точно, определено; тщательно
<b>press</b> <i>v</i> .....	нажимать; сжимать, спрессовывать, уплотнять
<b>press a key</b> .....	нажимать на клавишу
<b>prevent (from)</b> <i>v</i> .....	мешать, препятствовать (чему-л.), не допускать; предотвращать
<b>prevention</b> <i>n</i> .....	предотвращение, предупреждение
<b>print</b> <i>n</i> .....	печать, распечатка; <i>v</i> .....
	печатать, распечатывать

**printer** *n* ..... принтер, печатающее устройство

**dot-matrix printer**..... точечно-матричный принтер

**inkjet printer**..... струйный принтер

**laser printer** ..... лазерный принтер

**printout** *n* ..... распечатка, вывод (данных) на принтер

**privacy** *n* ..... секретность, конфиденциальность (информации);  
личная тайна (характер информации); сохранение тайны (при хранении информации)

**computer privacy**..... защищенность компьютера

**process** *n*..... процесс, способ, метод;  
*v*..... обрабатывать; перерабатывать

**processing** *n*..... обработка; технологический процесс, технология

**data processing**..... обработка данных

**word processing** ..... обработка текстов

**processor** *n* ..... процессор  
(аппаратное устройство или обрабатывающая программа); узел обработки

**word processor** ..... текстовый процессор (программа подготовки и редактирования текста)

**projector**..... проектор

**overhead projector**..... кодоскоп

**protocol** *n* ..... протокол

**Hypertext Transfer Protocol (HTTP)** ..... протокол передачи гипертекстовых файлов, протокол HTTP(используемый WWW-браузерами и WWW-серверами при передаче HTML-файлов)

**Internet Protocol (IP)**..... протокол (сети) интернет, интернетовский протокол

**Transmission Control Protocol (TCP)** ..... протокол управления передачей (основной протокол транспортного и сеансового уровней в наборе протоколов Интернет)

**run a protocol** ..... запустить протокол

**provide** *v*..... обеспечивать, снабжать

**provider** *n*..... провайдер, поставщик

**network service provider** ..... поставщик сетевых услуг

**proxy** *n*..... модуль доступа; программа-посредник

**pseudocode** *n* ..... псевдокод, символический код

**purpose** *n*..... цель, намерение

## Q

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**query** *n* ..... запрос (критерий поиска объекта в базе данных);  
*v* ..... обращаться с запросом

## R

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**range** *n* ..... ряд, серия, диапазон, интервал, предел;  
*v* ..... колебаться в пределах, классифицировать, простираться

**rate** *n* ..... скорость, интенсивность, частота  
**transmission rate** ..... скорость передачи

**ratio** *n* ..... отношение, соотношение; коэффициент  
**screen ratio** ..... соотношение сторон экрана

**real estate** ..... «недвижимость» (в технологии интерактивных видеоизображений — доступное пространство на видеодиске)

**recognition** *n* ..... распознавание, опознавание; различение  
**recognize** *v* ..... распознавать, опознавать, различать

**record** ..... запись, регистрация; *v* записывать, регистрировать

**reduce** *v* ..... уменьшать, сокращать, понижать  
**reduction** *n* ..... уменьшение, сокращение, понижение

**refer** *v* ..... отсылать, направлять; справляться; относиться,  
иметь отношение (к чему-л.); ссылаться (на что-л.)

**refer to information** ..... обращаться к информации;  
обращаться за информацией

**reference** *n* ..... ссылка; отсылка, сноска; рекомендация, отзыв  
**make reference to storage** ..... обращаться к запоминающему устройству

**reference book** ..... справочник

**regarding** *prep* ..... относительно, касательно, о  
**regardless (of)** *adv* ..... независимо от, не считаясь,  
не принимая во внимание

**release** *v* ..... выпускать; разъединять; отпускать; разблокировать;  
*n* ..... выпуск; разъединение; отпускание; разблокировка

**reliable** *adj* ..... надежный  
**rely** *v* ..... полагаться, надеяться; доверять

**remote** *adj* ..... дистанционный, удаленный

**removable** *adj* ..... съемный, сменный

**removal** *n* ..... устранение; удаление; перемещение

**remove** *v* ..... удалять, устранять, перемещать

**replace** *v* ..... заменять; подставлять

**replacement** *n* ..... замена; замещение; подстановка; перестановка

**reply** *n* ..... ответ;

*v* ..... отвечать

**report** *n* ..... доклад, сообщение, отчет;

*v* ..... сообщать, докладывать, представлять отчет

**represent** *v* ..... представлять; изображать

**representation** *n* ..... представление; изображение

**request** *n* ..... запрос, требование;

*v* ..... запрашивать, требовать

**require** *v* ..... нуждаться, требовать

**requirement** *n* ..... требование, потребность;

(*pl*) ..... технические требования

**meet the requirements (the needs)** ..... удовлетворять условиям (требованиям, потребности)

**research** *n* ..... научно-исследовательская работа, исследование;

*v* ..... исследовать, заниматься исследованиями

**carry out/do research** ..... проводить исследования/научно-исследовательскую работу, исследовать

**resolution** *n* ..... разрешающая способность; разрешение в сервисе разрешения имен; разрешение (проблемы)

**respond** *v* ..... отвечать, реагировать, срабатывать

**response** *n* ..... характеристика; зависимость; реакция, отклик, ответ; ответное действие, срабатывание

**responsibility** *n* ..... ответственность; обязанность, обязательство

**responsible** *adj* ..... ответственный, несущий ответственность

**be responsible for** ..... быть ответственным за что-л.

**restrict** *v* ..... ограничивать

**restriction** *n* ..... ограничение

**result** ..... *n* результат, исход;



v ..... кончатся, иметь результатом (in);  
 следовать, происходить в результате (from)

**retrieve** *v* ..... отыскивать; извлекать (информацию)

**retrieval** *n* ..... поиск; извлечение (информации)

**data retrieval** ..... поиск данных; извлечение данных

**reveal** *v* ..... показывать, воспроизводить

**ribbon** *n* ..... лента (обычно красящая или копировальная)

**rotate** *v* ..... поворачивать, вращать

**rotate an icon** ..... поворачивать, вращать иконку

**route** *n* ..... трасса, путь, маршрут, тракт (передачи информации);  
*v* ..... прокладывать маршрут, назначать тракт (передачи информации)

**router** *n* ..... роутер, маршрутизатор  
 (устройство для соединения сетей, использующих разные архитектуры и протоколы)

**run (ran; run)** *v* ..... выполнять, прогонять (программу);  
 пользоваться (компьютерной программой); работать (о механизме);  
 эксплуатировать (оборудование), приводить в действие, пускать в ход;  
 руководить, управлять

**run a protocol** ..... запустить протокол

## S

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**safeguard** *n* ..... предохранительное устройство; защитная мера;  
*v* ..... предохранять, защищать, охранять

**save** *v* ..... сохранять (файлы, работу и т.д. в компьютере);  
 экономить; сберегать, копить

**scatternet** *n* ..... распределенная сеть  
 (комплекс, состоящий из двух и более пикосетей, расположенных на одной  
 общей территории)

**scramble** *v* ..... скремблировать  
 (шифровать путем перестановки и инвертирования участков спектра или групп  
 символов); зашифровывать, шифровать

**screen** *n* ..... экран

**screensaver** *тж.* **screen saver** *n* ..... скринсейвер, экранная заставка

**search** *n* ..... поиск, перебор (вариантов);  
*v* ..... искать, перебирать (варианты)

**search engine** ..... система поиска,  
поисковая система (в Интернете), поисковик

**secure** *adj* ..... защищенный, безопасный; надежный, гарантированный;  
*v* ..... защищать, обеспечивать защиту

**keep files secure** ..... сохранять файлы защищенными

**security** *n* ..... защита, обеспечение безопасности;  
(*pl*) ..... средства защиты

**data security** ..... защита данных; сохранность данных,  
безопасность (надежность) хранения данных

**self-contained** *adj* ..... автономный, самостоятельный,  
независимый; модульный; замкнутый

**separate** *adj* ..... отдельный;  
*v* ..... отделять, разделять

**sequence** *n* ..... последовательность, порядок (следования)

**server** *n* ..... сервер

**remote server** ..... удаленный сервер

**shade** *n* ..... экран; уровень яркости цвета (на экране дисплея);  
*v* ..... экранировать; затемнять

**share** *v* ..... разделять, совместно использовать

**sheet** *n* ..... лист; бланк, карта, схема, диаграмма

**style sheet** ..... таблица стилей (*напр.*, в текстовых процессах)

**shift** *n* ..... сдвиг, смещение; смена регистра; (рабочая) смена;  
*v* ..... сдвигать, смещать

**shortcut** *n* ..... сокращенное именование;  
сокращение; клавишная комбинация быстрого вызова, укороченная клавиатурная команда,  
*adj* ..... сокращенный; ускоренный

**keyboard shortcut** ..... экономия (времени) при пользовании клавиатурой  
(вместо мыши); сокращенный клавишный набор (нужной команды)

**sign** *v* ..... предъявлять пароль (при входе в диалоговую систему)

**sign-on** *n* ..... предъявление пароля

**similar** *adj* ..... подобный, сходный, похожий

**similarity** *n* ..... сходство, подобие

**simulate** *v* ..... моделировать; имитировать

**simulation** *n* ..... моделирование; проведение модельных  
(имитационных) экспериментов

**size** *n* ..... размер; объем (выборки); емкость (ЗУ)  
     **font size** ..... размер шрифта  
**slave** *n* ..... подчиненный компонент системы  
     (устройство, вычислительный процесс)  
**slide** *v* ..... плавно перемещать(ся); скользить  
**slot** *n* ..... гнездо (*напр.*, для разъема); прорезь, паз  
**smear** *v* ..... размазывать, пачкать; размываться  
**society** *n* ..... общество, объединение; организация  
**information society** ..... информационное общество,  
     общество с развитой информационной технологией  
**socket** *n* ..... гнездо, розетка (гнездовая часть разъемного соединения)  
**software** *n* ..... программное обеспечение  
     **application software** ..... прикладное программное обеспечение  
     **desktop publishing software** ..... программное обеспечение для  
     настольных издательских систем  
     **system software** ..... системное программное обеспечение  
**solution** *n* ..... решение  
**solve** *v* ..... решать, разрешать  
     **solve a problem** ..... решить задачу (проблему)  
**sophisticated** *adj* ..... сложный, усложненный  
**source** *n* ..... источник, основа, документ  
     **data source** ..... источник данных  
**speaker** *n* ..... (компьютерная) колонка  
**specification** *n* ..... спецификация, определение;  
     (*pl*) ..... технические условия; технические требования  
**specify** *v* ..... специфицировать; устанавливать; задавать; определять  
**split** *n* ..... дробление, разбиение, разделение, расщепление;  
     *v* ..... дробить, разбивать, разделять, расщеплять  
**spread (spread)** *n* ..... распространение, протяжение;  
     *v* ..... распространяться, простираться  
**spreadsheet** *n* ..... крупноформатная (электронная) таблица  
**spreadsheet application** ..... табличное приложение  
**standalone** *adj* ..... автономный  
**standby** *n* ..... резервное (запасное) оборудование, резерв;

*adj.*..... резервный, запасной

**state** *n*.....состояние; режим;

*v*..... формулировать, излагать, заявлять, констатировать

**storage** *n*..... память, запоминающее устройство;  
запоминание, хранение; хранилище;

*v*..... запоминать, хранить

**removable storage**.....съемное (сменное) запоминающее устройство;  
сменная память, память на съемных носителях

**store** *n*..... запоминающее устройство; ЗУ; хранилище;

*v*..... запоминать, хранить

**stream** *n*..... поток;

*v*..... слушать или смотреть на компьютере что-л.,  
напрямую взятое из Интернета

**audio stream**..... поток аудиоданных, аудиопоток

**digital stream**..... цифровой поток

**video stream**..... поток видеоданных, видеопоток

**strike** *v*..... ударять; нажимать (клавишу)

**substitute** *n*..... замена;

*v*..... заменять, замещать; подставлять

**suit** *v*..... годиться, соответствовать, подходить;  
удовлетворять требованиям, устраивать

**suite** *n*..... набор, комплект (*напр.*, программ)

**application suite**.....прикладной программный комплекс

**superhighway** *n*.....высококлассная магистраль

**information superhighway**.....информационная супермагистраль  
(высококлассная магистраль для передачи информации)

**supervise** *v*..... контролировать, руководить

**supervisor** *n*..... инспектор, контролер

**support** *n*..... поддержка, обеспечение;

*v*..... поддерживать, обеспечивать

**software support**..... программная поддержка

**technical support**.....техническая поддержка (пользователей)

**swipe an icon**.....провести пальцем иконку

**switch** *n*..... переключатель; коммутатор; выключатель; переключать;

*v*..... коммутировать

**link-layer switch**..... переключатель канального уровня  
**packet switch** ..... узел коммутации (коммутатор) пакетов (в сети),  
 пакетный выключатель  
**toggle switch** *n*..... тумблер, (перекидной) переключатель  
**system** *n* ..... система; установка, устройство  
**backup system** ..... резервная (дублирующая) система;  
 поддерживающая система  
**dedicated system**..... специализированная система  
**end system**..... конечная система  
 (система, обеспечивающая передачу через все семь уровней протоколов  
 ISO/OSI и эквивалентная хосту в интернете)  
**entry-level system** ..... базовая система, система базового уровня  
**operating system** ..... операционная система; работающая система

*T*

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**table** *n*..... таблица  
**tablet** ..... планшетный компьютер; планшет  
**tailor** *v*..... приспособливать, предназначать для определенной цели  
**tailored** *adj*..... специализированный, специально приспособленный;  
 заказной  
**task** *n* ..... задача, задание  
**technique** *n*..... способ, метод, методика; прием  
**telecommute** *v* ..... работать дистанционно, присутствовать дистанционно;  
 работать в режиме удаленного офиса с использованием компьютеров,  
 телефонов, факсов и других средств связи с офисом работодателя для  
 выполнения работы  
**telecommuter** *n* ..... человек, работающий в режиме удаленного офиса  
**telework** *v*..... работать дистанционно, присутствовать дистанционно;  
 работать в режиме удаленного офиса с использованием компьютеров,  
 телефонов, факсов и других средств связи с офисом работодателя для  
 выполнения работы  
**teleworker** *n* ..... человек, работающий в режиме удаленного офиса  
**template** *n* ..... шаблон, образец, модель  
**tend** *v*..... иметь тенденцию, стремиться  
**term** *n* ..... период, срок; семестр; термин;  
 (*pl*) ..... условия

<b>in terms of</b> .....	с точки зрения
<b>tier</b> <i>n</i> .....	ярус; ряд
<b>data tier</b> .....	ярус данных, информационный ярус
<b>tilt</b> <i>v</i> .....	наклонять
<b>time</b> <i>n</i> .....	время, период времени
<b>response time</b> .....	время отклика, время ответа, время реакции системы
<b>standby time</b> .....	время нахождения в резерве; время ожидания ответа на вопрос
<b>tool</b> <i>n</i> .....	инструментальное средство, инструмент;
(pl) .....	инструментарий
<b>programming tools</b> .....	средства программирования
<b>touch</b> <i>v</i> .....	касаться, прикасаться
<b>touchscreen / touch screen</b> <i>n</i> .....	сенсорный экран (дисплей)
<b>tower</b> <i>n</i> .....	вертикальный корпус (компьютера); вертикальный блок
<b>track</b> <i>n</i> .....	дорожка; канал
<b>keep track</b> .....	отслеживать; следить
<b>transaction</b> <i>n</i> .....	входное сообщение (приводящее к изменению файла); транзакция (групповая операция); деловая операция, сделка
<b>transfer</b> <i>n</i> .....	передача; пересылка; перенос;
<i>v</i> .....	передавать; пересылать; переносить
<b>data transfer</b> .....	передача (пересылка) данных
<b>transmission</b> <i>n</i> .....	передача; пропускание, прохождение ( <i>напр.</i> , сигнала)
<b>transmission rate</b> .....	скорость передачи
<b>transparency</b> <i>n</i> .....	прозрачность; прозрачный слайд
<b>overhead transparency</b> .....	слайд для кодоскопа
<b>traverse</b> <i>v</i> .....	пересекать; перемещаться; проходить; обходить; прослеживать
<b>tube</b> <i>n</i> .....	тюбик (элемент струйного принтера); (электронно-лучевая) трубка
<b>type</b> <i>v</i> .....	печатать (на пишущей машинке); набирать на клавиатуре
<b>typeface</b> <i>n</i> .....	гарнитура (начертание) шрифта
<b>typewriter</b> <i>n</i> .....	печатающее устройство; пишущая машинка

**ultimate** *adj* ..... крайний, последний, окончательный;  
предельный, максимальный

**unambiguous** *adj* ..... точно выраженный, недвусмысленный

**unit** *n* ..... устройство, узел, блок

**central processing unit (CPU)** ..... центральный процессор/ЦП

**system unit** ..... системный блок

**usage** *n* ..... применение, использование; используемость

**USB (Universal Serial Bus)** ..... универсальная последовательная шина,  
интерфейс USB (*ю-эс-бу*)

**use** *n* ..... использование, назначение, применение, польза;  
*v* ..... использовать, применять

**be in use** ..... быть в употреблении, использоваться

**make use of** ..... воспользоваться, использовать

**user** *n* ..... пользователь

**end user** ..... конечный пользователь

**Usenet** *n* ..... сеть Usenet; сеть пользователей

**utility** *n* ..... (служебная) обслуживающая программа, утилита;  
полезность, эффективность

## V

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**vendor** *n* ..... поставщик, производитель, продавец

**versatile** *adj* ..... универсальный, многоцелевой

**viable** *adj* ..... жизнеспособный

**utilize** *v* ..... использовать, употреблять, утилизировать

**view** *n* ..... вид, представление; мнение; точка зрения;  
*v* ..... смотреть; изучать; рассматривать

**volatile** *adj* ..... непостоянный, временный;  
энергозависимый, не сохраняющий информацию при выключении  
электропитания

**volume** *n* ..... объем; громкость, уровень громкости

**vulnerable** *adj* ..... чувствительный, уязвимый





## ЛИТЕРАТУРА

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1. *Brown P., Mullen N.* English for Computer Science. – Oxford University Press, 1997.
2. *Davis W.S., David C.Y.* The Information System Consultant's Handbook. Systems Analysis and Design. – CRC Press, 1998.
3. *Gore M.R., Stubbe J.W.* Computers and Information Systems. 2<sup>nd</sup> ed. – New York; London; Paris; Tokyo, 1994.
4. *В.А. Радовель,* Английский язык в сфере информационных технологий. Москва, 2019.
5. *Hill D.* Vocational English Level 2 (Pre-intermediate). English IT Coursebook. Longman, 2011.
6. *Marvin R. Gore, John W. Stubbe.* Computers and Information Systems. Second Edition. – New York, London, Paris, Tokyo, 1994.
7. *Olejniczak M.* Vocational English Level 1 (Elementary). English for IT Coursebook. – Longman, 2011.
8. *Que's Computer & Internet Dictionary.* 6<sup>th</sup> ed. by Bryan Phaffenger and David Wall, 1996.
9. <https://www.webopedia.com/> Webopedia: Online Tech Dictionary for Students, Educators and IT Professionals.
10. <https://www.technopedia.com> Technopedia/