

### **3. Раздел контроля знаний**

### 3.1 Тесты для промежуточного контроля

#### Test 1

##### 1. Skim the text.

##### What is a computer?

Computers are well-known to represent a completely new **branch** of science. They were developed to help humans to store and recall information, to analyse incoming information, to carry out speedily numerical calculations. A high speed electronic computer permits to do in hours what have taken hundreds of years to accomplish without a computer.

How does a computer solve a problem? How does it store information and retrieve it? How does it remember instructions, follow them, and even change them on the basis of pre-established conditions?

Very generally a computer is outwardly an assemblage of electromechanical and electronic modules. The modules contain interconnected transistors, diodes, capacitors and other parts designed into different switching devices. All are microminiaturized to the extent that scores of complete integrated circuits are chemically formed on thin film "chips". This electronic machine works according to a programme prepared in advance which determines the sequence of operation.

The computer performs all the mentioned feats much the same as a human being or like a calculating machine. The five basic functions of any digital computer are: (1) input, (2) storage, (3) control, (4) processing, (5) output.

Before solving a problem you must gather facts and data and store them in your **mind**. The computer receives them in the form of binary codes and stores them on tapes, discs, drums, cores or plastic cards, i.e. its electronic memory.

The computer does have the properties similar to those of the adding machine. It can add, subtract, multiply, divide, list, and also uniquely make decisions, i.e. select on the basis of stored instructions. This stored-programme concept and memory **capability** are the two main characteristics of any computer.

The control function simply means following the instructions very precisely as programmed and stored. The computer must be instructed

(programmed) every step of the way. Thus programming appears to be the primary essential of computer control.

The output of the computer takes many forms. Generally, it is printed, put on cards or tape, stored in memory, displayed on a cathode-ray tube, or communicated to other remote devices. One might compare the five computer functions to the simple calculator, where the keyboard is an input device.

The sequence and method of manipulation of the keys represents the control function, i.e. the sequence of steps. The use of scratch paper for data could be **considered** memory or storage means. The movement of gears, counters and levers on a calculator would correspond to the processing of the computer. The figures printed on the tapes **relate** to the output of the computer. This is much too simplified, but it does aid to explain the five general logic components of the computer.

### Notes:

1. outwardly – внешне
2. extent - экстенд (непрерывная область памяти на диске)
3. scores - множество (большое количество)
4. eat - ловкость, искусство, мастерство
5. scratch paper - бумага для заметок, черновиков
6. gear - устройство, прибор
7. lever рычаг; средство воздействия

### 2. Choose the contextual meaning of the words.

1. *branch* a) ветка b) отрасль c) филиал
2. *capability* a) способность b) производительность c) стойкость
3. *mind* a) психика b) память c) мнение
4. *consider* a) обдумывать b) обсуждать c) рассматривать
5. *relate* a) реагировать b) рассказывать c) относиться

### 3. Choose the best translation.

**1. The computer does have the properties similar to those of the adding machine.**

- a) Компьютер делает свойства подобно счетной машине.
- b) Компьютер действительно имеет свойства подобные свойствам счетной машины.

с) Компьютер действительно имеет свойства подобные тем, что у добавленной машины.

**2. Computers are well-known to represent a completely new branch of science.**

а) Широко известно, что компьютеры представляют совершенно новую отрасль науки.

б) Хорошо известные компьютеры представляют полностью новую отрасль науки.

с) Компьютеры являются хорошо известными устройствами, чтобы представлять совершенно новую отрасль науки.

**4. Decide whether the following statements are true or false.**

1. A high speed electronic computer permits to do in minutes what have taken hundreds of years to accomplish without a computer.

2. A computer is outwardly an assemblage of electromechanical and electronic modules.

3. A computer works according to a programme prepared in advance which determines the sequence of operation.

4. Before solving a problem you must analyse facts and data.

5. The stored-programmed concept and memory capability are the two main characteristics of the adding machine.

**5. Choose a, b or c.**

Electronic computers are basically of two types, analog and digital, according to the manner in which they – 1- data.

An analog computer is so – 2 - because it performs setting up physical situations that are analogous to mathematical situations. An analog computer – 3 -on data in the form of continuously variable quantities such as pressure, temperature, revolutions, speed of sound, or voltage. Thus an analog computer – 4 - essentially a measuring device. Digital computers operate in representations of real numbers or other characters – 5 - numerically.

1. a) represents b) representing c) represent

2. a) naming b) named c) name

3. a) operate b) had operated c) operates

4. a) is b) are c) have been

5. a) coding b) coded c) code

## 6. Read the text. Choose the best summary.

A general purpose computer has four main components: the arithmetic logic unit (ALU), the control unit, the memory, and the input and output devices (collectively termed I/O). These parts are interconnected by busses, often made of groups of wires.

Inside each of these parts are thousands to trillions of small electrical circuits which can be turned off or on by means of an electronic switch. Each circuit represents a bit (binary digit) of information so that when the circuit is on it represents a "1", and when off it represents a "0". The circuits are arranged in logic gates so that one or more of the circuits may control the state of one or more of the other circuits.

The control unit, ALU (the arithmetic logic unit), registers, and basic I/O (the input and output devices) (and often other hardware closely linked with these) are collectively known as a central processing unit (CPU). Early CPUs were composed of many separate components but since the mid-1970s CPUs have typically been constructed on a single integrated circuit called a microprocessor.

**A** The text deals with small electrical circuits inside each of the main part of the computer.

**B** The text is about a central processing unit.

**C** The circuits which are arranged in logic gates are described in the text.

## Test 2

### 1. Skim the text.

#### Computers in science

Computers are perhaps the most useful tools ever invented by mankind. In this, the era of computers, they are used to count our votes, figure our bank accounts, help plan new buildings and bridges, guide our astronauts through space and assist management in its everyday decisions.

The dynamic introduction of the computer has changed man's information needs entirely. Man has developed methods of compiling and

analyzing large quantities of data with a minimum amount of human **intervention**. Technological advances in all fields have been dynamic and extensive. The methods of applying data processing systems to information needs are boundless. With each new application, data processing systems can be used to help man increase his productivity and **advance** civilization further. It's a giant step forward in man's utilization of science and knowledge as a means of progress.

What can computers do for the scientist? Now weather scientists are able to work out astronomical number of calculations for predicting weather changes. They are even working on a mathematic model of the world's weather that may some day enable us to make accurate weather forecasts a year or more ahead of time.

In medicine computers are helping researchers test drugs by extrapolating the information gained in limited **trials**, so that large scale tests will not only be safer, but will yield far more useful information. Computers are helping doctors make diagnoses by winnowing down the information a doctor has to go through to arrive at a valid conclusion.

Biochemists are using computers as a sort of mathematical microscope, in delving into the secret of the living **cell**; they have found a physical limit to the information they can obtain with their instruments. By using computers they have already obtained and are beginning to construct an accurate picture of the giant molecules that are the building blocks of all living things.

In astronomy, computers, of course, serve as computational workhorses, figuring out the exact positions and orbits of planets, stars and other **heavenly** bodies. With the growing importance of radio telescope, computers have been especially valuable in analyzing the patterns of signal received from outer space, separating the meaningful signals from the electronic roar of background "noise" that accompanies them.

Space technology would be almost unthinkable without the power of the computer. This is an area of science that requires the combined knowledge of all other sciences - physics, chemistry, thermodynamics, electronics, mathematics, even psychology. Only computers can bring this large amount of information under control to make it serve our efforts.

The achievements of computers in the fields of space exploration, weather reporting, medical, research and other areas of scientific study have been fantastic. The tremendous storage capacities and rapid processing of data have produced the valuable information necessary for research in the unknown areas of science. Scientific research has moved

into the foreground of human activity. In both the pure and applied sciences, computers are being used to multiply man's thinking power - and to reduce the time he can spend thinking.

Notes:

1. compile - выбирать информацию, собирать материал
2. yield - давать результат, приводить к чему-л.
3. winnow - отсеивать, отбирать
4. delve - тщательно исследовать

## 2. Choose the contextual meaning of the words.

1. intervention    a) вмешательство b) посредничество c) соучастие
2. advance        a) ускорять b) продвигать c) наступать
3. trial            a) исследование b) переживание c) судебный процесс
4. cell             a) хижина b) ячейка c) клетка
5. heavenly       a) небесный b) божественный c) восхитительный

## 3. Choose the best translation.

1. *Computers are helping doctors make diagnoses by winnowing down the information a doctor has to go through to arrive at a valid conclusion.*

- a) Компьютеры помогают врачам ставить диагноз, отсеивая информацию, через которую доктор должен пройти, чтобы прийти к верному заключению.
- b) Компьютеры помогают врачам ставить диагноз, отбирая информацию, которую доктор имеет, чтобы прийти к верному заключению.
- c) Компьютеры помогают врачам ставить диагноз, отбирая информацию, которую доктор должен тщательно изучить, чтобы прийти к верному заключению.

2. *Only computers can bring this large amount of information under control to make it serve our efforts.*

- a) Только компьютеры могут принести это огромное количество информации для контролирования, чтобы заставить служить ее нашим достижениям.

b) Только компьютеры могут контролировать это огромное количество информации, чтобы заставить служить ее нашим исследованиям.

c) Только компьютеры могут контролировать такое огромное количество информации, чтобы она служила нашим усилиям.

#### 4. Decide whether the following statements are true or false.

1. The dynamic introduction of the computer has partially changed man's information needs.

2. The methods of applying data processing systems are limited.

3. Weather scientists are working on a mathematic model of the world's weather that may some day enable us to make accurate weather forecasts a year or more ahead of time.

4. In medicine computers are helping doctors make diagnoses by winnowing down the information.

5. Space technology is an area of science that requires the combined knowledge of all other sciences - physics, chemistry, thermodynamics, electronics, mathematics, even psychology.

#### 5. Choose a, b or c.

In 1983, researcher Fred Cohen – **1** - a computer virus as “a program that can “infect” other programs by – **2** - them to include a version of itself.” This means that viruses copy themselves, usually by encryption or by mutating slightly each time they copy. There are several types of viruses, but the – **3** - that are the – **4** - dangerous – **5** - to corrupt your computer or software programs. Viruses can range from an irritating message flashing on your computer screen to eliminating data on your hard drive.

#### Notes:

1. encryption - кодирование

2. mutating - мутация

3. irritating – раздражающий

1. a) defines b) defined c) will define

2. a) modifying b) modified c) being modified

3. a) ones b) second c) third

4. a) much b) more c) most

5. a) designing b) is designed c) are designed

**6. Match the words with their definitions.**

- |                           |   |
|---------------------------|---|
| 1. capacity               | a) facts unorganized but able to be organized   |
| 2. computer               | b) one of the performance characteristics of storage measured in binary digits  |
| 3. storage                | c) the resources required to accomplish the processing of data. These resources are personnel, material, facilities and equipment |
| 4. data                   | d) a device which can carry out routine mental tasks by performing simple operations at high speed                                |
| 5. data processing        | e) the part of the computer that receives and stores data for processing  |
| 6. data processing system | f) a series of operations that result in the conversion of data into useful information   |

**7. Read the text. Choose the best summary.**

The fact that the Web is being widely used for multiple purposes is without question. But before overviewing its benefits it is worth considering one fact that became crucial event for it. The question is about a new mode of presenting information. Before, over the Internet and other wide area networks, the text has been the main mode of presentation. The Web changed that. Now the information could be presented in graphical format, complete with font choices and incorporated drawings, photographs, tables and other multimedia elements. These graphical elements offered different kinds of information and information providers were able to search precisely the element. The result of these innovations is that the Web's capabilities are increasing, its information becomes more comprehensible too.

**Notes:**

1. crucial - ключевой, решающий
2. mode - метод, способ
3. font - шрифт
4. comprehensible - понятный, ясный

- A. The text deals with the uses of the Web.
- B. The text is about a mode of presenting information in the Web.
- C. Incorporated drawings, photographs, tables are described in the text.

## 8. Translate the following sentences into Russian.

1. Biochemists are using computers as a sort of mathematical microscope, in delving into the secret of the living cell; they have found a physical limit to the information they can obtain with their instruments.
2. The tremendous storage capacities and rapid processing of data have produced the valuable information necessary for research in the unknown areas of science.

### Test 3

#### 1. Skim the text.

#### Memory

A computer's memory can be viewed as a list of cells into which numbers can be placed or read. Each cell has a numbered "address" and can store a single number. The information stored in memory may represent practically anything. Letters, numbers, even computer instructions can be placed into memory with equal **ease**. Since the CPU does not differentiate between different types of information, it is the software's responsibility to give significance to what the memory sees as nothing but a series of numbers.

In almost all modern computers, each memory cell is set up to store binary numbers in groups of eight bits (called a byte). Each byte is able to represent 256 different numbers. To store larger numbers, several **consecutive** bytes may be used (typically, two, four or eight). A computer can store any kind of information in memory if it can be represented numerically. Modern computers have billions or even trillions of bytes of memory.

The CPU contains a special set of memory cells called **registers** that can be read and written to much more rapidly than the main memory area. There are typically between two and one hundred registers depending on the type of CPU. Registers are used for the most frequently needed data items to avoid having to access main memory every time data is needed.

Computer main memory comes in two principal **varieties**: random-access memory or RAM and read-only memory or ROM. RAM can be read and written to anytime the CPU commands it, but ROM is pre-loaded with data and software that never changes, so the CPU can only read from it. ROM is typically used to store the computer's initial start-up instructions. In general, the contents of RAM are erased when the power to the computer is turned off, but ROM **retains** its data indefinitely. In a PC, the ROM contains a specialized program called the BIOS that orchestrates loading the computer's operating system from the hard disk drive into RAM whenever the computer is turned on or reset. In embedded computers, which frequently do not have disk drives, all of the required software may be stored in ROM. Software stored in ROM is often called firmware, because it is notionally more like hardware than software. Flash memory blurs the distinction between ROM and RAM, as it retains its data when turned off but is also rewritable. It is typically much slower than conventional ROM and RAM however, so its use is restricted to applications where high speed is unnecessary.

In more sophisticated computers there may be one or more RAM cache memories which are slower than registers but faster than main memory. Generally computers with this sort of cache are designed to move frequently needed data into the cache automatically, often without the need for any intervention on the programmer's part.

### **Notes:**

1. set up - устанавливать
2. consecutive - последующий, следующий
3. erase - стирать, удалять, уничтожать
4. indefinitely - неограниченно
5. orchestrate - управлять
6. reset - сбрасывать
7. BIOS - Basic Input-Output System — базовая система ввода-вывода;
8. embedded computer - встроенный компьютер
9. notionally - теоретически, номинально;
10. blur - размывать, смазывать
11. cache memory - кэш-память

### **2. Choose the contextual meaning of the words.**

- |                |  |
|----------------|--|
| 1. ease        | a) облегчение b) легкость c) естественность            |
| 2. consecutive | a) последовательный b) параллельный<br>c) следственный |
| 3. register    | a) запись b) регистр c) перечень                       |
| 4. variety     | a) многообразие b) различие c) вид                     |
| 5. retain      | a) сохранять b) поддерживать c) аккумулировать         |

### 3. Choose the best translation.

**1. *The CPU contains a special set of memory cells called registers that can be read and written much more rapidly than the main memory area.***

- a) Центральный процессор ограничивает тенденцию ячеек памяти, которые называются регистрами, считывать и записывать намного быстрее области основной памяти.
- b) Центральный процессор содержит специальный набор ячеек памяти, названные регистрами, которые могут считываться и записываться намного быстрее чем область основной памяти.
- c) Центральный процессор содержит специальный набор ячеек памяти, названные регистрами, которые могут считывать и записывать информацию намного быстрее чем область основной памяти.

**2. *In general, the contents of RAM are erased when the power to the computer is turned off, but ROM retains its data indefinitely.***

- a) В общем, содержание оперативного запоминающего устройства удаляется, когда компьютер выключен, но постоянное запоминающее устройство сохраняет свои данные неограниченно долго.
- b) Вообще, содержание постоянного запоминающего устройства стирается, когда мощность компьютера выключается, но оперативное запоминающее устройство сохраняет свои данные неограниченно долго.
- c) В общем, содержание оперативного запоминающего устройства удаляется, когда компьютер включен, но постоянное запоминающее устройство сохраняет свои данные неограниченно долго.

### 4. Decide whether the following statements are true or false.

- 1. A computer's memory can be viewed as a list of cells or boxes into which numbers can be placed or read.

2. It is the hardware's responsibility to give significance to what the memory sees as nothing but a series of numbers.
3. There are typically between two and one hundred condensers depending on the type of CPU.
4. Computer main memory includes random-access memory or RAM and read-only memory or ROM.
5. BIOS orchestrates loading the computer's operating system from the hard disk drive into RAM whenever the computer is turned on or reset.

**5. Choose a, b or c.**

The early foundations of what would become computer science predate the invention of the modern digital computer. Machines for **-1-** fixed numerical tasks, such as the abacus, **-2-** since antiquity. Wilhelm Schickard **-3-** the first mechanical calculator in 1623. Charles Babbage designed a difference engine in Victorian times **-4-** by Ada Lovelace. Around 1900, punch-card machines **-5-** .However, all of these machines were constrained to perform a single task, or at best some subset of all possible tasks.

1. a) calculate b) calculated c) calculating
2. a) have existed b) existed c) exist
3. a) built b) build c) was built
4. a) helping b) helped c) having helped
5. a) introduced b) was introduced c) were introduced

**6. Read the text. Choose the best summary.**

Computers are all around us and avoiding them is virtually impossible. We have been exposed in the world of computer hype, computer advertisements and computer headlines. We interact with computers in our daily lives - whether we are at the cinemas, the school, or the public library. The beginnings of computer literacy are already apparent.

Whether or not people know anything about it, they invoke computers in everyday lives when they make a bank withdrawal, buy groceries at the supermarket and even when they drive a car. Today, millions of people are purchasing fully functional personal computers for individual reasons

There are so many applications of computers, that it is impractical to mention all of them. This is the Computer Age and these machines are beginning to affect our lives in many ways. Computers are now becoming faster, more reliable, effective and whole lot cheaper than they had been ever before.

**A** The text deals with the computers which are becoming faster, more reliable, effective and more expensive than they had been ever before.

**B** The text is about people who are purchasing fully functional personal computers for individual reasons

**C** Numerous applications of computers are described in the text.

### **3.2 Итоговый лексико-грамматический тест**

#### **Вариант I**

**1. Переведите на русский язык следующие предложения, обращая внимание на функции причастия.**

1. Early computers, using vacuum tubes could perform computations in thousands of seconds, called milliseconds.
2. When written in a symbolic language programs require the translation into the machine language.
3. Being discrete events commercial transactions are in a natural form for a digital computer.
4. The control unit interpreting instructions is one of the important parts of any computer system.
5. Having been coded the instruction was transmitted to the central processing unit.

**2. Выберите предложения, в которых употреблен «независимый причастный оборот», и переведите их.**

1. Being built on the basis of transistors lasers are successfully used in technology.
2. We use the term data processing to include the resources applied for processing of information.

3. The results of arithmetic operations are returned to the accumulator, the storage register transferring them to main memory.
4. An electron leaving the surface, the metal becomes positively charged.
5. The necessary data having been obtained, we could continue our experiment.

**3. Найдите предложения, в которых употреблен герундий, и переведите их.**

1. Neumann developed the idea of keeping instructions for the computer inside the computers' memory.
2. Electromechanical memories depend upon moving mechanical parts for their operation.
3. Another important achievement in developing computers came in 1947.
4. We can make the computers do what we want by inputting signals and turning switchers on and off.
5. Having invented magnetic tapes the Germans used them as the secondary storage medium.

**4. Переведите следующие предложения, обращая внимание на функции инфинитива.**

1. Data are processed to become useful information.
2. The high-speed devices to be used as secondary storage are both input and output devices.
3. Processing is operations on data to convert them into useful information.
4. Mendeleev's periodic law to have been accepted as a universal law of nature is of great importance nowadays.
5. Russia was the first country to start the cosmic era.

**5. Найдите предложения, в которых употреблена конструкция «Complex Object», и переведите их.**

1. Personal computers are known to enjoy great popularity.
2. The students saw the computer began to work.
3. He is certain to become a good computer system architect.
4. We know the machine to react to a series of electrical impulses that can be represented in binary numbers.

5. Engineers expect these new devices to be tested very soon.

**6. Найдите предложения, в которых употреблена конструкция «Complex Subject», и переведите их.**

1. The substances are said to vary in their composition.
2. The words «computer» and «processor» are known to be used interchangeably.
3. They want their son to become a computer operator.
4. It was not difficult for the pupils to understand the function of the mouse in a computer operation.
5. Primary storage appears to have the least capacity and to be the most expensive.

**Вариант II**

**1. Переведите на русский язык следующие предложения, обращая внимание на функции причастия.**

1. The computer could create ballistic tables used by naval artillery.
2. When using a microcomputer you are constantly making choice – to open a file, to close a file, and so on.
3. The designer left the office having looked through all the documents.
4. Being not visible software makes possible the effective operation of computer system.
5. Having been well regulated by the operator the equipment operated well.

**2. Выберите предложения, в которых употреблен «независимый причастный оборот», и переведите их.**

1. Primary storage having similarity to a function of the human brain, the storage is also called memory.
2. The first machines designed to manipulate punched card data were widely used for business data processing.
3. Computer system architecture is organized around the primary storage unit, all instructions passing through it.
4. Free electrons passing through a conductor form an electric current.
5. All the necessary preparations having been done, the operator began assembling the machine.

**3. Найдите предложения, в которых употреблен герундий, и переведите их.**

1. Information to be put into the computer for processing should be coded into ones and zeros.
2. Neumann`s machine called EDVAC was able to store both data and instructions.
3. Having translated the program into machine language the computer architect put the program into the machine.
4. Neumann also contributed to the idea of storing data and instructions in a binary code.
5. Computing is a concept embracing not only arithmetics, but also computer literacy.

**4. Переведите следующие предложения, обращая внимание на функции инфинитива.**

1. They discussed the problem to be solved within a month.
2. Computers use two conditions, high voltage and low voltage, to translate the symbols into combination of electrical pulses.
3. Microelectronics made it possible to reduce the size of transistors.
4. A printer is an example of a device to produce output in a human-readable format.
5. Computers to have been designed originally for arithmetic purposes are applied for great variety of tasks at present.

**5. Найдите предложения, в которых употреблена конструкция «Complex Object», и переведите их.**

1. Scientists consider silicon to be one of the best materials.
2. There is no reason for computer experts to use computers of the first generation nowadays.
3. The memory is known to store the instructions and the data.
4. We believe personal computers to enjoy great popularity.
5. We know all the data to be translated into binary code before being stored in main storage.

**6. Найдите предложения, в которых употреблена конструкция «Complex Subject», и переведите их.**

1. My friend is unlikely to become a good applications programmer.
2. We expect the results of the experiment to be of great importance for our research.
3. The new equipment is sure to find wide application.
4. They are considered to be the most commonly used devices.
- 5. The mechanism is provided with special devices for the whole system to function automatically.**