

ФЕДЕРАЛЬНОЕ АГЕНТСТВО ПО ОБРАЗОВАНИЮ
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Кафедра иностранных языков

**О роли компьютеров и компьютерных технологий в
жизни человека**

**Методические указания по английскому языку
для магистрантов факультета механики и автоматике**

Иваново 2010

Данные методические указания предназначены для магистрантов, чья область научных интересов связана с компьютерными технологиями.

Первая часть методических указаний включает шесть уроков, каждый из которых содержит тексты для аналитического чтения и комплекс лексико-грамматических упражнений, направленных на закрепление материала наиболее характерного для научной англоязычной литературы.

Вторую часть методических указаний составляют аутентичные тексты, которые могут быть использованы для различных видов самостоятельной работы: реферативного перевода, аннотирования, просмотрового чтения и т.п.

Третья часть методических указаний включает семь тестовых заданий, предусматривающих контроль пройденного лексического и грамматического материала; лексика в данных тестах подобрана по тематическому признаку и включает наиболее употребительные лексические единицы из области информационных технологий.

Четвертая часть представляет собой набор речевых клише, используемых прежде всего при реферативном переводе и аннотировании.

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PART ONE

Unit 1

Grammar: Non-Finite Forms of the Verb. The Gerund. The Participle. The Infinitive

Text: The First Calculating Devices

I. Translate the following word-expressions, containing Participles:

A. Participle I

Computers using vacuum tubes; the machine calculating mathematical problems; the computer keeping instructions in its memory; binary code storing data and instructions; the vacuum tube controlling and amplifying electronic signals; computers performing computations in milliseconds; electronic pulses moving at the speed of light; students coding the information by using a binary code; devices printing the information; keyboard terminals replacing vacuum tubes.

B. Participle II

The given information; the name given to the machine; the coded data; the device used in World War II; the invention named ENIAC; the machine called EDVAC; instructions kept in the memory; the engine designed for storing data; data stored in a binary code; vacuum tubes invented by J. Neumann; the general-purpose machine proposed by Ch. Babbage; the machine provided with the necessary facts.

II. Analyse the non-finite forms of the verb in the following sentences and translate them.

1. Data are processed to become useful information. 2. We use the term data processing to include the resources applied for processing of information. 3. Resources required for accomplishing the processing of data are called data processing system. 4. Processing is a series of operations converting inputs into outputs. 5. Facilities are required to house the computer equipment. 6. Egyptians used the information to predict crop yields. 7. Information to be put into the computer for processing should be coded into ones and zeroes. 8. Processing is operations on data to convert them into useful information. 9. The first machines designed to manipulate punched card data were widely used for business data

processing. 10. Hollerith built one machine to punch the holes and the other to tabulate the collected data.

III. Read and translate the text.

THE FIRST CALCULATING DEVICES

Let us take a look at the history of computers that we know today. The very first calculating device used was the ten fingers of a man's hands. This, in fact, is why today we still count in tens and multiples of tens.

Then the abacus was invented. People went on using some form of abacus well into the 16th century, and it is still being used in some parts of the world because it can be understood without knowing how to read.

During the 17th and 18th centuries many people tried to find easy ways of calculating. J.Napier, a Scotsman, invented a mechanical way of multiplying and dividing, which is now the modern slide rule works. Henry Briggs used Napier's ideas to produce logarithm tables which all mathematicians use today.

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

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

By the early part of the 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 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.

Notes

calculating device — вычислительное устройство

multiple — кратный

abacus — счеты

slide rule — логарифмическая линейка

logarithm table — логарифмическая таблица

calculus — исчисление; математический анализ

to cut out the human being altogether — полностью исключить человека

tabulate the census — занести данные по переписи (населения) в таблицу

proliferation — размножение; быстрое увеличение

IV. Make all possible derivatives of the following verbs.

Pattern: to calculate — calculating, calculator, calculation.

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

V. Translate into English the following word-expressions using the text and remember them.

Вычислительное устройство; легкий способ вычисления; поэтому (вот почему); кратное десяти; изобрести механический способ умножения и деления; логарифмическая линейка; составить таблицы логарифмов; математический анализ; изобрести независимо (друг от

друга); в результате; полностью исключить человека; кроме (за исключением); обработка деловой информации; средство кодирования информации; перфокарты; пробивать отверстия; оформить собранные данные в таблицу; работать с данными на перфокарте; устройство, записывающее информацию блоками; единица информации; выполнять вычисления; для научных целей; клавишный терминал.

VI. Look through the text again and answer the questions.

1. What was the very first calculating device?
2. What is the abacus?
3. What is the modern slide rule?
4. Who gave the ideas for producing logarithm tables?
5. How did Newton and Leibnitz contribute to the problem of calculation?
6. When did the first calculating machine appear?
7. What was the main idea of Ch. Babbage's machine?
8. How did electromechanical machines appear and what were they used for?
9. What means of coding the data did Hollerith devise?
10. How were those electromechanical machines called and why?
11. What kind of computers appeared later?
12. What new had the computers of 1970s?

VII. Finish up the following sentences:

1. The first calculating device...
2. Then the abacus was...
3. People tried to find...
4. Calculus was...
5. The general-purpose problem-solving machine was...
6. Electromechanical machines had been...
7. Electronic computers were...
8. Punched cards had been...

VIII. Prepare the annotation of the text.

Unit 2

Grammar: Non-Finite Forms of the Verb. The Participle as an adverbial modifier

Text: Computer System Architecture

I. Translate the sentences containing Participle I and Participle II as adverbial modifiers.

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

II. Translate the sentences containing Perfect Participle Active and Perfect Participle Passive.

1. *Having finished the* research the scientists made the analysis of the data obtained. 2. The designer left the office *having looked* through all the documents. 3. *Having discussed* the functions of storage units we passed on to the consideration of control processing unit. 4. *Having limited the* information capacity of a single bit to two alternatives the computer designers expressed data by a combination of bits. 5. *Having translated* the program into machine language the computer architect put the program into the machine. 6. *Having been coded* the instruction was transmitted to the central processing unit. 7. *Having been transmitted* to the central processing unit the instruction made arithmetic-logical unit perform some computations. 8. *Having been regulated* by the operator the equipment operated well. 9. Data *having been entered* correctly into the computer component of a data processing system, the need for

further manipulation by humans is eliminated. 10. *Having been well prepared* for the examination the pupils could answer all the questions the teacher asked them.

III. Read and translate the text.

COMPUTER SYSTEM ARCHITECTURE

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

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

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

Types of computers

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

Digital computers, as contrasted with analog computers, deal with discrete rather than continuous quantities. They count rather than measure. They use numbers instead of analogous physical quantities to simulate ongoing, or real-time processes. Because they are discrete events, commercial

transactions are in a natural form for digital computation. This is one reason that digital computers are so widely used in business data processing.

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

Notes

unit — устройство; модуль; блок; элемент; составная часть

accessory equipment — вспомогательные устройства

engineering background — техническая подготовка; квалификация

product line — серия (компьютерных) продуктов

application programmer — прикладной программист

to simulate — моделировать; имитировать

voltage — напряжение

discrete — дискретный; отдельный

continuous quantity — непрерывная величина

on-going process — продолжающийся; постоянный; непрерывный процесс

household appliances — домашние приборы / устройства

indoor climate control system — система регуляции температуры в доме

IV. Make the nouns of the following verbs. Use the suffixes given below.
Translate the nouns.

A. *-er, -or*

To control, to compute, to design, to use, to manufacture, to work, to simulate, to operate, to protect, to process, to deal, to perform, to examine,

to program, to execute, to transmit, to convert, to print, to consume, to record.

B. -tion, -sion

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

C. -ment

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

V. Translate into English the following word-expressions using the text and remember them.

Функции ввода, хранения, обработки, управления и вывода информации; познакомиться; системные блоки; для начала; вспомогательные устройства; разработчик компьютерной системы; хорошая компьютерная подготовка; различные сферы применения; корпорация цифрового оборудования; прикладной программист; системный разработчик; главные устройства компьютерной системы; моделировать физические величины; измерение сигналов; в отличие от; иметь дело скорее с дискретными, чем непрерывными величинами; в режиме реального времени; коммерческие операции; цифровое вычисление; аналого-цифровые компьютеры; тенденция к установке систем управления; домашние приборы.

VI. Look through the text again and answer the questions.

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

VII. Finish up the following sentences:

1. All computer systems perform...
2. Computers and their accessory equipment are designed by...
3. The computer system architect usually designs...

4. It is important that a potential user...
5. The two basic types of the computers are...
6. Analog computers simulate...
7. Digital computers are...
8. Hybrid computers are...

VIII. Prepare the annotation of the text.

Unit 3

Grammar: Non-Finite Forms of the Verb. The Nominative Absolute Participial Construction.

Text: Central Processing Unit.

I. Translate the sentences containing the Nominative Absolute Participial Construction.

1. *Data being accessed randomly*, semiconductor memories are called random access memory (RAM). 2. *The information capacity of a single bit being limited to two alternatives*, codes are based on combination of bits. 3. *Primary storage having similarity to a function of the human brain*, the storage is also called memory. 4. An electron leaving the surface, the metal becomes positively charged. 5. *Computer system architecture being organized around the primary storage unit*, all instructions must pass through it. 6. Computer system architecture is organized around the primary storage unit, *all instructions passing through it*. 7. Electromechanical memories depend upon moving mechanical parts, *their data access time being longer than is that of electronic memories*. 8. For this reason most computer systems use electronic memory for primary storage, *electromechanical memory being used for secondary storage*. 9. Large capacity tape devices are used with large data processing systems, *cassettes and cartridges being applied with small systems*. 10. The CPU controls the operation of the entire system, *commands being issued to other parts of the system*.

II. Find Participial Constructions in the following sentences. Translate the sentences.

1. Having returned to the accumulator the results of arithmetic operations are transferred to main storage. The results of arithmetic operations are returned to the accumulator, the storage register transferring them to main memory. The results of -arithmetic operations being returned to the accumulator, the storage register transfer them to main memory. Being returned to the accumulator the results of arithmetic operations are transferred to main memory.

2. When passing through a conductor free electrons form an electric current. Free electrons passing through a conductor, an electric current is

generated. Free electrons pass through a conductor, an electric current being generated. Free electrons passing through a conductor form an electric current.

3. Instructions being obtained, the control unit causes other units to perform the necessary operations. Instructions are obtained, the control unit causes other units to perform the operations. Having obtained the instructions the control unit causes other units to perform the operations. Obtaining the instructions the control unit causes other units to perform the operations.

4. The elements having unknown properties cannot be used for experiments. The elements have unknown properties, experiments with these elements being impossible. Having unknown properties the elements cannot be used for experiments. The elements having unknown properties, experiments with them are impossible.

5. When moving in a material charged particles (заряженные частицы) produce magnetic properties (свойства) of this material. Charged particles moving in a material produce magnetic properties. Charged particles moving in a material, magnetic properties of this material are produced. Charged particles move in a material, magnetic properties of the material being produced.

III. Read and translate the text.

Central Processing Unit

It is well known in computer science that the words 'computer' and 'processor' are used interchangeably. Speaking more precisely, 'computer' refers to the central processing unit (CPU) together with an internal memory. The internal memory, control and processing components make up the heart of the computer system. Manufacturers design the CPU to control and carry out basic instructions for their particular computer.

The CPU coordinates all the activities of the various components of the computer. It determines 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-logical 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-logical 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.

Notes

interchangeably — взаимозаменяемым образом

precisely — точно

to issue — посылать (сигнал); выводить, выдавать (сообщение)

according to — согласно; в соответствии с

input-output port — порт ввода-вывода

control unit (CU) — устройство управления

arithmetic-logical unit (ALU) — арифметико-логическое устройство

switch — переключатель; коммутатор; переключать; переходить

to select — выбирать; выделять (на экране)

exponentiation — возведение в степень

call for — требовать; предусматривать

IV. Analyse the following the expressions and translate them. Consult the dictionary if necessary.

Direction: backward direction; clockwise direction; counterclockwise direction; data direction; forward direction; inverse / reverse direction; negative direction; positive direction; printing direction; transmission direction.

Level: access level; application level; data level; device level; difficulty level; error level; function level; hardware level; high level; input level; output level; performance level; presentation level; program level; protection level; resource level; security level; software level; structural level; system level; transmission level.

Processor: arithmetic processor; central processor; command processor; control processor; data processor; error processor; general-purpose processor; special-purpose processor; image processor; language processor; mail processor; message processor; numeric processor; parallel processor; peripheral processor; text processor.

Switch: to switch between programs; to switch between windows; to switch disks; to switch on; to switch off; to switch over; binary switch; command switch.

Step: conversion step; final step; procedure step; program step; programming step; step by step; one step at a time; to step down; to step out; to step up; to take steps.

V. Translate into English the following word-expressions using the text and remember them.

Хорошо известно; к компьютеру относятся; внутренняя память; составлять суть; выполнять; координировать деятельность; определяя в каком порядке; управлять работой всей системы; при необходимости; в соответствии с командами; уровни памяти; порт ввода-вывода; переключатели; режим включения или выключения; передавать сигналы; указывать последовательность пошаговых операций; основная память; управлять ходом выполнения программы; с другой стороны; выполнять вычитание, сложение, возведение в степень, деление, умножение; для того чтобы.

VI. Look through the text again and answer the questions.

1. What words in computer science are used interchangeably and why? 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. Where are data to be processed loaded into?

VII. Finish up the following sentences:

1. It is well known in...
2. The internal memory...
3. The CPU coordinates...
4. In digital computers...
5. The function of the Control Unit is...
6. The Arithmetic-Logical Unit is...
7. Programs and the data...

VIII. Prepare the annotation of the text.

Unit 4

Grammar: Non-Finite Forms of the Verb. The Infinitive and Constructions with the Infinitive.

Text: Input Devices

I. Translate the following sentences containing different forms of the Infinitive.

1. A printer is an example of a device *to produce* output in a human-readable format. 2. The high-speed devices *to be used* as secondary storage are both input and output devices. 3. The progress of electronics *to have resulted* in the invention of electronic computers was a breakthrough (прорыв) of the second part of the 20th century. 4. Mendeleev's periodic law *to have been accepted* as a universal law of nature is of great importance nowadays. 5. When output is available, output interfaces must be designed *to reverse* the process and *to adopt* the output to the external environment. 6. The memory stores the instructions and the data *to be quickly retrieved* on demand by the CPU. 7. Computers *to have been designed* originally for arithmetic purposes are applicable for great variety of tasks at present. 8. The film *to have been running* for over a month this year attracts attention of many spectators. 9. The CPU of a computer *to be arranged* in a single or very small number of integrated circuits is called a microprocessor. 10. Russia was the first country *to start* the cosmic era.

II. Translate the sentences containing "for + Infinitive" and "Objective with the Infinitive".

1. It was not difficult *for the pupils to understand* the function of the mouse in computer operation. 2. There is no reason *for computer experts to use* computers of the first generation nowadays. 3. The mechanism is provided with special devices/or *the whole system to function* automatically. 4. The text was very interesting but rather difficult *for the students to translate* it without a dictionary. 5. It is not easy *for me to learn* to speak English fluently. 6. We know *the machine to react* to a series of electrical impulses that can be represented in binary numbers. 7. Scientists considered *silicon to be* one of the best materials for the creation of an IC. 8. We know *all data to be translated* into binary code before being stored in main storage. 9. Engineers expect *these new devices to be tested* very soon. 10. They want

their son to become a computer operator and to design new computer models.

III. Translate the sentences containing "Nominative with the Infinitive".

1. *Printers* are known *to vary* greatly in performance and design. 2. *They* are expected *to be* the most commonly used devices. 3. *Magnetic fields* are supposed *to effect* a high iron content of the ink. 4. *The ink-jet printer* is stated *to be* one of the newest types of character printers. 5. *Electrophotographic techniques* proved *to have developed* from the paper copier technology. 6. *An impact printer* is considered *to produce* a printed character by impacting a character font against the paper. 7. *Dot-matrix printers* seem *to have* a lower quality of type. 8. *The most common printer type* used on larger systems is sure *to be* the line printer. 9. *A lot of techniques* are believed *to be used* in the design of printers. 10 *A laser* is certain *to be* an acronym for light amplification by stimulated emission of radiation.

IV. Read and translate the text.

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 inputting numerical and text data. A standard keyboard has 104 keys and three more ones informing about the operating mode of light indicators in the upper right corner.

Later when the more advanced graphics began to develop, user found that a keyboard did not provide the design capabilities of graphics and text representation on the display. 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 general software programs require to press one or more buttons, sometimes keeping them depressed or double-click them to issue changes in commands and to draw or to erase images. When you move the mouse across a flat surface, the ball located on the bottom side of the mouse turns two rollers. One is tracking the mouse's vertical movements, the other is tracking horizontal movements. The rotating ball glides easily, giving the user good control over the textual and graphical images.

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 (photographs, 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.

Notes

manipulator — манипулятор; блок обработки

trackball — трекбол

touch panel — сенсорная панель

graphic plotting tables — графические планшеты

enable — разрешать; позволять; допускать; делать возможным

operating mode — режим работы

roller — ролик; валик

track — следить; след; траектория; путь; дорожка; соединение

permitting capacity — разрешающая способность

V. Remember the meaning of the new verbs and translate the following derivatives.

To accomplish: accomplished; unaccomplished; accomplishment.

To adapt, adaptable; unadaptable; adaptability; unadaptability; adaptation; adapter.

To digitize: digit; digital; digitization; digitizer.

To erase: erasable; erasability; eraser; erasing; erasure.

To match: matcher; matching.

To permit: permitted; permissible; permissibility; permission.

To print: printable; printed; printer; printing;

To scan: scanning; scanner.

To recognize: recognition; recognizer; recognizable; unrecognizable.

To respond: response; responsible; irresponsible; responsibility; irresponsibility.

To reverse: reversed; reversible; irreversible; reversion; reversibility.

To transform: transformer; transformation; transformational; transformative

VI. Translate into English word-expressions using the text and remember them.

Введение информации; координатные устройства ввода; манипуляторы; мышь; трекбол; сенсорная панель; графические планшеты; цифровые камеры; сканеры; ТВ тюнеры; стандартная клавиатура; числовая и текстовая информация; световые индикаторы; клавиши; режим работы; презентация текста на мониторе; графический интерфейс; программные средства; оптико-механическое устройство ввода; управлять движением курсора; упрощать ориентацию пользователя на экране; указывать и выбирать изображения; удерживать кнопки в нажатом состоянии; двойное нажатие; стирать объекты; ровная поверхность; вращать ролики; следить за вертикальным движением; легко скользить; портативный компьютер; рукописный текст; посредством; разрешающая способность.

VII. Look through the text again and answer the questions.

1. What devices are used for inputting information into the computer? 2. What was the most common device in early personal computers? 3. What is the function of a keyboard? 4. Why do many users prefer manipulators to

keyboard? 5. How does the mouse operate? 6. What is its function? 7. What role does the ball on the bottom of the mouse play? 8. What is used in portable computers instead of manipulators? 9. What is the touch pad's principle of operation? 10. Where do graphical plotting tables find application?

VIII. Finish up the following sentences:

1. There are several devices...
2. The keyboard was...
3. Later there appeared...
4. The mouse is...
5. In general the software programs...
6. Touch panels or...
7. Graphical plotting tables find...
8. Scanner is used for...
9. Digital video cameras have been...
10. Sound cards produce...

IX. Prepare the annotation of the text.

Unit 5

Grammar: Impersonal sentences

Text: Application of Personal Computers

I. Translate the impersonal sentences.

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

II. Read and translate the text.

Application of Personal Computers

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

Home and hobby. Personal computers enjoy great popularity among experimenters and hobbyists. They are an exciting hobby. All hobbyists need not be engineers or programmers. There are many games that use the full capabilities of a computer to provide many hours of exciting leisure-time adventure.

The list of other home and hobby applications of PCs is almost endless, including; checking account management, budgeting, personal finance, planning, investment analysis, 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 or modify any document in any manner you wish before printing it. Using the CRT (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 accountants, financial advisors, stock brokers, tax consultants, lawyers, architects, engineers, educators and all levels of managers. Applications programs that are popular with persons in these occupations include accounting, income tax preparation, statistical analysis, graphics, stock market forecasting and computer modeling. The electronic worksheet is, by far, the computer modeling program most widely used by professionals. It can be used for scheduling, planning, and the examination of "what if" situations.

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

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

Notes

telephone dialing — набор номера телефона

maintenance — поддержание; сохранение; эксплуатация

to move paragraphs around — менять местами абзацы

income tax — подоходный налог

stock market forecasting — биржевые прогнозы
worksheet — электронная таблица
scheduling — составление расписания, графика
to meet the demands — удовлетворять потребности
record keeping — регистрация; ведение записей
grading — оценивание; классификация
impetus — толчок
by far — намного

III. Find in the text or in a dictionary:

A. The synonyms to the following words:

Verbs: to print; to produce; to convert; to keep; to found; to erase; to name; to change; to use; to start; to switch on; to supply; to give possibility; to involve.

Nouns: rate; analyst; possibilities; use; plays; control; post; mode; profession; consultant; teacher; director; book-keeper; fight; producer; attack; amateur; device; crystal; error; storage; primary (memory); monitor; characteristic; aim.

Adjectives: flexible; thrilling; main; little; general;

B. The antonyms to the following words:

Verbs: to finish; to switch on; to take; to delete.

Nouns; online; input; work.

Adjectives: cheep; weak; common; general; large; soft; high; easy.

IV. Decipher and translate the following abbreviations. Use the text or the dictionary where necessary.

PC; PU; CU; ALU; CPU; MPU; IBM; DOS; CRT; ROM; RAM; IC; SSI; MSI; LSI; VLSI; MP; CD; I/O; IOP; CMP CAI.

V. Translate into English the following word-expressions using the text and remember them.

Много областей применения; тем не менее; обработка текстов; пользоваться популярностью; любители; способности компьютера; бесконечный перечень; анализ инвестиций; набор номера телефона; автоответчик; ведение календаря; хранение адресов и почты; и так

далее; прикладные программы; исправлять ошибки в написании; стирать предложения; переставлять абзацы; бухгалтер; биржевые брокеры; консультант по налогам; юристы; работники образования; управленцы; бухгалтерский учет; подоходный налог; компьютерное моделирование; электронные таблицы; составление расписания; оказывать огромное влияние; прокладывать путь; дать толчок; удовлетворять потребности; учебная деятельность; компьютерная грамотность; моделирование реально-жизненных ситуаций.

VI. Look through the text again and answer the questions.

1. What are the main spheres of PC application? 2. Do you enjoy computer games? 3. Is it necessary for a person to be an analyst or a programmer to play computer games? 4. What other home and hobby applications, except computer games, can you name? 5. What is "a word processing program"? 6. What possibilities can it give you? 7. Can you correct mistakes while typing any material and how? 8. What other changes in the typed text can you make using a display? 9. Which professions are in great need of computers? 10. How can computers be used in education?

VII. Finish up the following sentences:

1. Personal computers have...
2. Home and hobby applications of PCs include...
3. Word processing program enables...
4. Professional application include...
5. Personal computers are having...
6. Two important types of uses...
7. Applications of computer-assisted instruction include...

VIII. Prepare the annotation of the text.

Unit 6

Grammar: Complex and Compound sentences (with clauses joined asyndetically or by conjunctions)

Text: Personal Computers

I. Translate the compound sentences with clauses joined:

A. Asyndetically; B. By conjunctions. Remember the following coordinating conjunctions: *and, but, or, while, both ... and, as well as, not only... but also, either... or, neither ... nor.*

A. 1. The computer you told me about was constructed at a Russian plant. 2. We hope we'll buy the computer your friend spoke so much about. 3. This is the principle the electronic computer is based upon. 4. The teacher says we may ask any questions we like. 5. Elements integrated circuits are made of are electrically interconnected components. 6. The main tendencies of IC development scientists are working at are to increase the scale of integration and to improve reliability. 7. — Where are the computer games I gave you yesterday? — The computer games you are asking about are on the top shelf. 8. He was one of the greatest scientists the world had ever known.

B. 1. These devices can perform *both* the input *and* output functions. 2. Data are recorded on magnetic discs and tapes *either* by outputting the data from primary storage *or* by using a data recorder. 3. *Neither* the programmer *nor* the analyst could explain the cause of the computer errors. 4. Data *as well as* instructions must flow into and out of primary storage. 5. This grammar exercise is *not only* too long *but also* very difficult. 6. Printers may be *either* impact or nonimpact. 7. Character printers are used with all microcomputers *as well as* on computers of all sizes. 8. *Both* primary *and* secondary storage contain data and the instructions for processing the data. 9. The CPU functional units can be in one of two states: *either* "on" *or* "off". 10. High-speed devices are *both* input *and* output devices that are used as secondary storage.

II. Translate the complex sentences. Remember the following subordinating conjunctions: *that; so that; if, whether; which; when; while; since; till; until; whatever; whenever; in order to; regardless of*, etc.

1. It is well known in computer science *that* the words "computer" and "processor" are used interchangeably. 2. The operation part of the instruction is decoded *so that* the proper arithmetic and logic operation can be performed. 3. It is difficult to establish *whether this* problem can be solved at all. 4. Programs and data on *which* the control unit and the arithmetic-logical unit operate must be in internal memory *in order to* be processed. 5. The CU has a register *that* temporarily holds the instructions read from memory *while* it is being executed. 6. *Regardless of the* nature of the I/O devices, I/O interfaces are required to convert the input data to the internal codes used by the computer and to convert internal codes to a format *which* is usable by the output devices. 7. The purpose of registers in the ALU is to hold the numbers and the results of the calculation *until* they can be transferred to the memory. 8. *Since* the computer deals with pulses, the input device is a way of converting numbers written on paper into pulses and sending them to the storage. 9. The principal characteristics of personal computers are *that* they are single-user system and are based on microprocessors. 10. However, *although* personal computers are designed as single-user systems, it is common to link them together to form a network.

III. Read and translate the text

Personal Computers

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

- First, a personal computer being microprocessor-based, its central processing unit, called a microprocessor unit, or MPU, is concentrated on a single silicon chip.
- Second, a PC has a memory and word size that are smaller than those of minicomputers and large computers. Typical word sizes are 8 or 16 bits, and main memories range in size from 16 K to 512 K.
- Third, a personal computer uses smaller, less expensive, and less powerful input, output and storage components than do large computer systems. Most often, input is by means of a keyboard, soft-copy output being displayed on a cathode-ray tube screen. Hard-copy output is produced on a low-speed character printer.
- A PC employs floppy disks as the principal online and offline storage devices and also as input and output media.
- Finally, a PC is a general-purpose, stand-alone system that can begin to work when plugged in and be moved from place to place.

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

Notes

to enter the fray — ввязаться в драку

computer of choice — лучший компьютер

to fall by the wayside — остаться в стороне; уступить дорогу

to survive onslaught — выдержать конкуренцию

word size — размер слова; разрядность двоичного слова

online storage — неавтономное хранение данных в ЗУ

offline storage — автономное хранение данных

input media — носитель для входных данных

output media — носитель для выходных данных

stand-alone — автономный

to plug in — подключать; подсоединять

leisure activities — досуговая деятельность

IV. Find in the text Participial constructions and constructions with the Infinitive and translate the sentences.

V. Translate into English the following word-expressions using the text and remember them.

Конкурирующая операционная система; появляться ежедневно; ввязаться в драку; лучший компьютер; остаться в стороне; выдержать конкуренцию; главный поставщик на компьютерном рынке; игрушка для любителя; микропроцессорный; цельный кристалл (микросхема) из кремния; размер слова; компоненты меньшей мощности; посредством; вывести на экран; низкоскоростной принтер с посимвольной печатью; использовать гибкие диски; приборы (не) автономного хранения данных; универсальный; автономная система; отличительная черта; интерактивный режим; независимо от цели; досуговая деятельность.

VI. Look through the text again and answer the questions.

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

VII. Finish up the following sentences:

1. Personal computers are supposed to...
2. IBM entered...
3. The IBM PC quickly became...
4. Apple Computer was...
5. Personal computer can be characterized...
6. It is used by...

VIII. Prepare the annotation of the text.

PART TWO

TEXTS FOR INDEPENDENT STUDIES

Read the following texts, entitle and refer them into Russian. Prepare annotations of the given texts.

1. As it is known, any digital calculation — whether it is performed by 'pencil and paper' methods or with the aid of an automatic computer— must first be broken down into a sequence of elementary arithmetical operations, such as addition, or multiplication. Each such arithmetical operation may be converted into a sequence of simple logical operations. It should be noted that a binary digit may take only two values — "zero" and "one". A logical proposition may be either true or false.

A symbolism and a set of rules suitable for manipulating 'yes or no' logical propositions was developed by George Boole, a self-educated genius who became Professor of Mathematics at Cork University in the middle of the 19th century. The techniques of Boolean algebra are now extensively used by electrical engineers for the design and analysis of switching circuits. Both the arithmetic and control units of a computer consist of sets of switching circuits for directing and manipulating electrical pulse signals.

The process of combining a number of electronic circuits of known logical properties into an integrated system capable of performing special arithmetical or control functions is known as logical design.

2. Let's imagine a railroad line with four stations marked input, storage, computer and output. These stations are joined by little gates or switches to the main railroad line. We can imagine that numbers and other information move along this railroad line, loaded (погруженные) in cars. Input and output are stations where numbers or other information go in and come out respectively. Storage is a station where there are many platforms and where information can be stored. The computer is a special station, somewhat like a factory. When two numbers are loaded on platforms 1 and 2 of this station and the command is loaded on platform 3, then another number is produced on platform 4.

There is a tower, marked control. This tower runs a telegraph line to each of its little watchmen standing by the gates. The tower tells them when to

open and when to shut which gates. Now we can see that as soon as the right gates are shut, cars loaded with information can move between stations. So by closing the right gates, we can flash (отражать) numbers and information through the system and perform operations of reasoning. Thus we receive a mechanical brain.

In general, a mechanical brain is made up of: a quantity of registers where information can be stored; channels along which information can be sent; mechanisms that carry out arithmetic and logical operations; a control, which guides the machine to perform a sequence of operations; input and output devices, where information can go into and out of the machine; and at last electricity, which provides energy.

3. It is known that one of the fundamental parts of the computer is a control unit. This unit controls the computation process automatically, without man's participation. It sends signals to all other parts of the computer to specify what they must do. First of all, the control unit tells the main memory what data must be transferred to the arithmetic-logical unit and other devices. Then it enables the arithmetic-logical unit to perform the required operation. Finally, it places the obtained results in the main memory.

It is important to note that the control unit operation is determined by an algorithm of a problem solution. The algorithm is a sequence of arithmetic and logical operations. These operations must be performed on the initial data for solving the problem.

Description of an algorithm in a form acceptable by a computer is called a program. A program is a list of sequential computer instructions enabling a computer to solve a problem. In order to be acceptable by the computer instructions must be encoded into a digital form.

In conclusion it should be pointed out that the main feature of a computer is automatic control of the problem solution process. It is based on the programmed-control principle.

4. As it is well known, a computer cannot perform or complete any useful work unless it is able to communicate with its external environment. 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. 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.

The data with which these devices work may or may not be in a form that humans can understand. For example the data that a data entry operator keys into the memory of a computer by typing on a keyboard are readable by humans. However, the data that tell a computer about the performance of an automobile engine are not in a form that humans can read. They are electrical signals from an analog sensor. Similarly, output may be on a printed page, which humans can read easily, or upon some other medium where the data are not visible, such as on magnetic tape or disk. As we know, all of the data flow from input to final output is managed by the control unit in the CPU. Regardless of the nature of the I/O devices, special processors called I/O interfaces are required to convert the input data to the internal codes used by the computer and to convert internal codes to a format which is usable by the output device.

5. In 1960's advances in microelectronic components led to the development of the minicomputer, followed more recently by an even smaller microcomputer. Both have filled a need for small but relatively flexible processing systems able to execute comparatively simple computing functions at lower costs.

In 1971 Intel Corporation delivered the first microprocessor, the 4004. All the logic to implement the central processing unit of a tiny computer was put onto a single silicon chip less than 1/4 inch square. That design was soon followed by many others. The progress toward smaller computers is continuing, designers are working at nano-computers and pico-computers.

When the central processing unit of a computer is implemented in a single, or very small number of integrated circuits, we call it a microprocessor. When a computer includes a microprocessor as its major component, such device is called a microcomputer.

Today the hardware in data-processing machines is built out of microelectronic devices. Advances in microelectronic devices give rise to advances in data-processing machinery.

6. The computer has made it possible to mechanize much of the information interchange and processing that constitute the nervous system of our society.

The versatility and convenience of the microprocessor has changed the entire architecture of modern computer systems. No longer is the processing of information carried out only in the computer's central processing unit. Today there is a trend toward distributing more processing capability throughout a computer system, with various areas having small local processors for handling operations in those areas.

There are a number of advantages of distributed processing. First, since many elements of the computer can be working on different portions of the same task, the work may be done faster. Second, if one element in the network malfunctions, its workload can be shifted to another element or shared among several elements, so that the entire work is relatively immune to failure. Third, the network can be small enough to be contained within a single laboratory or building, or it can be spread out over a wide area.

PART THREE

LEXICO-GRAMMATICAL TESTS

Test 1

Translate the sentences containing different forms of Participle I.

1. The results *obtained* are of particular importance for our research. 2. *Having obtained the required* results we informed the manager of this fact. 3. The necessary data *having been obtained*, we could continue our experiment. 4. *Being obtained* the results of the research were analysed. 5. While *operating* with graphical interface people usually use such manipulators as a mouse and a track ball. 6. Key-to-disk devices *used* as data *recording* stations can correct data before storing it on a magnetic disk. 7. D. Mcndelejev *having arranged the* elements in a table, the existence of yet unknown elements could be predicted. 8. All the necessary preparations *having been done*, the operator began assembling the machine. 9. *Being built on* the basis of transistors lasers are successfully used in technology.

Test 2

Translate the sentences containing Participle I and Participle II.

1. Electromechanical memories depend upon *moving* mechanical parts for their operation. 2. The time *required* for the computer to locate and transfer data to and from a storage medium is called the access time. 3. *Being* not visible software makes possible the effective operation of computer system. 4. *Having invented* magnetic tapes the Germans used them as the secondary storage medium. 5. *When properly programmed* computers don't make computational errors. 6. *Having been introduced* in the early 1960s magnetic disc storage has replaced magnetic tape storage. 7. The control unit *interpreting* instructions is one of the important parts of any computer system. 8. Data *recorded* in the form of *magnetized* dots can be arranged to represent *coded* patterns of bits. 9. *As contrasted with mag-*

netic tapes magnetic discs can perform both sequential and random processing. 10. *While having no moving* mechanical parts electronic memories can transfer data at very high speed.

Test 3

Translate the sentences and word-expressions containing:

A. The Infinitive as an adverbial modifier

1. Computers were designed to perform thousands of computations per second. 2. To make computers more reliable transistors were used. 3. They were applied to reduce computational time. 4. To integrate large numbers of circuit elements into a small chip, transistors should be reduced in size. 5. To use integrated circuit technology new computers were built. 6. Analytical engine was invented to store data.

B. The Infinitive as an attribute

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

Test 4

Choose the correct translation of the sentences containing different non-finite forms of the verb (The Infinitive, The Gerund, Participle I, Participle II).

1. That was the machine provided "with the necessary facts about the problem to be solved.

а) Машину обеспечили необходимыми фактами, чтобы она решила проблему.

б) То была машина, снабженная необходимой информацией о задаче, которую предстояло решить.

в) Эту машину обеспечили необходимой информацией о решаемой задаче.

2. The computers designed to use IC were called third generation computers.

а) Компьютеры сконструировали для использования ИС и назвали их третьим поколением.

б) Компьютеры назывались третьим поколением, потому что в них использовались ИС.

в) Компьютеры, сконструированные, чтобы использовать ИС, назывались компьютерами третьего поколения.

3. Mark I was the first machine to figure out mathematical problems.

а) Первая машина для вычисления математических проблем была Марк I.

б) Марк I явилась первой машиной для вычисления математических задач.

в) Марк I была первой машиной, которая вычисляла математические задачи.

4. Early computers using vacuum tubes could perform computations in milliseconds.

а) Первые компьютеры, использующие электронные лампы, могли выполнять вычисления в течение миллисекунд.

б) Ранние компьютеры использовали вакуумные лампы, которые выполняли вычисления за миллисекунды.

в) Рано компьютеры, использующие электронные трубки, выполняли вычисления за миллисекунды.

5. Vacuum tubes to control and amplify electric signals were invented by Neumann.

а) Изобретенные Нойманом вакуумные лампы регулировали и усиливали электрические сигналы.

б) Нойман изобрел электронные лампы для управления и усиления электрических сигналов.

в) Электронные лампы, которые регулировали и усиливали электрические сигналы, были изобретены Нойманом.

6. Neumann's machine called the EDVAC was designed to store both data and instructions.

а) Неймановскую машину, называемую EDVAC, сконструировали для хранения информации и команд.

б) Машина Ноймана, названная EDVAC, была создана, чтобы запоминать как информацию, так и команды.

в) Машину Ноймана, которая хранила данные и инструкции, назвали EDVAC.

7. Computers were developed to perform calculations for military and scientific purposes.

а) Компьютеры были созданы, чтобы выполнять вычисления для военных и научных целей.

б) Компьютеры создали для выполнения военных и научных вычислений.

в) Созданные компьютеры выполняли вычисления военного и научного назначения.

8. An American clerk invented a means of coding the data by punching holes into cards.

а) Американский служащий изобрел посредством кодирования информации перфокарту.

б) Американский клерк изобрел перфокарту, кодируя информацию.

в) Американский служащий изобрел средство шифрования информации путем пробивания отверстий в карте.

Test 5

Open the brackets using the correct non-finite form of the verb. Translate the sentences.

1. Computing is a concept (embraced; embracing; for embracing) not only arithmetics, but also computer literacy. 2. We can make the computer do what we want (inputted; to input; by inputting) signals (turning; turned; without turning) switches on and off. 3. Computers have a means (by communicating; of communicating; communicated) with the user. 4. Computers work according to the instructions (giving; given; to give) to it

by users. 5. The transistor (inventing; invented; for inventing) in 1948 completely changed the vacuum tubes.

Test 6

Find in the sentences non-finite forms of the verb and name them.

Translate the sentences.

A. a) Gerund; b) Present Participle Active; c) Present Participle Passive; d) Past Participle Passive; e) Perfect Participle Active; f) Perfect Participle Passive.

1. When keyed the data are held in a small memory called buffer. 2. Data keyed into the memory of a computer by typing on a keyboard are readable by humans. 3. Keyboard enables inputting numerical and text data. 4. The mouse provides the cursor control simplifying user's orientation on the display. 5. Having been constructed recently a new electronic device has important applications in space exploration. 6. Being supplied with a special appliance a television set may have a remote control. 7. The control unit operates by reading one instruction at a time. 8. Improved methods of obtaining three-dimensional television pictures have been worked on the basis of holography.

B. a) Indefinite Infinitive Active; b) Indefinite Infinitive Passive; c) Continuous Infinitive Active; d) Perfect Infinitive Active; e) Perfect Infinitive Passive.

1. Input devices are used to enter data into primary storage. 2. These data appeared to have been investigated long ago. 3. We are glad to have obtained such valuable results. 4. You should have known wonderful features of computers long ago. 5. The problem to be solved is of great importance to the development of this branch of industry. 6. The first amplifying semiconductor devices (transistors) are known to have been developed in the USA in 1948. 7. He ordered these devices to be repaired as soon as possible.

Test 7

Translate the sentences

I. 1. Accuracy is one of the major items in judging a control system. The higher the accuracy of the system, the less errors the system makes. 2. The

digital computer employs the principle of counting units, digits, and hence, if properly guided, gives answers which have a high degree of accuracy. 3. Electronic computers can choose which of several different operations are the right ones to make in given circumstances. Never before has mankind had such a powerful tool available. 4. In many cases man has proved to be but an imperfect controller of the machines he has created. Thus, it is natural, that wherever necessary, we should try to replace the human controller by some form of automatic controller. 5. It is necessary to draw a distinction between calculating machines and computers, the former requiring manual control for each arithmetic step and the latter having the power to solve a complete problem automatically.

II. 1. Many servomechanisms and regulators are known to be composed of a number of control elements connected in series, the output of one being used as the input to the next. 2. We expect a computer to work for at least several hours without a fault; that is to say, supposing a speed of one thousand operations per second, to perform more than ten million operations. 3. Digital programming implies the preparation of a problem for a digital computer by putting it in a form which the computer can understand and then entering this program into the computer storage unit. A problem to be solved by a digital computer must be expressed in mathematical terms that the computer can work with. 4. Among all forms of magnetic storage, magnetic tapes were the first to be proposed in connection with digital computers. 5. Programming a computer involves analyzing the problem to be solved and a plan to solve it.

PART FOUR

Review translation

A. In English

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 (of the text) 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...

B. In Russian

Статья (текст) посвящена проблеме/ вопросу...

В начале статьи

— речь идет о ...; дается определение...; обосновывается значимость ...;

привлекается внимание к...

Далее

— описывается...; рассказывается ...; рассматривается ...; излагается...

В частности,

— отмечается...; подробно излагается...; описывается схема ...; указывается...; доказывается мысль...

Наконец

— раскрывается...

В заключение

— приводятся примеры

Подытоживая сказанное, следует отметить...

Как мне кажется, статья может представлять интерес для ...

Думается, статья может оказаться полезной для ...

