МИНИСТЕРСТВО ОБРАЗОВАНИЯ СТАВРОПОЛЬСКОГО КРАЯ ГОСУДАРСТВЕННОЕ ОБРАЗОВАТЕЛЬНОЕ УЧРЕЖДЕНИЕ СРЕДНЕГО ПРОФЕССИОНАЛЬНОГО ОБРАЗОВАНИЯ ГЕОРГИЕВСКИЙ РЕГИОНАЛЬНЫЙ КОЛЛЕДЖ «ИНТЕГРАЛ»

ПЦК ФИЛОЛОГИИ И ПЕДАГОГИКИ

Методические рекомендации по английскому языку для студентов 3 курса по специальности «Программное обеспечение вычислительной техники и автоматизированных систем» по теме **«Компьютеры и информационные системы»**

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Главное внимание уделено обучению основным терминам и понятиям в области компьютерных технологий.

Предназначены для студентов 3 курса по специальности «Программное обеспечение вычислительной техники и автоматизированных систем», изучающих английский язык.

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ПОЯСНИТЕЛЬНАЯ ЗАПИСКА

Данное методическое указание предназначено для студентов 3 курса по специальности 230105 «Программное обеспечение вычислительной техники и автоматизированных систем». Оно предлагает для изучения темы «Компьютерная грамотность», «Обработка данных», «Устройство ввода и вывода», «Использование персональных компьютеров», «Программирование».

Данное методическое указание предусматривает ввод и отработку базовой лексики, понятий и терминов с целью овладения необходимым языковым уровнем для эффективного чтения и понимания научно-технических текстов в области компьютерных технологий. Учебные задания к текстам должны способствовать усвоению и запоминанию терминов по специальности. Для контроля усвоения тем предлагается тесты.

Содержание

Раздел 1

Прочтите текст и скажите, как вы понимаете термины «информационное общество» *и* «компьютерная грамотность».

COMPUTER LITERACY.

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

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

In an information society a person who is computer-literate need not be an expert on the design of computers. He needn't even know much about how to prepare *programs* which are the instructions that direct the operations of computers. All of us are already on the way to becoming computer-literate. Just think of your everyday life. If you receive a subscription magazine in the post-office, it is probably addressed to you by a computer. If you buy something with a bank credit card or pay a bill by check, computers help you process the information. When you check out at the counter of your store, a

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

2. Ознакомьтесь с терминами текста.

computer literacy — компьютерная грамотность

problem-solving device — устройство, обеспечивающее решение задачи

be aware of — понимать, сознавать

opportunity — возможность

basics — основы

application— применение; использование

to restate— пересмотреть, переосмыслить

significant— значительный

achievements — достижения

computing — вычисление; счет; работа на компьютере

to embrace — охватывать

dimension — измерение

instruction — команда, инструкция, указание

to direct the operation — направлять работу

*to proces*s — обрабатывать

subscription magazine — журнал по подписке

data processing system — система обработки данных

store manager — директор магазина

to have much in common — иметь много общего

3. Ответьте на вопросы.

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

4. Прочтите, переведите и запомните следующие выражения.

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

5. Вспомните образование и случаи употребления The Past Simple Tense.

А. Назовите три формы следующих неправильных глаголов:

To be: to have; to mean; to learn; to become; to bring; to know; to think; to buy;

to pay; to take; to do; to begin; to give; to make; to keep; to get; to read; to show.

Б. Преобразуйте следующие предложения в Past Simple.

I. Many people have an opportunity to use computers. 2. There is no doubt that computers solve problems very quickly. 3. Instructions direct the operation of a computer. 4. Computers bring with them both

economic and social changes. 5. Computing embraces not only arithmetic's, but also computer literacy. 6. It is well known that computers prepare laboratory tests. 7. Those persons are computer literate and think of buying a new computer. 8. They receive a subscription magazine once a month. 9. My mother is ill and visits her doctor every other day. 10 Experts know much about how to prepare programs.

Прочтите текст и скажите, что такое компьютер и каковы его основные функции.

WHAT IS A COMPUTER?

A computer is a machine with an intricate network of electronic circuits that operate switches or magnetize tiny metal cores. The switches, like the cores, are capable of being in one or two possible states, that is, on or off; magnetized or demagnetized. The machine is capable of storing and manipulating numbers, letters, and characters (symbols). The basic idea of a computer is that we can make the machine do what we want by inputting signals that turn certain switches on and turn others off, or magnetize or do not magnetize the cores. The basic job of computers is processing of information. For this reason computers can be defined as devices which accept information in the form of instructions, called a program, and characters, called data, perform mathematical and / or logical operations on the information, and then supply results of these operations. The program, or part of **it,** which tells the computers what to do and the data, which provide the information needed to solve the problem, are kept inside the computer in a place called memory.

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

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

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

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

A computer can solve a series of problems and make thousands of logical decisions without becoming tired. It can find the solution to a problem in a fraction of the time it takes a human being to do the job. A computer can replace people in dull, routine tasks, but it works according to the instructions given to it. There are times when a

computer seems to operate-like a mechanical 'brain', but its achievements are limited by the minds of human beings. A computer cannot do anything unless a person tells it what to do and gives it the necessary information; but because electric pulses can move at the speed of light, a computer can carry out great numbers of arithmetic-logical operations almost instantly. A person can do the same, but in many cases that person would be dead long before the job was finished.

2. **Ознакомьтесь с терминами текста.**

intricate— сложный, запутанный,

electronic circuit— электронная цепь, схема

to operate switches — приводить в действие переключатели

to store numbers — запоминать числа

to manipulate— управлять; обращаться; преобразовывать

to input / to feed in — вводить (информацию)

to *turn on = to switch on* — включать

to *turn off = to switch off*— выключать

to process data—- обрабатывать данные

to supply- подавать, вводить, снабжать, обеспечивать

addition— сложение

subtraction— вычитание

division — деление

multiplication— умножение

exponentiation— возведение в степень

user— пользователь

input device— устройство ввода

disk drive— дисковое запоминающее устройство, дисковод

tape drive — запоминающее устройство на магнитной ленте

cathode-ray tube—электроннолучевая трубка

to make decisions — принимать решения

instantly— мгновенно, немедленно

3. Ответьте на вопросы

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

TESTS

1. Выберите вариант, который лучше всего выражает главную идею текста.

a) Computers are devices that accept information in the form of instructions.

в) The switches are usually in one of two states: magnetized or demagnetized.

c) Computers are remarkable devices serving for processing and storage the information and for solving problems.

2. Вставьте необходимые слова вместо пропусков.

1. Information is given into the computer in the form of _____

a) ideas; b) characters; c) ruls

2.The basic function of a computer is _____information.

a) to switch; b) to keep; c) to process

3.Inputting information into the computer is realized by means of____

a) memory; b) input device; c) output device

4. Inputting information into the computer is realized by means of _____

a) a printer; b) letters; c) diskettes

5.A computer can carry out arithmetic-logical operations _____

a) quickly; b) instantaneously; c) during some minutes

6. Computers have become_____ in homes, offices, research institutes.

a) commonwealth; b) commonplace; c) common room

7. Space _____ uses computers widely.

a) information; b) production; c) exploration

8. Computers are used for image

a) processing; b) operating; c) producing

9. Computers help in _____ **of** economy.

a) environment; b) management; c) government.

10. Air traffic control depends on computer_____ _____ information,

a) generated: b) instructed; c) combined

3. Подберите к терминам, данным в левой колонке, определения, представленные справа.

1. Computer	a) a machine by which information is received from the computer;
2. Data	b) a device capable of storing and manipulating numbers, letters and characters;
3. Input device	c) an electronic machine that processes data under the control of a stored program
4. Memory	d) a disk drive reading the information into the computer
5. Output device	e) information given in the form of characters.

4. Выполните письменный перевод текста.

APPLICATION OF COMPUTERS.

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

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

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

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

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

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

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

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

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

Раздел 2

1. Прочтите текст и скажите, как вы понимаете термины «обработка информации» и «иерархия запоминания информации».

DATA PROCESSING AND DATA PROCESSING SYSTEMS

The necessary data are processed by a computer to become useful information. In fact this is the definition[1] of data processing. ***Data*** are a collection of facts — unorganized but able to be organized into useful information. ***Processing*** is a series of actions or operations that convert inputs into outputs. When we speak of data processing, the input is data, and the output is useful information. So, we can define ***data processing*** as a series of actions or operations that converts data into useful information. We use the term ***data*** *processing* ***system*** to include the resources that are used to accomplish the processing of data. There are four types of resources: people, materials, facilities, and equipment. People provide input to computers, operate them, and use their output. Materials, such as boxes of paper and printer ribbons, are consumed in great quantity. Facilities are required to house the computer equipment, people and materials.

The need for converting facts into useful information is not a phenomenon of modern life. Throughout history, and even prehistory, people have found it necessary to sort data into forms that were easier to understand. For example, the ancient Egyptians recorded the ebb and flow of the Nile River and used this information to predict yearly crop yields. Today computers convert data about land and water into recommendations to farmers on crop planting. Mechanical aids to

computation were developed and improved upon in Europe, Asia, and America throughout the seventeenth, eighteenth, and nineteenth centuries. Modern computers are marvels of an electronics technology that continues to produce smaller, cheaper, and more powerful components.

Basic data processing operations

Five basic operations are characteristic of all data processing systems: inputting, storing, processing, outputting and c***ontrolling***. They are defined as follows.

Inputting is the process of entering data, which are collected facts, into a data processing system. ***Storing*** is saving data or reformation so that they are available for initial or for additional processing. ***Processing*** represents performing arithmetic or logical operations on data in order to convert them into useful information. ***Outputting is*** the process of producing useful information, such as a printed report or visual display. ***Controlling*** is directing the manner and sequence in which all of the above operations are performed.

Data storage hierarchy

It is known that data, once entered, are organized and stored in successively more comprehensive groupings. Generally, these groupings are called a data storage hierarchy. The general groupings of any data storage hierarchy are as follows.

1) ***Characters,*** which are all written language symbols: letters, numbers, and special symbols. 2) ***Data elements,*** which are meaningful collections of related characters. Data elements are also called data items or fields. 3) ***Records,*** which are collections of related data

elements. 4) ***Files,*** which are collections of related records. A set of related files is called a data base or a data bank.

2. Ознакомьтесь с терминами текста

data processing — обработка информации (данных)

to convert — преобразовывать; переводить (Е др. единицы)

to accomplish —завершать, заканчивать; осуществлять, выполнять

to house — помещать, размещать to improve—улучшать, совершенствовать

to control—управлять, регулировать; управление, регулирование

to *store* — хранить, запоминать, заносить (размещать) в памяти

storage— запоминающее устройство, память; хранение

resource — ресурс; средство; возможность

facility— устройство; средство

facilities — приспособления; возможности

equipment—оборудование; аппаратура; приборы; устройства

available—доступный; имеющийся (в наличии); возможный

display — дисплей; устройство (визуального) отображения; показ

manner — способ, образ(действий)

sequence — последовательность, порядок (следования)

successively — последовательно

data storage hierarchy— иерархия (последовательность) запоминания информации (данных)

to enter — входить; вводить (данные); заносить, записывать

comprehensive groupings — полные, обширные, универсальные образования

meaningful— имеющий смысл; значащий (о данных)

item — элемент; составная часть

record— запись, регистрация; записывать, регистрировать

file ['fail] — файл; заносить (хранить) в файл

set — набор; множество; совокупность; серия; группа; система

data base — база данных

related — смежный; взаимосвязанный; относящийся (к ч.-л.)

3.. Ответьте на вопросы, используя информацию текста

1. What is processing? *2.* What is data processing? 3. What does the term of data processing system mean? 4. What basic operations does a data processing system include? 5. What is inputting / storing / outputting information? 6. What do you understand by resources? 7. How did ancient Egyptians convert facts into useful information? 8. When were mechanical aids for computation developed? 9. What does data storage hierarchy mean? 10. What are the general groupings of any data storage hierarchy?

4. Найдите в тексте английские эквиваленты следующих словосочетаний:

Системы обработки информации; определение (термина) обработки данных; совокупность фактов; последовательность действий; преобразование входных данных в полезную информацию; включать ресурсы; завершить обработку данных; обеспечивать ввод информации в компьютер; ленты принтера; расходовать в большом количестве; размешать компьютерное

оборудование; явление современной жизни; на протяжении доисторического периода; регистрировать отливы и приливы; прогнозировать урожай зерновых культур; механические средства вычисления; ввод данных; хранение данных; первоначальная обработка данных; дополнительная обработка; выдача полезной информации; напечатанное сообщение; зрительное отображение; последовательность запоминания информации; записанные символы языка; элементы информации; база данных; набор взаимосвязанных файлов.

5. Переведите следующие цепочки существительных**:**

Data resource; storage resource; network resource; security resource; system resource. Communication facilities; data base facilities; display facilities; management facilities. Distance control; device control; keyboard control; position control; program control. Computer storage; laser storage; file storage; disk storage; data storage hierarchy. Character sequence; instruction sequence; message sequence; pulse sequence. Batch file; catalog file; data file; help file; input file; output file; menu file; user file. Command input; data input; disk input: file input; keyboard input; program input.

1. Прочтите текст и скажите, каковы основные достоинства компьютеров. Переведите текст.

ADVANAGES OF COMPUTER DATA PROCESSING.

Computer-oriented data processing systems or just computer data processing systems are not designed to imitate manual systems. They should combine the capabilities of both humans and computers.

Computer data processing systems can be designed to take advantage of four capabilities of computers.

1. Accuracy. Once data have been entered correctly into the computer component of a data processing system, the need for further manipulation by humans is eliminated, and the possibility of error is reduced. Computers, when properly programmed, are also unlikely to make computational errors .Of course, computer systems remain vulnerable to the entry by humans of invalid data.

2. Ease of communications. Data, once entered, can be transmitted wherever needed by communications networks. These may be either earth or satellite-based systems. A travel reservations system is an example of a data communications network. Reservation clerks throughout the world may make an enquiry about transportation or lodgings and receive an almost instant response. Another example is an office communications system that provides executives with access to a reservoir of date, called a corporate data base, from their personal microcomputer work stations.

3.Capacity of storage. Computers are able to store vast amounts of information, to organize it, and to retrieve it in ways hat are far beyond the capabilities of humans. The amount of data that can be stored on devices such as magnetic discs is constantly increasing. All the while, the cost per character of data stored is decreasing.

4. Speed. The speed, at which computer data processing systems can respond, adds to their value. For example, the travel reservations system mentioned above would not be useful if clients had to wait more than a few seconds for a response. The response required might be a

fraction of a second.

Thus, an important objective in the design of computer data processing systems is to allow computers to do what they do best and to free humans from routine, error-prone tasks. The most cost-effective computer data processing system is the one that does the job effectively and at the least cost. By using computers in a cost-effective manner, we will be better able to respond to the challenge! and opportunities of our post-industrial, information dependent society.

2. Ответьте на вопросы, используя информацию текста.

1. What capabilities should data-processing systems combine when designed? 2. What are the main advantages of computers? 3. What do you know of computers accuracy? 4. What is the function of communication networks? 5. Give examples of a data communication network. 6. What do you understand by capacity storage? 7. What other values of computer data processing systems do you know? 8. What is an important objective in the design of computer data processing systems? 9. What is the most effective computer data processing system? 10. What is the best way of responding to the challenges and opportunities of our post-industrial society?

3. Найдите в тексте английские эквиваленты следующих словосочетаний:

Система обработки информации компьютером; система ориентирования на обработку данных компьютером; сочетать возможности человека и машины; ограничивать управление; вряд ли допустят ошибку; оставаться уязвимым; недопустимые данные; легкость осуществления связи; сеть передачи информации;

системы, основанные на использовании спутников; служащие по резервированию жилья; получить мгновенный ответ; наводить справки; хранилище данных; корпоративная база данных; объем памяти; запоминать огромное количество информации; извлекать информацию; добавить значимости; упомянутый выше; доля секунды; подверженный ошибкам; экономически оправданный.

4. Вспомните значение новых слов и догадайтесь о значении их производных.

To eliminate: elimination; eliminable; eliminator; unlimited.

To respond: respondent; response; responsible; irresponsible; responsibility. Accuracy: inaccuracy; accurate; inaccurate; accurately.

Correctly: correct; incorrect; to correct; correction; correctional; corrective; corrector.

Vulnerable: invulnerable; vulnerability; invulnerability. Invalid: valid; invalidity; validity;

Access: accessible; inaccessible; accessibility; inaccessibility.

TESTS

I. Подберите вместо пропусков подходящее по смыслу слово.

1.Computer data _____system frees humans from routine error-prone tasks.

a) counting; b) computing: c) processing

2.Computers can store vast amount of information to organize it and_____ it.

a) to travel; b) to retrieve; c) to respond

3. The entered data can be transmitted by _____ networks.

a) communications; b) conversions; c) procession

4. The possibility of _____ is reduced if data were correctly put into the data processing system.

a) character; b) access; c) error

5. Computer data processing systems can _____ at a fraction of a second.

a) receive; b) respond; c) retrieve

6. Computer systems are vulnerable to the entry of _____ data.

a) invalid; b) invariable; c) invisible

7. As soon as data were entered into the system correctly, the human _____ is limited.

a) computation; b) information; c) manipulation

8.The amount of data stored on magnetic discs is constantly _____

a) decreasing; b) increasing; c) eliminating

II. Согласуйте слова в левой колонке с их интерпретацией, предложенной справа.

1. Inputting	a)saving information for further processing;
2. Character	b) meaningful collections of related characters;
3. Database	c) the process of producing useful information;
4. Data elements	d) the most common input device;
5. Controlling	e) the part of the computer that receives and stores data for processing;
6. Outputting	f) directing the sequence of operations performed;
7. Memory	g)a written language symbol;
8. Record	h) a collection of related data elements
9. Keyboard	i) a set of related facts;
10. Storing	j) the process of entering collected into a data processing system

Раздел 3

Прочитайте текст и скажите, какие устройства относятся к сфере ввода-вывода информации.

INPUT-OUTPUT ENVIRONMENT.

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

The I/O environment may be human-related or human-independent. A remote banking terminal is an example of a human-related input environment, and a printer is an example of a device that produces output in a human-readable format. Am example of a human independent input environment is a device that measures traffic flow. A reel of magnetic tape upon which the collected data are stored in binary format is an example of a human-independent output.

Input-Output Interfaces. Data enter input units in forms that depend upon the particular device used. For example, data are entered from a keyboard in a manner similar to typing, and this differs from the way that data are entered by a bar-code scanner. However, regardless of the forms in which they receive the:: inputs, all input devices must provide a computer with data that are transformed into the binary codes that the primary memory of the computer is designed to accept. This transformation is accomplished by units called I/O interfaces. Input interfaces art designed to match the unique physical or electrical characteristics of input devices to the requirements of the computer system. Similarly, when output is available, output interfaces must be designed to reverse the process and to adapt the output to the external

environment. These I/O interfaces are also called channels or input-output processors (IOP).

The major differences between devices are the media that they use and the speed with which they are able to transfer data to or from primary storage.

Input-Output Device Speed. Input-output devices can be classified as high-speed, medium-speed, and low-speed. The devices are grouped according to their speed. It should be noted that the high-speed devices are entirely electronic in their operation or magnetic media that can be moved at high speed. Those high-speed devices are both input and output devices and are used as secondary storage. The low-speed devices are those with complex mechanical motion or operate at the speed of a human operator. The medium-speed devices are those that fall between they tend to have mechanical moving parts which are more complex than the high-speed devices but not as complex as the low-speed.

High-speed devices: magnetic disk; magnetic tape.

Medium-speed devices: card readers; line printers; page printers; computer output microfilms; magnetic diskette; optical character readers; optical mark readers; visual displays.

Low-speed devices: bar-code readers; character printers; digitizers; keyboard input devices; plotters; voice recognition and response units.

1. Ознакомьтесь с терминами.

environment – среда; окружение; режим работы;

external- environment внешняя среда

human – related (взаимосвязанный с человеком

human – independent независимый от человека

remote – terminal удаленный терминал

reel of magnetic tape – бобина с магнитной лентой

input-output interface – интерфейс (место стыковки) ввода-вывода

scan –просматривать; сканировать; развертывать

scanner - сканер; устройство оптического считывания

bar-code- scanner / bar-code reader- устройство считывания штрих-кода

regardless of - несмотря на; независимо от

to match characteristics - сопоставлять параметры

similarly- подобным образом; также; аналогично

to fall between - падать; попадать в интервал между

card reader устройство считывания платы (карты)

line printer- построчный принтер; принтер печатания строки

page printer- принтер с постраничной печатью

character printer - принтер с посимвольной печатью

optical character reader - оптическое считывающее устройство текста

optical mark reader - оптическое считывающее устройство знаков

visual display- визуальный индикатор

digitizer- аналого-цифровой преобразователь; сканер

keyboard input device - клавишное устройство ввода

plotter - графопостроитель voice recognition and response

unit - устройство распознавания голоса и реагирования

2. Дайте ответы на следующие вопросы

1. What is the purpose of input and output devices? 2. What types of input-output devices do you know? 3. Why are data transformed into a binary code while entering the input device? 4. Give an example of a human independent output. 5. What is an I/O interface? 6. What are the major differences between the various I/O devices? 7. What types of I/O devices tend to be high speed devices? 8. What types of devices tend to be low-speed devices?

3. Найдите в тексте английские эквиваленты следующих словосочетаний:

Среда устройств ввода-вывода; система обработки информации; внешняя среда; связан с человеком; независим от человека; удаленный банковский терминал; измерять поток данных; бобина с магнитной лентой; хранить собранную информацию; двоичный формат; интерфейс ввода-вывода; вводить с клавиатуры; устройство считывания штрих-кода; не смотря на; преобразовать в двоичный код; сопоставлять параметры; подобным образом; интерфейс вывода; изменить процесс в обратном направлении; настроить устройство ввода-вывода к внешней среде; главное отличие; основная память; вторичная память; низкоскоростные устройства; в соответствии.

4. Вспомните значение новых слов и попытайтесь перевести словосочетания, употребляемые с этими словами.

Environment: application environment; communication environment; execution environment ;external environment; hard-ire environment; interface environment; management environment;

multimedia environment; network environment; processing environment; security environment; software environment; user environment.

Interface: channel interface; common interface; data inter-re; database interface; display interface ;external interface; able interface; floppy-disk interface; general-purpose inter/hardware interface ;low-level interface.

Scanner: bar code scanner; black-and-white scanner; color scanner; desktop scanner; hand scanner; laser scanner; manual scanner; optical scanner; visual scanner.

Terminal: batch terminal; desktop terminal; display terminal; printer terminal; remote terminal; security terminal; logical terminal; text terminal.

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 bail), 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 became 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 .he touch pad is transformed into the cursor movement across: he 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 (photographers, 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.

1.Ознакомьтесь с терминами.

keyboard- клавиатура

key - клавиша; кнопка; переключатель; в ключе основной; главный; переключать; -набирать на клавиатуре

manipulator - манипулятор; блок обработки

trackball -трекбол

touch panel- сенсорная панель

graphic plotting tables- графические планшеты

sound card - звуковая карта (плата)

enable - разрешать; позволять; допускать; делать возможным

operating mode- режим работы

press a button- нажать на кнопку

keep buttons depressed - удерживать кнопки в нажатом состоянии

double-click - двойное нажатие

erase images - удалить, стереть изображение (объект)

roller I'rob] - ролик; валик

track – следить; прослеживать; проходить; след; траектория; путь; дорожка; соединение

by means of – посредством

permitting capacity – разрешающая способность

2. Ответьте на вопросы, используя информацию.

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?

3.Найдите в тексте английские эквиваленты следующих словосочетаний.

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 легко скользить; портативный компьютер; текст; посредством; разрешающая способность.

OUTPUT DEVICES. PRINTERS

Printers provide information in a permanent, human-readable form. They are the most commonly used output devices and are components of almost all computer systems. Printers vary greatly in performance and design. We will classify printers as character printers, line printers and page printers in order to identify three different approaches to printing, each with a different speed range. In addition, printers can be described as either impact or no impact. Printers that use electromechanical mechanisms that cause hammers to strike against a ribbon and the paper are called impact printers. No impact printers do not hit or impact a ribbon to print.

Character printers print only one character at a time. A typewriter is an example of a character printer. Character printers are the type used with literally all microcomputers as well as on computers of all sizes whenever the printing requirements are not large. Character printers may be of several types. A letter-quality printer is a character printer which produces output of typewriter quality. Letter-quality printers typically have speeds ranging from 10 to 50 characters per second. Dot-matrix printers form each character as a pattern of dots. These primers have a lower quality of type but are generally faster printers than the letter-quality printers in the range of 50 to 200 characters per second. One of the newest types of character printer is the inkjet printer. It sprays small drops of ink onto paper to form printed characters. The ink has a high iron content, which is affected by magnetic fields of the printer. These

magnetic fields cause the ink to take the shape of a character as the ink approaches he paper.

Line printers are electromechanical machines used for high volume paper output on most computer systems. Their printing speeds are such that to an observer they appear to be printing a line at a time. They are impact printers. The speeds of line printers vary from 100 to 2500 lines per minute. Line printers have been designed to use many different types of printing mechanisms. Two of the most common print mechanisms are the drum and the chain. Drum printers use a solid, cylindrical drum, rotating at a rapid speed. Speeds of drum printers vary from 200 to over 2000 lines per minute. Chain printers have their character set on a rapidly rotating chain called a print chain. Speeds of chain printers range from 400 to 2400 lines per minute.

Page printers are high-speed no impact printers. Their priming rates are so high that output appears to emerge from the printer a page at a time. A variety of techniques are used in the design of page printers. These techniques, called electro photographic techniques, have developed from the paper copier technology. Laser-beam printers use a combination of laser beam and electro photographic techniques to create printer output at a rate equal to 18000 lines per minute.

1. Ознакомьтесь с терминами текста.

human-readable form - удобная для чтения форма

performance - (рабочая) характеристика; производительность; быстродействие;

скорость работы;- пропускная способность

character printer - принтер с посимвольной печатью; символьный принтер

line printer принтер с построчной печатью page

printer- принтер с постраничной печатью

(*non) impact printer*- (бес)контактный принтер

letter-quality printer- принтер с типографским качеством печати

dot-matrix printer -точечно-матричный принтер

ink-jet printer струйный принтер

laser-beam printer лазерный принтер

to identify идентифицировать; распознать; обозначить

approach подход; метод; принцип; приближение

at a time за один раз; одновременно

to cause вызывать; приводить к (ч.-л.); заставлять; вынуждать

to strike against a ribbon ударять по ленте

typewriter печатное устройство

to spray drops of ink распылять капли чернил

to affect влиять; воздействовать; сказываться на (ч.-л.)

technique метод; способ; техника; методика; технология

printer output вывод на печать; распечатываемые данные

2. Ответьте на вопросы, используя информацию текста.

1. What are the three types of printers? 2. What is a letter-quality printer? 3. What is a dot-matrix printer? 4. What type of printer is the most common with microcomputer systems? 5. What is the most common printer type used on large computer systems? 6. What is an impact printer? Give an example. 7. What is a no impact printer? Give examples. 8. What are the most widely used printers? 9. How do you distinguish between a letter-quality printer and a dot-matrix printer? 10. Which of these printers is slower? 11. What types of character printers do you know? 12. How are printed characters formed by means of an ink-jet printer? 13. What are the main types of a line printer? Which of them is faster? 14. What techniques are used in the operation of page printers?

3. Найдите в тексте английские эквиваленты следующих словосочетаний:

Удобная для восприятия человека форма; наиболее часто употребляемые устройства вывода информации; различаться по рабочим характеристикам и внешнему виду; принтеры с посимвольной печатью; принтеры с построчной печатью; принтеры с постраничной печатью; различные методы печати; диапазон скорости; принтеры контактные и бесконтактные; ударять по ленте; печатать по одному символу; буквально все компьютеры; а также; требования печати; принтер с типографским качеством печати; точечно-матричные принтеры; струйные принтеры; разбрызгивать капли чернил; высокое содержание железа; магнитные поля;

принимать форму символа; кажется, что печатают по строчке; барабанный принтер; цепочечные принтеры; лазерный принтер.

4. Вспомните значение новых слов и попытайтесь перевести словосочетания.

Approach: comprehensive approach; database approach; educational (training) approach; general approach; graphic approach; self-study approach; step-by-step approach; trial-and-error approach.

Performance', application performance; computer performance; device performance; disk performance; display performance; error performance; execution performance; memory performance; network performance; processor performance.

Printer: black-and-white printer; color printer; character (at-a-time) printer; dot-matrix printer; graphical (image) printer; impact printer, ink-jet printer; laser printer; letter-quality printer; matrix printer; network printer; page (at-a-time) printer.

Technique: advanced technique; analog technique; computing technique; display (video) technique; formatting technique; hardware technique; measuring technique; modeling (simulation) technique; multimedia technique; numerical technique; programming technique; scanning technique; software technique; testing technique.

TESTS

1. Вставьте необходимые слова вместо пропусков.

1. Input-output devices allow the computer to _____ with its external environment.

a) compute; b) command; c) communicate

2. An I/O interface is a special _____ that converts input data to the internal codes.

a) register; b) processor; c) plotter

3. The devices allow the computer to communicate with its external environment.

a) high-speed; b) medium-speed; c) low-speed

4. The low-speed devices are those with complex mechanical motion or those that operate at the speed of a human operator.

a) mechanical; b) electrical; c)

5. Data are entered from a_____ in a manner similar to typing.

a) mechanical; b)electrical; c)electronic

6. A remote banking terminal is an example of a _____input environment.

a) human-dependent; b) human-independent; c) human-related

7. Input _____ match the physical or electrical characteristics of input devices to the requirements of the computer system.

a) interconnections; b) interfaces; c) intercommunication

8. They _____data into the binary codes.

a) transmit; b) translate; c) transform

2. Согласуйте слова левой колонки с их интерпретацией, предложенной справа.

1. Scanner	a) a device producing output in a human-readable format;
2. Keyboard	b) a device enabling to get video images in digital form;
3. Touch pad	c) a manipulator used mainly in computer games;
4. Mouse	d) a device converting the finger movement into the cursor movement across the screen;
5. Plotter	e) a device for direct data entry, which can convert images into the computer form;
6. Joystick	f) a special pen that can draw and input texts;
7. Digital camera	g) a device inputting numerical and text data by means of keys;
8. Magnetic disc	h) an optic-mechanical device helping the user select images on computer display due to rotating balls;
9. Printer	i) an entirely electronic high-speed device keeping information.

Раздел 4

1. Прочтите текст и скажите, существуют ли отличия персональных компьютеров от больших компьютеров и в чем они заключаются.

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 way-side. 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 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.

2. Ознакомьтесь с новыми словами и терминами текста

personal - computers персональные компьютеры

competitive - operating systems конкурирующая операционная система

IBM (International Business Machine) – фирма по производству компьютеров

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

soft-copy output- вывод электронной, программно-управляемой копии

h*ard-copy output* - вывод «твердой» печатной копии

online storage - неавтономное хранение данных в ЗУ

offline storage - автономное хранение данных отдельно от компьютера

input media- носитель для входных данных

output media- носитель для выходных данных

general-purpose- универсальный; общего назначения

stand-alone- автономный

to plug in- подключать; подсоединять

l*eisure activities* - досуговая деятельность

Прочтите текст и укажите сферы деятельности, где используются персональные

APPLICATION OF PERSONAL COMPUTERS

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

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

The list of other home and hobby applications of PCs is almost endless, including: checking account management, budgeting, personal finance, planning, investment analyses, telephone answering and dialing,

home security, home environment and climate control, appliance control, calendar management, maintenance of address and mailing lists and 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 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.

2. Ознакомьтесь с терминами текста

word processing - обработка текста

telephone dialing - набор номера телефона

s*ecurity* - безопасность; охрана

appliance - устройство; прибор

maintenance- поддержание; сохранение; эксплуатация

application software - прикладные программы

to delete – удалять, стирать; очищать память

to move paragraphs around - менять местами абзацы

accountant - бухгалтер

accounting - бухгалтерский учет

i*ncome tax* - подоходный налог

stock market forecasting - биржевые прогнозы

worksheet - электронная таблица

scheduling - составление расписания, графика

computer-assisted instructions - компьютерные команды

to meet the demands - удовлетворять потребности

r*ecord keeping* - регистрация; ведение записей

grading - оценивание; классификация

3. Ответьте на вопросы, используя информацию текста.

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

4. Найдите в тексте английские эквиваленты следующих словосочетаний:

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.

5. Расшифруйте следующие аббревиатуры и переведите их.

PC; PU; CU; ALU; CPU; MPU; IBM; DOS; CRT; ROM; RAM; 1C; SSI; MSI; LSI; VLSI; текст.MP; CD; I/O; IOP; CMI; CAI.

6. Прочитайте и переведите

A MODEM

The piece of equipment that allows a computer to communicate with other computers over telephone lines is called a modem. The modem allows the individual to access information from all over the world and use that information in everyday life. Connecting with banks, Automatic Teller Machines, cash registers to read credit cards, access travel agents, buy products, e-mail, access databases, and teleconferencing, the modems provide easy access to many services. Files can be transferred easily, by uploading to another machine, or downloading to your own machine within a matter of minutes. The computer modem can be used as a telephone answering system, and documents can be faxed from one computer to another assuring fast and easy access to important documents.

A modem lakes computer information and changes it into a signal that can be sent over telephone lines. The modem is a bridge between digital and analog signals. The computer is of the digital type, and the telephone using analog technology. The modem converts the "0"s and 1"s of the computer (off-on switches) into an analog signals modulating the frequency of the electronic wave or signal. The modem does just the

opposite and demodulate the signal back into digital code. The modem gets its name from MOdulate and the DEModulate. Most people believe that you need a separate phone line for a modem, but that is not true. Your modem and telephone can share one line, the problem arises when someone else needs to use the telephone while the modem is in use. Also disable call waiting, it could disrupt your modem connection while the modem is in use.

There are three kinds of modems internal, external, and fax. All modems do the same thing, they allow computers to communicate through telephone lines. This lets computers exchange information everywhere. Internal Modem is a circuit board that plugs into one of the expansion slots of the computer. Internal modems usually are cheaper than external modems, but when problems occur, fixing and troubleshooting the modem can sometimes prove to be quite difficult. External Modem attaches to the back of the computer by way of a cable that plugs into the modem port. It is usually less expensive and very portable. It can be used with other computers very easily by unplugging it and plugging it into another computer. Fax Modem can be hooked up to your telephone and used to send information to your computer. Your computer can also send information to a fax machine. Most computer modems are modems with faxing capabilities.

7. Прочитайте и переведите текст.

SCANNERS

Scanners provide a capability for direct data entry into the computer system The major advantage of this direct data entry is that humans do not have to key the data. This leads to faster more accurate data entry.

The two major types of scanners are optical scanners and magnetic-ink character recognition devices.

Optical scanners are input devices that can "read" data recorded on paper. The scanning techniques used involve a light source and light sensors; thus, they are called optical devices. The data to be scanned may be typed or handwritten characters, data-coded as pencil marks, or data-coded as bars. The common optical scanner devices are called optical character readers, optical mark readers, and bar-code readers.

An optical character reader (OCR) inputs data by using optical scanning mechanisms that can detect or scan alphabetic and numeric characters printed on paper. If the data are typewritten, they must be typed using a special type font, called an OCR font. Examples of the use of OCR devices include the scanners used by the Postal Service to aid in sorting bulk mail, and as first-draft input for word processing system.

Optical mark readers (OMR) are able to detect pencil marks, made on special paper forms. The actual inputting of data through an OMR device involves shining a light on the page being scanned and detecting the reflections from the pencil marks. Pencil marks made with a soft lead pencil (high graphite content) will reflect the light. It is this reflection that the OMR device detects.

Optical bar-code readers detect combinations of marks or printed bars that represent the data. Bar codes have been used for a number of years for some types of credit card processing and by the post office for mail sorting. It is very common to use bar-code readers in conjunction with point-of-sale devices. The most widely known bar code is the

universal product code (UPC), which now appears on almost all retail packages.

Magnetic-ink character recognition (MICR) devices were developed to assist the banking industry. MICR devices speed up data input for the banking industry by reading characters imprinted on paper documents using a magnetic ink (an ink that contains iron oxide particles). Check and deposit form processing is the largest application of MICR.

bar-coder reader- устройство считывания штрих-кода

type font- печатный шрифт

point-of-sale device- кассовый терминал

TESTS

1. Вставьте необходимые слова вместо пропусков.

1. A personal computer is a small relatively inexpensive device designed for an individual

a) person; b) producer; c) user

2. One of the first and most popular personal computer was in 1977.

a) interpreted; b) introduced; c) integrated

3. All personal computers are based on technology, its CPU being called MPU.

a) microscopy; b) microprocessor; c) microelement

4. Very soon a microcomputer was from a calculator into a PC for everyone.

a) transformed; b) transferred; c) transported

5. Input in PC is usually performed by means of a .

a) mouse; b) scanner; c) keyboard

6. A personal computer uses disks as input and output media.

a) hard; b) fixed; c) floppy

7. Personal computers have a lot of, scientific, engineering, educational being among them.

a) multiplication; b) application; c) investigation

8. Personal computers have a great upon pupils, educators, accountants, stock brokers and who not.

a) influence; b) information; c) environment

9. A word processing program called application enables you to modify any document in a manner you wish.

a) hardware; b) software; c) firmware

10. Using a display you can mistakes, words and replace sentences.

a) delete; b) dial; c) correct

2. Read the following definitions and match them with the words on the left. Then label the various parts of the computer system.

Are You Computer Literate?

1. Disk drive — a) This is the control centre of the computer. All instructions and information entering the computer come here fist and then are sent to correct part of the computer for processing

2. Printer — b). This is similar to a TV screen, but pictures are sharper. The output coming from the central processing unit is sent to here so that it can be seen by the operator.

3. Central Processing Unit (CPU) — c)It allows the operator to type the information to be entered into the central processing unit

4. Keyboard — d)The output which usually sent the monitor can be sent to here so that it can be stored on paper for future use

5. Monitor — e)It is used to record data on or read data from a floppy disk

Раздел 5

Прочитайте текст и объясните, что представляют собой языки программирования.

COMPUTER PROGRAMMING

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

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

There are two common techniques for planning the logic of a program. The first technique is flowcharting. A flowchart is a plan in the form of a graphic or pictorial representation that uses predefined symbols to illustrate the program logic. It is, therefore, a "picture" of the logical steps to be performed by the computer. Each of the predefined symbol shapes stands for a general operation. The symbol shape

communicates the nature of the general operation, and the specifics are written within the symbol. A plastic or metal guide called a template is used to make drawing the symbols easier.

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

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

1. Ознакомьтесь с терминами текста.

equation- уравнение, приравнивание

list of instructions- перечень команд

guard- защищать; предохранять; завершать; заканчивать

appropriate sequence - необходимая (требуемая) последовательность

program logic- логическая последовательность выполнения программы

flowchart - блок-схема; составлять блок-схему

flowcharting – построение блок-схемы

pictorial representation - наглядное представление

predefined symbols - заранее заданные символы

specifics - специальные черты; характерные особенности

emplate - маска; образец; эталон шаблон;

pseudo code -псевдокод; псевдопрограмма

programming- rules правила программирования

consume- потреблять; расходовать

emphasize - выделять; подчеркивать

top-down approach- принцип нисходящей разработки

looping logic - логическая схема выполнения (операций) в цикле

2. Просмотрите текст еще раз и ответьте на вопросы, используя информацию текста.

1. What is programming? 2. What is the essence of programming? 3. What should be done with the problem before processing by the computer? 4. What is a program? 5/What are instructions? 6. What are the main techniques for planning the program logic? 7. What is a flowchart? 8. What is a template and what is it used for? 9. What do you understand by "pseudo code"? 10. What are the basic structures of pseudo code?

3. Найдите в тексте английские эквиваленты следующих словосочетаний:

Совокупность закодированных команд; суть компьютерного программирования; кодирование посредством алгоритма; формулы, уравнения, вычисления; обработать особым образом; перечень команд; необходимая последовательность; защищать от ошибок; составлять план логической последовательности; общепринятая методика; логическая последовательность выполнения программы; построение блок-схемы; наглядное представление; заранее заданные символы; шаблон; псевдопрограмма; без издержек; выделять принцип нисходящей обработки; расходовать меньше

времени; логическая схема выполнения операций в цикле; необходимая последовательность операций.

4. Подберите из предложенных ниже русских словосочетаний значения следующих терминов на английском языке:

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

Программа в двоичном коде; прикладная программа; совместимая программа; бесплатная программа; программа отладки; сторожевая программа; дистанционная программа; программа моделирования; сервисная программа; вспомогательная программа; программа для доступа (к данным); заархивированная программа; программа, работающая с базой данных; обучающая программа; программа, выполняемая с большой скоростью; универсальная программа; программа, выполняемая в защищенном режиме; программа обработки данных; программа операционной системы (системная программа); выполняемая программа; селевая /несетевая программа; самозагружающаяся программа; часто используемая (распространенная) программа; программа управления; программа обнаружения вирусов.

PROGRAMMING LANGUAGES

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

The computer cannot understand instructions written in just any old way. The instructions must be written according to a set of rules. These rules are the foundation of a programming language. A programming language must convey the logical steps of the program plan in such a way that the control unit of the CPU can interpret and follow the instructions. Programming languages have improved throughout the years, just as computer hardware has improved. They have progressed from machine- oriented languages that use strings of binary Is and Os to problem-oriented languages that use common mathematical and/or English terms. There are over 200 problem-oriented languages. The most common of them are COBOL, FORTRAN, PL/I, RPG, BASIC, PASCAL.

COBOL

COBOL was the most widely used business-oriented programming language. Its name is an acronym for Common Business-Oriented Language. COBOL was designed to solve problems that are oriented toward data handling and input-output operations. Of course, COBOL can perform arithmetic operations as well, but its greatest flexibility is in

data handling. COBOL also was designed as a self-documenting language. Self-documenting languages are those that do not require a great deal of explanation in order to be understood by someone reading the program instructions. The self-documenting aspect of COBOL is made possible by its sentence like structure and the very generous maximum symbolic field-name length of 30 characters. With a field-name length of up to 30 characters, the name can clearly identify the field and its purpose.

FORTRAN IV

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

PL/I

PL/I stands for programming language I. It was designed as a general-purpose language incorporating features similar to COBOL for data handling instructions and features similar to FORTRAN for mathematical instructions. PL/1 is much more in a combination of the good features of both COBOL and FORTRAN, as it has many capabilities that are unique. Yet, though PL/I is one of the most versatile and the most power of the programming languages, it is not the most commonly used. COBOL and FORTRAN have been available for a

longer period of time than PI/I, and many more users work with those languages.

1. Ознакомьтесь с терминами текста.

programming language- язык программирования

coded form- кодированный вид; кодированное представление

to convey- передавать; сообщать

to improve - улучшать, совершенствовать

machine-oriented language - машинно-ориентированный язык

b*usiness-oriented language* - язык для (программирования) экономических задач

problem-oriented language - проблемно-ориентированный язык

string of binary - строка двоичного представления

data handling - обработка данных; работа с данными

field-name length - длина имени поля

incorporate features - включать свойства, особенности

versatile - многофункциональный; разносторонний; универсальный

generous - большой, значительный (о количестве)

mathematical relationship - математическая связь (соотношение)

2. Просмотрите текст еще раз и ответьте на вопросы, используя информацию текста.

I. What is the process of writing instructions called? 2. What is a code? 3. How must instructions be written? 4. What is the foundation of any programming language? 5. How was the development of programming languages progressing throughout the years? 6. What are the most common problem-oriented languages? 7. What is COBOL? 8.

What functions was COBOL designed for? 9. What does FORTRAN serve for? 10. What capabilities has PL/I?

3.Найдите в тексте английские эквиваленты следующих словосочетаний:

Языки программирования; блок-схема; кодированная форма; вид, удобочитаемый для компьютера; в соответствии с набором правил; представить логические шаги программы; таким образом; совершенствовать языки программирования; машинно-ориентированные языки; проблемно-ориентированные языки; обычный термин: язык для программирования экономических задач; обработка информации; операции по вводу-выводу данных; гибкость; идентифицировать поле и его цели; решение проблем математического характера; сферы научного применения; универсальный язык; включать свойства; уникальные возможности; многофункциональный и самый мощный из языков программирования.

Tests

1.Подберите вместо пропусков подходящее по смыслу слово.

1. The most common _____ for planning the program logic are flowcharting and pseudo code.

a) technologies; b) technics; c) techniques

2. _____was designed for dealing with the complicated mathematical calculations of scientists and engineers.

a) COBOL; b) FORTRAN; c) PL/I

3. _____ is the foundation of any programming languages.

a) a set of rules; b) a group of numbers; c) a lot of instructions

4. I / O_____match the physical and electrical characteristics of input-output devices.

a) interchanges; b) interfaces; c) interpretations

5. Letter-quality, dot-matrix and ink-jet printers are all _____printers.

a) line; b) page; c) character

6. The most common device used to transfer information from the user to the computer is the _____

a) keyboard; b) printer; c) modem

7.Input-output units link the computer to its external _____.

a) requirement; b) development; c) environment

8. O devices can be classified according to their speed, visual displays being _____devices.

a) high-speed; b)medium-speed; c) low-speed

2. Согласуйте слова в левой колонке с их интерпретацией, предложенной справа.

1. Computer	a) an electronic device accepting data processing results from the computer system
2. Input	b) the unit performing arithmetic operations called for in the instructions;
3. Output	c) the unit coordinating all the activities of various components of the computer. It reads information, enterpretes instructions, performs operations, etc.;
4. Software	d) a set of programs designed to control the operation of a computer;
5. Hardware	e) lists of instructions followed by the control unit of the CPU:
6. Storage.	f) an electronic device keying information into the computer;
7. CPU	g) the unit holding all data to be processed intermediate and final results of processing;
8. CU	h) visible units, physical components of a data processing system;
9. ALU	i) the unit that directs the sequence of system operations, selects instructions and interpretes them;
10. Program	j) a device with a complex network of electronic circuits that can process information,

make decisions, and replace people in routine tasks.

3. Выполните перевод следующих текстов письменно.

RPGII Programming language

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

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

BASIC

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

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

PASCAL

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

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