**The devices of a computer**  
  
***Computer***  
A computer is any device capable of making calculations--it performs a computation and produces an answer. But this is a little too broad to describe most computers today. Today's computers can perform very complex calculations at extremely high speeds.   
  
***MEMORY***:  
Memory, better known as Random Access Memory (RAM) is a set of chips used to store information. These chips can only store information as long as there is electrical power. When the power is turned off, they 'forget' everything and all data is lost. This is because the RAM uses the electricity to store the information. When the electricity dies, so does your data.  
Memory comes in a number of configurations for IBM compatible PC's. Memory also comes in parity checking vs. non-parity checking. Parity checking is verifying that there is an even or odd number of 1's or zeroes in the data set. This means that memory that does parity checking is able to verify that it is functioning correctly when running. Most memory sold today is non-parity RAM, and is only checked for errors on start up by writing to and reading from every location in memory.  
PC MEMORY CATEGORIES: ROM, RAM, CACHE, VIRTUAL, Flash Memory.  
  
***Read Only Memory (ROM)***  
Built into every computer is one or more chips that store program code which provides the basic input output functions for the system (aka BIOS). designed to power on the system, perform basic hardware tests (POST) and bootstrap the system. This program is stored in a chip which retains it's values even when deprived of electricity. The first ROMs were hard-wired. Their contents were 'burned in' at the factory and could not be changed. Frequently a bug was contained in the code that created problems. This actually happened with the early IBM machines. Their bootstrap ROM would identify the serial communication ports, but would erroneously assign the wrong memory registers and interrupts to the wrong COM port leading to COM port conflicts.  
Later, as technology advanced, flashable ROMs were created to store the bootstrap software. The advantage of the flashable ROM was that it could still hold it's value when deprived of electricity, but could also be updated. Instead of having to remove the chip and replace it, or having to scrap the computer and buy a new one, the ROM could be 'flashed' with new, fixed code to correct the previous bug.  
  
***Random Access Memory (RAM)***  
Random Access Memory (RAM) is the operational memory of a computer. Computers have serial storage devices and random access storage devices. Serial devices must be read from beginning to end to find a piece of data in the middle. Random access devices allow direct access to any part of it. When the computer loads programs from peripheral storage, they go into RAM.  
As RAM technology has advanced, new types of RAM were created with greater storage capacity and faster access times. Like all components of the computer, memory is a device and requires a driver. Drivers for RAM devices are built into the BIOS microcode of most main boards with additional drivers being installed by the operating system.

***Virtual Memory***

Virtual Memory is not actually memory. It is storage space on your hard disk used temporarilly for the storage of active programs you are not actively working on that used to be in RAM. is the process of extending RAM by using hard disk storage space. Virtual Memory is used to allow a computer to do more with less resources. Computers run all programs from memory (RAM). When the ammount of available RAM is insufficient, some of the contents of RAM are written to the hard disk in chunks called pages.  
Programmers once believed that since humans can only do one thing at a time, they can only use one program at a time and thus a computer can move a program running in RAM that the user is not actively using to the disk temporarilly. When the user switches back to the application, it is moved back to RAM so it can be executed and some other application is moved to disk. This process of swapping out pages of memory is known as paging. To make virtual memory work efficiently, a swap file is needed to set aside hard disk space for storage. This is space that cannot be used for anything else and must be at least as large as the ammount of RAM you have on the system to work properly.  
The reality is that today's users often are listening to music while they work on a web page and are rendering 3D graphics. This is why many computers run so slowly and why you can get big speed improvements just by buying RAM for an underpowered system. Since the disk is hundreds of times slower than the RAM, the system speeds up considerably when you have more RAM and use the virtual memory on disk less.  
  
***Modems***  
A modem is an communication device which allows your computer to communicate with other computers over a communications link. The modem's job is to convert your data into the format used on the communications connection and the remote modem converts that transmission back into data. Examples of modems include a standard fax/phone modem, a cable modem or a DSL modem or even a satellite modem. All modems perform what is called modulation to encode your data into the line signal and demodulation to decode it from the line signal. The term MODEM is short for Modulator/Demodulator.  
Modems come in many shapes and sizes but can be generally broken down into two categories, internal and external. As the names imply, an internal modem goes inside your computer into either an ISA or PCI slot. External modems are attached to the computer through some other connection but are physically outside the computer case.

***Задание 1***

Capable – способный

To describe – описывать

Compatible – совместимый

Parity – соотношение

Swap – замена

Bootstrap – начальная загрузка

Interrupts – прерывания

Access – доступ

Space – пространство

Shape – форма

***Задание 2***

1. What is a computer? What is the main purpose of all computers?
2. What are types of memory?
3. What are the basic functions of ROM?
4. What are the advantages of the new ROM as opposed to the old?
5. What happens when the amount of RAM ends?
6. What are examples of modem you know?

***Задание 3***

|  |  |  |  |
| --- | --- | --- | --- |
| ***Bootstrap*** | ***Swap*** | ***To encode*** | ***Signal*** |
| 1. startup | 1. to change | 1. to encrypt | 1. beep |
| 2. download | 2. transaction | 2. to encipher | 2. toot |
| 3. loading | 3. trade | 3. to code | 3. sign |
| 4. bootable | 4. exchange | 4. to codify | 4. gesture |

***Задание 4***

1. Parity checking is verifying that there is an even or odd number of … or … in the data set.
2. 2, 3;
3. 1, 0;
4. 1, 10;
5. 0, -1.
6. Most memory sold today is non-parity … , and is only checked for errors on start up by writing to and reading from every location in memory.
7. ROM;
8. Flash Memory;
9. Virtual Memory;
10. RAM.
11. Built into every computer is one or more … that store program code which provides the basic input output functions for the system, designed to power on the system, perform basic hardware tests and bootstrap the system.
12. Chips;
13. Cache;
14. ROM;
15. Modem.
16. … is the operational memory of a computer.
17. Read Only Memory;
18. Flash Memory;
19. Hard disk;
20. Random Access Memory.
21. The term MODEM is short for … .
22. Modems;
23. DSL modem;
24. Modulator;
25. Satellite modem.

***Задание 5***

1. Memory, better known as Random Access Memory is a set of chips used to store information. – Memory, which is a set of chips used to store information is RAM.
2. Internal modem goes inside your computer into either an ISA or PCI slot. – ISA or PCI are slots for the input of the internal modem.
3. External modems are attached to the computer through some other connection but are physically outside the computer case. – External modems are physically located outside the computer case and are connected through another connection.
4. The term MODEM is short for Modulator/Demodulator. – From words “modulator” and “demodulator” appeared the term “modem”.
5. Many computers run so slowly and why you can get big speed improvements just by buying RAM for an underpowered system. - When you buy RAM for an underpowered system, you improve the speed of the computer.

***Задание 6***

The devices of a computer

PC memory categories Modems

ROM: RAM: Virtual memory:

- Built into every computer - Random Access Memory Virtual memory is not Fax/phone modem

is one or more chips that is the operational memory actually memory. It is

store program code which of a computer. Computers storage space on your Cable modem

provides the basic input have serial storage devices hard disk used

output functions for the and random access storage temporarily for the DSL modem

system, designed to power devices. When the computer storage of active

on the system, perform loads programs from programs. Is the process Satellite modem

basic hardware test and peripheral storage, they go of extending RAM by using

bootstrap the system. into RAM. hard disk storage space.

this program is stored

in a chip which retains

it’s values even when

deprived of electricity.

***Задание 7***

PC memory categories this ROM, RAM, Virtual memory and Flash memory.

RAM memory is a set of chips used to store information. These chips can only store information as long as there is electrical power. When the power is turned off, they ‘‘forget’’ everything and all data is lost.

ROM memory. Built into every computer is one or more chips that storage program code which provides the basic input output functions for the system and bootstrap the system. This program is stored in a chip which retains it is values even when deprived of electricity.

Virtual memory is not actually memory. It is Virtual storage space on your hard disk used temporarily for the storage of active programs. Virtual memory is used to allow a computer to do more with less resources.

A modem is a communication device which allows your computer to communicate with other computers over a communications link. Examples of modems include a standard fax/phone modem, cable modem, DSL modem and satellite modem.