Q1. Differentiate Between Hardware and Software.

Software	Hardware
The set of programs running in the computer is called software. These are simple instructions which tell the computer what to do e.g. MS WORD, MS EXCEL etc	The Physical parts of the computer are called hardware. Like CPU, keyboard, mouse, scanner, monitor and printers etc.

Q2a). Write a short note on the following?

System Unit/CPU (Central Processing Unit) It is the most complex and powerful part of a computer. It controls all the units in a computer. It is the CPU where actual work is done. It takes information from the input units or from the memory and then processes it according to the stored instructions.
CPU consists of three parts.
i). Arithmetic and Logic Unit (ALU)   ii). Control Unit (CU)   iii). Memory Unit

i). Arithmetic and Logic Unit   (ALU):- It performs all arithmetic calculations like addition, subtraction, multiplication, division and logical operations like greater than, less than or equal to etc.

ii). Control Unit:- It controls and coordinates the activities of all the computer units. It does not execute instruction itself, but it directs other parts of computers to do so.

iii). Memory Unit:-It is used to store data and instructions temporary for using it again and again whenever it is required. A computer performs operation like add, sub, multiply on instructions stored in the memory unit.

b). Describe the main functions of CPU.
The following are the main functions of the CPU.
i). It accept instructions and data from the input unit.
ii). It store and retrieve data from the memory when required.
iii). It interprets the instructions and send commands to relevant units.
iv). It performs all the arithmetic and logical operations.
v). It control and coordinates the activities of all other units.
vi). It send the results to the output units.

c). Main functions of ALU.
Arithmetic Operations:- Add, Subtract, Increment, Decrement
Logic Operations:- NOT, AND, OR.
Shift Operations:- Shift Right, Shift Left, Rotate Right, Rotate Left etc.

d). Main functions of Control Unit
CU is the most important part of CPU. It performs the following main functions:
- It controls and coordinates the activities of all computer units.
- It issues necessary commands to various components of the computer.
- It controls the I/O devices.
- It also controls the flow of instructions, data & results.
- It does not execute the instruction itself. But it directs the other parts of computer to do so.

Q3. What is Bus System? Differentiate b/w Data Bus, Address Bus and Control Bus?

Bus System: It is a collection of wires through which data is transmitted from one part of a computer to another. This is a bus, which connects all the internal computer components to the CPU and main memory

The size of a bus is known as its *width,* it determines how much data can be transmitted at one time. For Example, a **16-bit bus** can transmit **16 bits** of data, whereas a **32-bit bus** can transmit **32 bits** of data. There are three buses like **Data** Bus, **Address** Bus and **Control** Bus

Data Bus:- The data bus transfers actual data to/from CPU to all other I/O devices connected to the mother board.

Address Bus:- The address bus transfers information about where the data should go. It carries only the Memory Address between Memory, CPU and I/O devices.

Control Bus: The physical connections that carry control information between the CPU and other devices. It carries signals that report the status of various devices. For example, one line of the bus is used to indicate whether the CPU is currently reading from or writing to main memory.

Q4. Differentiate between system software and application software?

System Software:- System software is a set of program designed by the manufacturers for efficient management of hardware. It improves the functional capabilities of the computer. It generally consists of an Operating System (WIN, DOS) and utilities like, Disk Formatters, File Managers, Display Managers, User Authentication (login) and Network Control etc.

Application Software:- Application Software is a collection of programs written by the users to solve a specific problems. It may consist of a single program or a collection of programs (software package). Some of the application software are word processor, spreadsheets, DMBS (Database Management System) etc.

Q5. Write note on main memory and secondary memory? Also give examples.

i). Main memory stores data for using it again and again. RAM is a Random Access Memory. It is a temporary memory. It consists of blank chips. It is used to store and retrieve (Write & Read) information during processing. It is the fastest memory due to directly accessible by the CPU.

ii) Secondary storage is used to supplement the capacity of main memory. This memory stores a bulk of information. It is a permanent (nonvolatile) memory. It is also called auxiliary storage, mass storage or Backing Storage. The devices used for secondary storage are called secondary storage devices.

Some Secondary Storage devices are Magnetic disk (HD, FD, CD), Magnetic tape, Mass Cartridge are examples of Secondary Storage devices.

Q6. What are the different kinds of input devices?

A variety of input devices are used to input data in different forms like keyboard is used to enter textual data; mouse is used as a pointing device and to issue different commands in different applications, microphone is used to enter voice data, and scanner is used to enter image data.

Q7. Define magnetic disk? (HD & FD)

Magnetic disk (Hard Disk) is a storage device used to store date permanently. It is located outside the motherboard. It is type of a Non-volatile (permanent) memory. Floppy disk is also magnetic storage medium which can store data permanently.
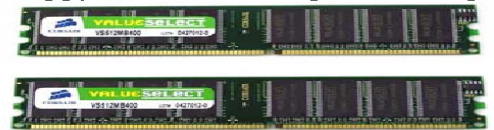
Q8. Explain Random Access Memory (RAM)

RAM is a Random Access Memory. It is a temporary memory. It consists of blank chips. It is used to store and retrieve (Write & Read) information during its processing. RAM is a volatile memory because all stored information is lost when we shut down the computer.

RAM has much better access time and higher transfer rate. Generally RAM is measured in K. Bytes or M. Bytes. Larger the RAM size faster the processing speed.

Q9. ROM (Read Only Memory): ROM is a Read Only Memory. It has permanently stored information designed by the manufacturer. Instructions stored in ROM control the basic operation of the computer. It is a semiconductor chip programmed at the time of manufacture and it is not a programmable by the user.

Program stored in ROM is called Firmware. ROM is a nonvolatile memory because the stored information does not lost when we shut down the computer.
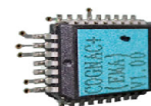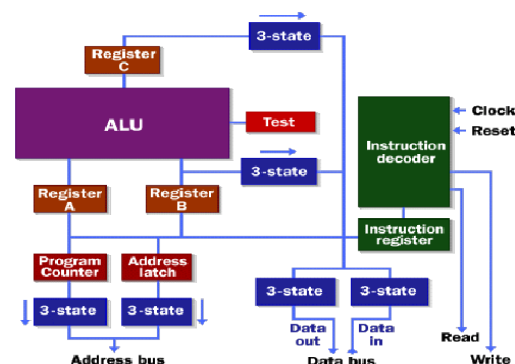
(Internal Working of CPU)

An **address bus** (that may be 8, 16 or 32 bits wide) that sends an address to memory
A **data bus** (that may be 8, 16 or 32 bits wide) that can send data to memory or receive data from memory

Q1.   **Define Software. Mention different type of software.**

     Software:- The set of programs run in the computer are called software. These are simple instructions that tell the computer what to do.

Q2.   **What is a system unit?**

Ans: The system unit is the heart of the computer. It allows various parts of the computer to work together. System Unit consists of:- i). Central Processing Unit (CPU)   ii). Memory (RAM, ROM)   iii). Disk Drives   iv). Adapters & connectors

Q3 Explain Input Units.

     Input unit is like the eyes and ears of the computer. The function of input unit is to feed data & set of instructions into computer. The most common input devices are,

1. Key board   2. Mouse   3. Joy Stick   4. Mike   5. Scanner   6. Pc-Camera   7. Light pen.

Q4. Explain Output Units.

     This unit provides communication between a computer and the outer world. An output device can be used to display or print the information. A variety of output units are used with the computers. The use of these devices depends on the type and purpose of output. The most common Output devices are,

1)   Monitor   2. Printer   3. Plotters   4. Speakers

Q5   **What is register?:**   A register is a temporary storage device used to hold data. Accumulator is one of the important registers of ALU.

Q6. Differentiate between bit, byte and computer word.

     Bit:- Bit stands for **b**inary dig**it**. It is the smallest unit of memory. It can hold only 0 or 1. (OFF/ON)

     Byte:- A byte is a measuring unit of computer memory. It is consist of eight bits. Each byte can hold one character only, such as A, B, C …or 1, 2, 3…..etc.

     Computer Word:-   A group of bits representing data is called a "**word**". A word may have a length of 8 bits, 16 bits, 32 bits or more. A word of 16 bits size called as 2-byte word.

Q7. Describe the function of ports in a computer. How many types of ports are generally present in a computer system.

     Port:- To link a device to the PC, you plug its connector into receptacle called a port. Some common ports are as under.

     a). Serial Ports:- (COM1, COM2)

A serial port provides a connection for transmitting data one bit at a time. Fax Modem uses serial port.

     b). Parallel Ports:-

It transmits 8 bits at a time. It is faster than serial port because bits travel simultaneously. Printer uses parallel port. Three parallel ports like LPT1, LPT2, LPT3

     c). Mouse Port:-

It is a special serial port to connect the mouse. It can be built into the main board or mounted on expansion card.

     d). USB Port:-(Universal Serial Bus)

USB is a port that is used to connect all modern devices with computer. It provide plug-and-play interface with all USB devices. Its bandwidth is 12 MBits/Sec. & upto 127 devices can be attached with USB port.