Chapter 01:

Typical Configuration of Computer System

One word answers:

1. What is computer?
   Computer is an electronic device used to store and recall data.

2. Define hardware and software.
   Hardware: the physical components of the computer that can be touched and felt
   Software: is a collection of programs that tells the hardware what to do.

3. Define data.
   The collection of raw facts is called as data.

4. What is primary memory and secondary memory?
   Primary memory: it is the main **memory** of the computer where the
   currently processing data resides.
   Secondary memory: it is auxiliary **memory** where the data that has to be stored for a long
   time or permanently.

5. Expand PCB.
   PCB stands for Printed Circuit Board.

6. Define clock speed.
   The clock speed of a CPU is defined as the frequency with which a
   processor executes instructions or the data that is processed. **OR**
   Clock speed is the rate at which a processor can complete a processing cycle.

7. What is microprocessor?
   A **microprocessor** is a computer processor that incorporates the functions of a central
   processing unit on a single (or more) integrated circuit (IC) .

8. Expand POST.
   POST stands for Power On Self Test

9. Expand DIMM and SIMM.
   SIMM stands for Single Inline Memory Module.
   DIMM stands for Dual Inline Memory Module.

10. Define Registers.
    Registers are those which stores the data and instructions temporarily

11. Define motherboard.
    Motherboard is the most important part of any computers. It is a large Printed Circuit Board
    having many chips, ports, controllers and other electronic components mounted on it.

12. Define expansion slot.

A slot is a opening in a computer where you can insert a printed circuit board. Slots are often called expansion slots.

13. Expand: CMOS, IDE, AGP, SCSI, MODEM, MIDI

   CMOS: Complementary Metal Oxide Semiconductor
   IDE: Integrated Digital Electronics
   AGP: Accelerated Graphics Port
   SCSI: Small Computer System Interface
   MODEM: Modulator and Demodulator
   MIDI: Musical Instrument Digital Interface

14. What is bus?

   A bus is a collection of parallel wires that form a pathway to carry address, data and control signals.
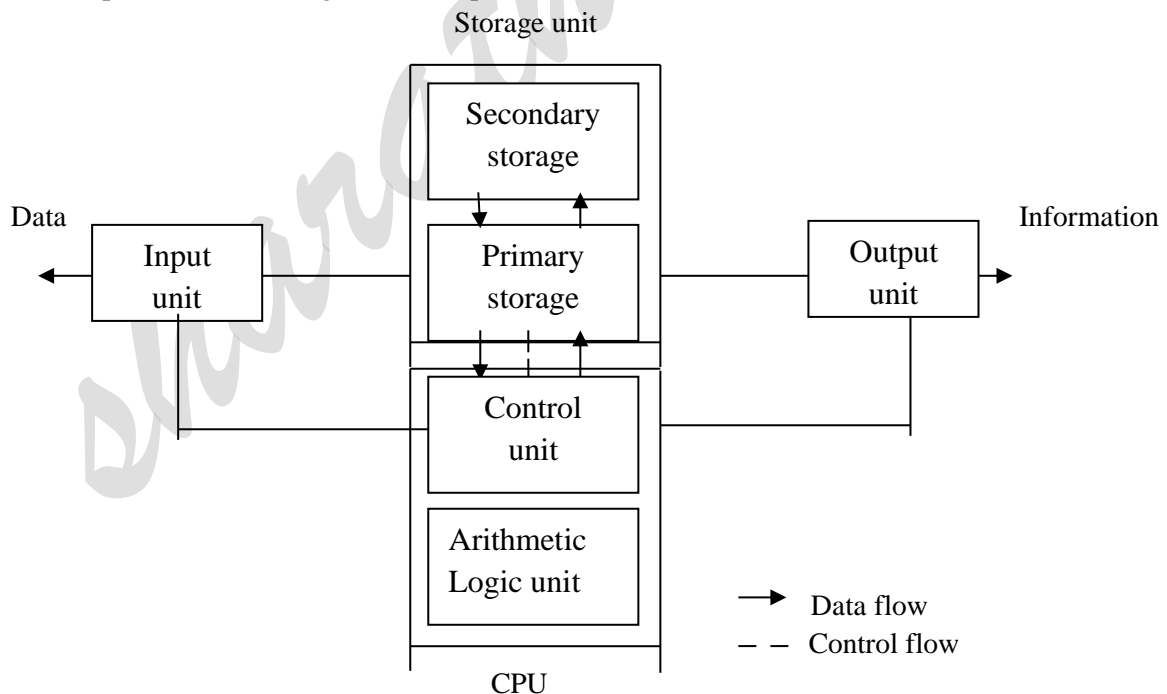
15. What is cache memory?

   Cache memory is a high speed memory available inside CPU to speed up access of data and instructions stored in RAM.

16. What is UPS?

   An UPS is a power supply that includes a battery to maintain power in the event of a power failure.

Three mark questions:

1. Explain the block diagram of computer.

A computer block diagram contains following important functional units.

Input unit – A device which is used to input or feed the data into a computer system.

Example: Keyboard, Mouse, Joystick etc.,

Central Processing Unit (CPU) – It is a fastest computing device. It processes the input and generates the desired output with high speed and accuracy. As it is most important component, it is commonly called as brain or heart of the computer system.

CPU contains following parts:

a) Control unit (CU) – It schedules all the sequence of tasks/jobs to be performed in a computer system. It guides the device by sending the signals for communication.

b) Arithmetic and Logical Unit (ALU) – It performs arithmetic (+ - * /) and logical (AND OR NOT) computations. It is also called as execution of instructions.

c) Registers – It stores the data and instructions temporarily. Registers have different sizes like 8 bits, 16 bits, 92 bits or 64 bits.

Memory unit: It stores the data and programs before the processing and results after the processing. There are two types – primary memory and secondary memory.

Output unit - A device which is used to view and print the results is called output device. Example: Monitor, Printer, Speaker etc.,

2. Explain the components of motherboard.[any 3]

- **CPU**: It is the main component of the motherboard and is called the Brain of the computer. The CPU consists of Arithmetic Logic Unit and Control unit. CPU also has a set of registers.

- **Slots**: A slot is a opening in a computer where you can insert a printed circuit board. Slots are often called expansion slots because they allow you to expand the capabilities of computer.

- **Bus**: A bus is a collection of parallel wires that form a pathway to carry address, data and control signals.

3. Explain the characteristics of motherboard.

The three main characteristics of motherboard are:

a. **Form factor**: it refers to the motherboards geometry, dimensions, arrangement and electrical requirements. ATX is the most common design of motherboard for desktop computers.

b. **Chipset:** controls the majority of resources of computer. The function of chipset is to coordinate data transfer between various components of computer.

c. **Processor socket:** it may be a rectangular connector into which the processor is mounted vertically, or square shaped connector with many small connectors into which the processor is directly inserted.

4. Mention the types of motherboard.

- **XT motherboard**: XT stands for eXtended Technology. These are all old model motherboard. These are found in old model processor sockets. They have DIMM memory modules.

  Examples are: Pentium - I, Pentium – MMX and Pentium – II

- **AT motherboard**: AT stands for Advanced Technology. AT motherboards have PGA (Pin Grid Array) socket, SDRAM slots for memory.

  Examples are: Pentium – III processors

- **Baby AT motherboard**: Baby AT motherboards have the combination of XT and AT. They have slot type processor sockets and PGA sockets, SDRAM and DDRRAM slots.

  Examples are: Pentium – III and Pentium – IV processors

- **ATX motherboard:** ATX stands for Advanced Technology eXtended. Latest motherboards are all ATX, designed from ATX factor. These have PCI slots, DDRRAM, AGP, Primary and Secondary IDE interfaces.
  Examples are: Pentium – IV, Dual Core, Core 2 Duo, Quad Core, i3 , i5 and i7

5. Explain any five expansion slots.
   1) ISA (Industry Standard Architecture) slot: It is used to connect modem and input devices.
   2) PCI (Peripheral Component Inter Connect) slot: It is used to connect graphics accelerator cards. Sound cards, internal modems or SCSI cards. They are much faster than ISA cards.
   3) AGP (Accelerator Graphics Port) slot: It is meant to provide faster access to a graphics accelerator card thus enhancing visual experience of the user.
   4) RAM slot: It is used to install memory. There are two types of RAM slot, they are:
      - SIMM stands for Single Inline Memory Module.
      - DIMM stands for Dual Inline Memory Module.
   5) Processor slot: It is used to insert the processor chip, which is the largest chip on the motherboard.

6. Explain any three I/O ports.
   1) **Serial port:** Serial port is also known as Communication ports. They are used for connecting communication devices like mouse and modem.
   2) **Parallel port:** Parallel port is used to connect external devices like printers and scanners.
   3) **Game port:** Game port connects PC to joystick or any other gaming device.
   4) **Modem:** Modem connects PC's modem to the telephone network

7. Write a note on USB.
   USB stands for universal serial bus, USB is a plug and play interface that allows a computer to communicate with peripheral and other devices. USB-connected devices cover a broad range; anything from keyboards and mouse, to music players and flash drives.

   ### ADVANTAGES & DISADVANTAGES OF USB

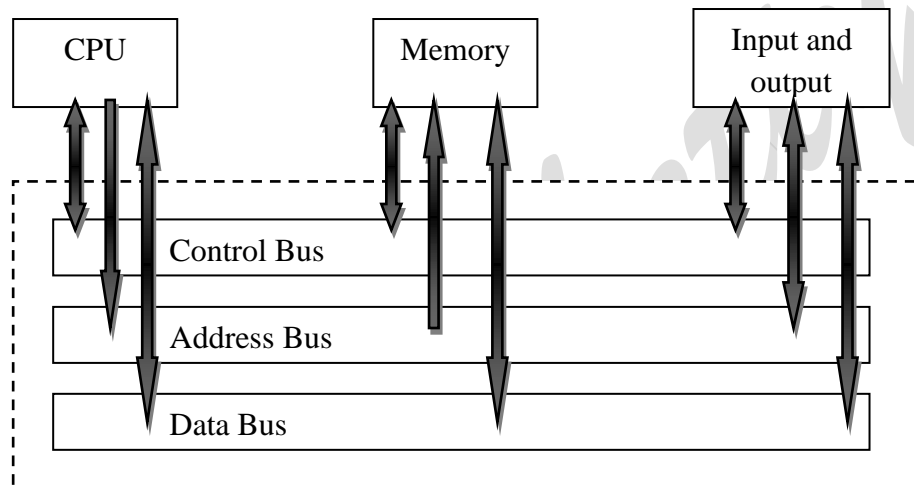 | Advantages | Disadvantages |
   | --- | --- |
   | - Ease of use
- Acceptable data rate for many applications
- Robust connector system
- Variety of connector types / sizes available
- Low cost | - Data transfer not as fast as some other systems
- Limited capability & overall performance. |

8. Write a note on UPS and types of UPS.
   UPS stands for Uninterruptable Power Supply. It is a power supply that includes a battery to maintain power in the event of power failure. UPS is used to keep the

system running for few minutes during power failure, so that the user can save his data and shut down the system.

There are two types of UPS:

1. Offline (Standby): a standby UPS monitors the power line and switches to battery power as soon as it detects a power failure. The switch over can take several milliseconds during which the computer is not receiving any power.

2. Online UPS : an online UPS avoids the power lapses by continuously providing power from its own inverter, even when the power line is functioning properly.

9. Explain the architecture of Bus with a neat diagram.

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┌─────────┐        ┌─────────┐      ┌───────────┐
│   CPU   │        │ Memory  │      │ Input and │
│         │        │         │      │  output   │
└─────────┘        └─────────┘      └───────────┘
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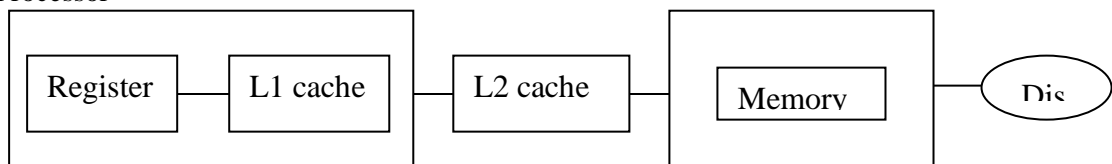
There are two types of bus, they are:

- Internal bus
- External bus.
  - ➢ Data bus
  - ➢ Address bus
  - ➢ Control bus

10. Explain cache memory with a neat diagram.

Cache memory is a high speed memory available inside CPU to speed up access of data and instructions stored in RAM.

Processor

A buffer is smaller and faster than main storage used to hold a copy of instructions and data in main storage that are likely to be needed next by the processor and that have been obtained automatically from main storage.

There are two types of cache.

- L1 cache: It is located within the processor
- L2 cache: It is located in between the processor and memory.

11. Explain the current configuration of computer system.

Sl.No	Component name	Specifications	Brand
1.	Processor	Dual core, i3,i5, i7	Intel/ AMD/ Motorola
2.	Motherboard	XT, AT, ATX, Baby AT	
3.	Keyboard	PS2/ USB/ Wireless	
4.	Mouse	PS2/ USB/ Wireless	
5.	Camera(optional)	High resolution	

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Assignment :

1. Explain all the control statement s with syntax and programming examples for each.