

COMPUTER SCIENCE

CHAPTER-1

Fundamentals of Computers

SECTION – A

Choose the correct answer:

- 1) First generation computers use.....(a) SECTION – A (b) Transistors (c) Integrated circuits (d) Microprocessors
- 2) Name the volatile memory.....
(a) ROM (b) PROM (c) **RAM** (d) EPROM
- 3) Identify the output device.....
(a) Keyboard (b) Memory (c) **Monitor** (d) Mouse
- 4) Identify the input device.....
(a) Printer (b) **Mouse** (c) Plotter (d) Projector
- 5) Output device is used for printing building plan, flex board, etc.
(a) Thermal printer (b) **Plotter** (c) Dot matrix (d) inkjet printer
- 6) In ATM machines, which one of the following is used to.....
(a) **Touch Screen** (b) speaker (c) Monitor (d) Printer
- 7) When a system restarts Which type of booting is used?
(a) **Warm booting** (b) Cold booting
(c) Touch boot (d) Real boot.
- 8) Expand POST
(a) Post on self-Test (b) Power on Software Test
(c) **Power on Self-Test** (d) Power on Self Text
- 9) Which one of the following is the main memory?
(a) ROM (b) **RAM** (c) Flash drive (d) Hard disk
- 10) Which generation of computer used IC's?
(a) First (b) Second (c) **Third** (d) Fourth

SECTION – A

1. What is a computer?

It is an electronic device that processes the input according to the set of instructions provided to it and gives the desired output at a very fast rate.

2. Distinguish between data and information.

Data	Information.
Data is defined as an unprocessed collection of raw facts, suitable for communication, interpretation or processing.	Information is a collection of facts from which conclusions may be drawn. In simple words we can say that data is the raw facts that are processed to give meaningful, ordered or structured information.

3. What are the components of a CPU?

The CPU has three components, which are Control unit, Arithmetic and logic unit (ALU) and Memory unit.

4. What is the function of an ALU?

The ALU is a part of the CPU where various computing functions are performed on data. The ALU performs arithmetic operations such as addition, subtraction, multiplication, division and logical operations.

5. Write the functions of control unit?

The control unit controls the flow of data between the CPU, memory and I/O devices. It also controls the entire operation of a computer.

6. What is the function of memory?

The Memory Unit is of two types which are primary memory and secondary memory. The primary memory is used to temporarily store the programs and data when the instructions are ready to execute. The secondary memory is used to store the data permanently.

7. Differentiate Input and output Unit.?

Input	Output
Unit is used to feed any form of data to the computer, which can be stored in the memory unit for further processing. Example: Keyboard, mouse, etc.	Unit an Output Unit is any hardware component that conveys information to users in an understandable form. Example: Monitor, Printer etc.

8. Distinguish Primary and Secondary memory?

Primary Memory:

Is volatile, that is, the content is lost when the power supply is switched off.
Example: Random Access Memory (RAM).

Secondary memory:

Is non-volatile, that is, the content is available even after the power supply is switched off. Example: Hard disk, DVD ROM.

SECTION-C

Explain in Brief

1. What are the characteristics of a computer?

The computer is the combination of hardware and software. Hardware is the physical component of a computer like motherboard, memory devices etc., while software is the set of programs or instructions. Both hardware and software together make the computer system to function. Which are Control unit, ALU and Memory unit?

2. Write the applications of computer?

A computer has high speed of calculation, diligence, accuracy, reliability, or versatility which made it an integrated part of our life as well as business organizations. Computers are being used almost every walk of life.

3. What is an input device? Give two examples?

An input device is a hardware or peripheral device used to send data to a computer. An input device allows users to communicate and feed instructions and data to computers for processing, display, storage and/or transmission.
Example: Keyboard, mouse, ect.

4. Name any three output devices.

- Monitors,
- Printers,
- Speakers,
- Plotter,
- Multimedia Projectors

5. Differentiate optical and Laser mouse?

Optical Mouse	Laser mouse
<ul style="list-style-type: none"> • Measures the motion and acceleration of pointer. • It uses light source instead of ball to judge the motion of the pointer. • Optical mouse has three buttons. 	<ul style="list-style-type: none"> • Measures the motion and acceleration of pointer. • Laser Mouse uses Laser Light • Laser Mouse is highly sensitive and able to work on any hard surface.

6. Write short note on impact printer?

These printers print with striking of hammers or pins on ribbon. These printers can print on multi-part (using carbon papers) by using mechanical pressure. Forth across a drum inside the printer, building up a pattern. It can produce very good quality of graphic images.

7. Write the characteristics of sixth generation?

Computers could be defined as the era of intelligent computers, based on Artificial Neural Networks. One of the most dramatic changes in the sixth generation will be the explosive growth of Wide Area Networking. Natural Language Processing (NLP) is a component of Artificial Intelligence (AI). It provides the ability to develop the computer program to understand human language.

8. Write the significant features of monitor?

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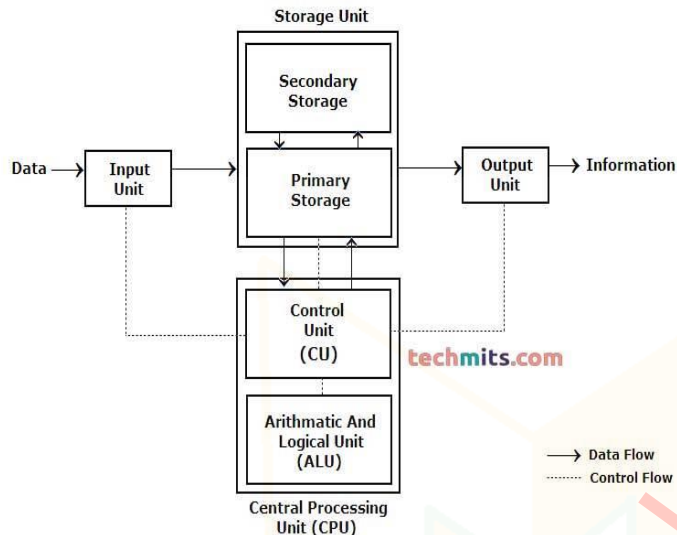
SECTION - D

Explain in detail

1. Explain the basic components of a computer with a neat diagram.?

The computer is the combination of hardware and software. Hardware is the physical component of a computer like memory devices, monitor, keyboard etc., while software is the set of programs or instructions. Both hardware and software together make the computer system to function.

Which are Control unit, Arithmetic and logic unit (ALU) and Memory unit.



Block Diagram of Computer and its components

Input Unit :

Input unit is used to feed any form of data to the computer, which can be stored in the memory unit for further processing. Example: Keyboard, mouse, ect.

Central Processing Unit :

CPU is the major component which interprets and executes software instructions. It also controls the operation of all other components such as memory, input and output units. It accepts binary data as input process the data according to the instructions and provides the result as output. The CPU has three components

Access Memory (RAM) is an example of a main memory. The Secondary memory is non-volatile, that is, the content is available even after the power supply is switched off. Hard disk, CD-ROM and DVD ROM are examples of secondary memory.

Arithmetic and Logic Unit:

The ALU is a part of the CPU where various computing functions are performed on data the ALU performs arithmetic operations such as addition, subtraction, multiplication, division and logical operations. The result of an operation is stored in internal memory of CPU. The logical operations of ALU promote the decision-making ability of a computer.

Control Unit:

The control unit controls the flow of data between the CPU, memory and I/O devices. It also controls the entire operation of a computer.

Output Unit:

An Output Unit is any hardware component that conveys information to users in an understandable form. Example: Monitor, Printer etc.

Memory Unit:

The Memory Unit is of two types which are primary memory and secondary memory. The primary memory is used to temporarily store the programs and data when the instructions are ready to execute. The secondary memory is used to store the data permanently. The Primary Memory is volatile, that is, the content is lost when the power supply is switched off. The Random Access Memory (RAM) is an example of a main memory. The Secondary memory is nonvolatile, that is, the content is available even after the power supply is switched off. Hard disk, CDROM and DVD ROM are examples of secondary memory.

2. Discuss the various generations of computers?

Generation & Period	Main Component used	Merits/Demerits
First Generation 1942-1955	Vacuum tubes	<ul style="list-style-type: none"> • Big in size • Consumed more power • Malfunction due to overheat • Machine Language was used

Second Generation 1955-1964	Transistors	<ul style="list-style-type: none"> • Smaller compared to First Generation • Generated Less Heat • Consumed less power compared to first generation • Punched cards were used • First operating system was developed - Batch Processing and Multiprogramming Operating System • Machine language as well as Assembly language was used.
Third Generation 1964-1975	Integrated Circuits (IC)	<ul style="list-style-type: none"> • Computers were smaller, faster and more reliable • Consumed less power • High Level Languages were used
Fourth Generation 1975-1980	Microprocessor Very Large Scale Integrated Circuits (VLSI)	<ul style="list-style-type: none"> • Smaller and Faster • Microcomputer series such as IBM and APPLE were developed • Portable Computers were introduced.
Fifth Generation 1980 - till date	Ultra Large Scale Integration (ULSI)	<ul style="list-style-type: none"> • Parallel and Distributed computing • Computers have become smarter, faster and smaller • Development of robotics • Natural Language Processing • Development of Voice Recognition Software
Sixth Generation In future	<ul style="list-style-type: none"> • Parallel and Distributed computing • Computers have become smarter, faster and smaller • Development of robotics • Natural Language Processing • Development of Voice Recognition Software 	

3. Explain the following (a) Inkjet Printer b. Multimedia projector c. Bar code / QR code Reader?

Inkjet Printers:

Inkjet Printers use color cartridges which combined Magenta, Yellow and Cyan inks to create color tones. A black cartridge is also used for monochrome output. Inkjet printers work by spraying ionized ink at a sheet of paper. The speed of Inkjet printers generally range from 1-20 PPM (Page per Minute). They use the technology of firing ink by heating it so that it explodes towards the paper in bubbles or by using piezoelectricity in which tiny electric currents controlled by electronic circuits are used inside the printer to spread ink in jet speed. An Inkjet printer can spread millions of dots of ink at the paper every single second.

Multimedia Projectors:

Multimedia projectors are used to produce computer output on a big screen. These are used to display presentations in meeting halls or in classrooms.

Bar code / QR code Reader:

A Bar code is a pattern printed in lines of different thickness. The Bar code reader scans the information on the bar codes transmits to the Computer for further processing. The system gives fast and error free entry of information into the computer. QR (Quick response) Code: The QR code is the two dimension bar code which can be read by a camera and processed to interpret the image.

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