Chapter – 1

Introduction to Computers

I. Choose the correct answer

Question 1.
First generation computers used:
(a) vacuum tubes
(b) transistors
(c) integrated circuits
(d) microprocessors

Answer:
(a) vacuum tubes

Question 2.
Name the volatile memory:
(a) ROM
(b) PROM
(c) RAM
(d) EPROM

Answer:
(c) RAM

Question 3.
Identify the output device:
(a) keyboard
(b) memory
(c) monitor
(d) mouse

Answer:
(c) monitor

Question 4.
Identify the input device:

(a) printer
(b) mouse
(c) plotter
(d) projector

Answer:
(b) mouse

Question 5.
…… output device is used for printing building plan, flex board, etc.
(a) Thermal printer
(b) Plotter
(c) Dot matrix
(d) Inkjet printer

Answer:
(b) Plotter

Question 6.
In ATM machines, which one of the following is used to:
(a) touch screen
(b) speaker
(c) monitor
(d) printer

Answer:
(a) touch screen

Question 7.
When a system restarts …….. which type of booting is used?
(a) Warm booting
(b) Cold booting
(c) Touch boot
(d) Real boot

Answer:
(a) Warm booting

Question 8.
Expand POST:
(a) Post on self Test
(b) Power on Software Test
(c) Power on Self Test
(d) Power on Self Text

Answer:
(c) Power on Self Test

Question 9.
Which one of the following is the main memory?
(a) ROM
(b) RAM
(c) Flash drive
(d) Hard disk

Answer:
(b) RAM

Question 10.
Which generation of computer used IC's?
(a) First
(b) Second
(c) Third
(d) Fourth

Answer:
(d) Fourth

II. Short Answers

Question 1.
What is a computer?

Answer:
"A Computer is an electronic device that takes raw data (unprocessed) as an

input from the user and processes it under the control of a set of instructions (called program), produces a result (output), and saves it for future use."

Question 2.
Distinguish between data and information?

Answer:

Data:
Data is defined as an unprocessed collection of raw facts, suitable for communication, interpretation or processing.
Eg: 134, 16, 'Kavitha' 'C' are data. This will not give any meaningful message.

Information:
Information is a collection of facts from which conclusions may be drawn.
Eg: Kavitha is 16 years old.

Question 3.
What are the components of a CPU?

Answer:
The CPU has three components which are Control Unit, Arithmetic and Logic Unit (ALU) and Memory Unit.

Question 4.
What is the function of an ALU?

Answer:
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.

Question 5.
Write the functions of control unit?

Answer:
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.

Question 6.
What is the function of memory?

Answer:
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 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.

Question 7.
Differentiate Input and output unit?

Answer:
Input unit:
Input unit is used to feed data to the computer, initially which can be stored in the memory unit for further processing.
Eg: Keyboard, Mouse, etc.

Output unit:
An output unit is any hardware component that conveys information in users understandable form.
Eg: Printer, Plotter etc.

Question 8.
Distinguish Primary and Secondary memory?

Answer:
Primary memory:

1. It is used to temporarily store the programs and data when the instructions are ready to execute.
2. It is a volatile memory that is, the content is lost when the power supply is switched off.
3. Eg: Random Access Memory (RAM)

Secondary memory:

1. It is used to store the data permanently.
2. It is a non-volatile memory that is, the content is available even after the power supply is switched off.
3. Eg: Hard disk, CD-ROM and DVD ROM.

III. Explain in Brief

Question 1.
What are the characteristics of a computer?

Answer:
The general characteristics of computers are speed, memory capacity, accuracy, diligence, representativeness, reliability, endurance and versatility.

Question 2.
Write the applications of computer?

Answer:
The applications of computers are business, education, marketing, banking, insurance, communication, health care, military, engineering design.

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

Answer:
The input device is the component through which data and instructions are provided to the computer. Eg: Keyboard and mouse.

Question 4.
Name any three output devices?

Answer:
The output device is the component which delivers the data and information proceed by the CPU. Eg: Monitor, plotter, printers.

Question 5.
Differentiate optical and Laser mouse?

Answer:

Optical Mouse:

1. It uses Red, Blue or Green led.
2. It has three buttons.
3. It is less sensitive and sensitive towards surface.

Laser Mouse:

1. It use only infrared led.
2. It has as many as 12 buttons and can be programmed by user.
3. It is highly sensitive and able to. work on any hard surface.

Question 6.
Write short note on impact printer?

Answer:
These printers print with striking of hammers or pins on ribbon. These printers can print on miflti-part (using carbon papers) by using mechanical pressure. Eg: Dot Matrix printers and Line matrix printers.

A Dot matrix printer that prints using a fixed number of pins or wires. Each dot is produced by a tiny metal rod, also called a “wire” or “pin”, which works by the power of a tiny electromagnet or solenoid, either directly or through a set of small levers. It generally prints one line of text at a time. The printing

speed of these printers varies from 30 to 1550 CPS (Character Per Second).

Impact Printer

Line matrix printers use a fixed print head for printing. Basically, it prints a page-wide line of dots. But it builds up a line of text by printing lines of dots. Line printers are capable of printing much more than 1000 Lines Per Minute, resulting in thousands of pages per hour. These printers also uses mechanical pressure to print on multi-part (using carbon papers).

Question 7.
Write the characteristics of sixth generation?

Answer:

1. Parallel and Distributed computing.
2. Computers have become smarter, faster and smaller.
3. Development of robotics.
4. Natural Language Processing.
5. Development of Voice Recognition Software.

Question 8.
Write the significant features of monitor?

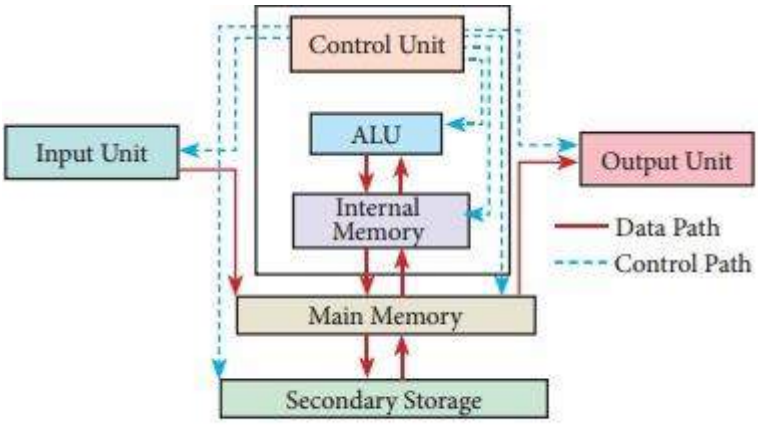
Answer:
Monitor is the most commonly used output device to display the information. It looks like a TV, Pictures on a monitor are formed with picture elements called Pixels. Monitors may either be Monochrome which display text or images in Black and White or can be color, which display results in multiple colors.

There are many types of monitors available such as CRT (Cathode Ray Tube), LCD (Liquid Crystal Display) and LED (Light Emitting Diodes). The monitor works with the VGA (Video Graphics Array) card. The video graphics card helps the keyboard to communicate with the screen. It acts as an interface between the computer and display monitor. Usually, the recent motherboards incorporate built-in video card.

IV. Explain in detail

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

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



components of a computer

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

Central processing unit (CPU):
CPU is the major component which interprets and executes software instructions. It also control 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 provide the result as output. The CPU has three components which are Control unit, Arithmetic and logic unit (ALU) and Memory unit.

(i) 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.

(ii) 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.

(i) 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.

(ii) 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.

Question 2.

Discuss the various generations of computers?

Answer:

Growth in the computer industry is determined by the development in

technology. Based on various stages of development, computers can be divided into different generations.

SN	Generation	Period	Main Component used	Merits/Demerits
1	**First Generation**	1942-1955	 **Vacuum tubes**	• Big in size • Consumed more power • Malfunction due to overheat • Machine Language was used
First Generation Computers - ENIAC , EDVAC , UNIVAC 1 ENIAC weighed about 27 tons, size 8 feet × 100 feet × 3 feet and consumed around 150 watts of power				
2	**Second Generation**	1955-1964	 **Transistors**	• 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.
Second Generation Computers **IBM 1401, IBM 1620, UNIVAC 1108**				
3	**Third Generation**	1964 -1975	 **Integrated Circuits (IC)**	• Computers were smaller, faster and more reliable • Consumed less power • High Level Languages were used
Third Generation Computers **IBM 360 series, Honeywell 6000 series**				
4	**Fourth Generation**	1975-1980	 **Microprocessor** Very Large Scale Integrated Circuits (VLSI)	• Smaller and Faster • Microcomputer series such as IBM and APPLE were developed • Portable Computers were introduced.

5	**Fifth Generation**	1980 - till date	 **Ultra Large Scale Integration (ULSI)**	• Parallel Processing • Super conductors • Computers size was drastically reduced. • Can recognize Images and Graphics • Introduction of Artificial Intelligence and Expert Systems • Able to solve high complex problems including decision making and logical reasoning
6	**Sixth Generation**	In future		• Parallel and Distributed computing • Computers have become smarter, faster and smaller • Development of robotics • Natural Language Processing • Development of Voice Recognition Software

Question 3.
Explain the following:

1. Inkjet Printer
2. Multimedia projector
3. Bar code
4. QR code Reader.

Answer:
1. Inkjet Printer:
inkjet Printers use colour 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 ionised ink at a sheet of paper. The speed of Inkjet printers generaly 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.

2. Multimedia projector:

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

3. 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.

4. 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.