

# COMPUTER SCIENCE

HIGHER SECONDARY FIRST YEAR

2, 3 MARK

&

5 MARK QUESTION ANSWER

NAME : \_\_\_\_\_

CLASS : XI SECTION:

# 1. INTRODUCTION TO COMPUTERS

## 2 MARKS & 3 MARKS

### 1. Define computer?

- ✓ The term “computer” is derived from the word “compute” which means to calculate. The person who performs calculation is called as Computer.
- ✓ A computer is an electronic machine, capable of performing basic operations like addition, subtraction, multiplication, division, etc. The computer is also capable of storing information, which can be used later.

### 2. Distinguish between data and information. (3m)

- ✓ Data is defined as un- processed collection of raw facts, suitable for communication, interpretation or processing.
- ✓ For example, 134, 16 ‘MOHIT, ‘C’ is data.
- ✓ Information is a collection of facts from which conclusions may be drawn. In simple words we can say that data is the raw fact that is processed to give meaningful, ordered or structured information.
- ✓ For example MOHIT is 2 years old.

### 3. What are the components of a CPU? (3m)

- ✓ Control unit
- ✓ Arithmetic
- ✓ logic unit (ALU)
- ✓ Memory unit.

### 4. What is the function of an ALU? (3m)

- ✓ 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.

### 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. List the types of memory?**

- ✓ Primary memory
- ✓ Secondary memory.

**7. What is 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, etc.

**8. List out the applications of computer**

In the field of education, research, travel and tourism, weather forecasting, social networking, E-commerce etc.

**9. List out the types of generation in computer (3m)**

- First generation -1942- 1955(vaccum tubes)  
Second generation -1955-1964 (transisters)  
Third generation -1964-1975 (integrated circuit)  
Fourth generation -1975-1980 ( microprocessor )  
Fifth generation -1980 to till date (ultra large scale integration)  
Sixth generation - in future.

**10. What is data?**

Data is defined as an un- processed collection of raw facts, suitable for communication, interpretation or processing.

**Example:**

Mohit, 3, age this will not give any meaningful message.

**11. What is informations?**

- ✓ 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 is processed to give meaningful, ordered or structured information.

**Example:**

Mohit is 3 year old.

**12. Define data processing?**

This conversion of data into information is called data processing.

**13. What is hardware?**

- ✓ Hardware is the physical component of a computer like motherboard, memory devices, monitor, keyboard etc.

**14. What is software?**

- ✓ Software is the set of programs or instructions. Both hardware and software together make the computer system to function.

**15. What is output unit?**

- ✓ An Output Unit is any hardware component that conveys information to users in an understandable form.

**Example:**

Monitor, Printer

**16. List out the CPU components?**

- ✓ Control unit,
- ✓ Arithmetic and logic unit (ALU)
- ✓ Memory unit.

**17. List out the types of memory?**

The Memory Unit is of two types which are

- ✓ primary memory
- ✓ Secondary memory.

**18. Explain about primary memory? (3m)**

- ✓ The primary memory is used to temporarily store the programs and data when the instructions are ready to execute.
- ✓ 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.

**19. Explain about Secondary memory? (3m)**

- ✓ The secondary memory is used to store the data permanently.
- ✓ 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.

**20. List few commonly used input devices. (3m)**

- ✓ Keyboard
- ✓ Mouse
- ✓ Scanner
- ✓ Finger print scanner
- ✓ Track ball
- ✓ Retinal scanner
- ✓ Bar Code Reader / QR code reader
- ✓ Digital Camera
- ✓ Magnetic Ink Character Recognition (MICR)
- ✓ Optical Character Recognition (OCR)
- ✓ Optical Mark Reading and Recognition (OMR)
- ✓ Touch screen

**21. List few commonly used output devices.**

- ✓ Monitors
- ✓ Printers
- ✓ Speakers
- ✓ Plotters

**22. List few different types of mouse? (3m)**

- ✓ Mechanical Mouse
- ✓ Optical mouse
- ✓ Laser Mouse
- ✓ Air Mouse
- ✓ 3D Mouse
- ✓ Tactile Mouse
- ✓ Ergonomic Mouse
- ✓ Gaming Mouse.

**23. Define printer. And its types?**

Printers are used to print the information on papers.

- ✓ Impact Printers
- ✓ Non Impact printers

**24. Characteristics of Impact Printers? (3m)**

- ✓ These printers print with striking of hammers or pins on ribbon.
- ✓ For example, Dot Matrix printers and Line matrix printers are impact 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.
- ✓ The printing speed of these printers varies from 30 to 1550 CPS (Character Per Second).

**25. What is cold booting?**

- ✓ When the system starts from initial state i.e. it is switched on, we call it cold booting or Hard Booting.
- ✓ When the user presses the Power button, the instructions are read from the ROM to initiate the booting process.

**26. What is warm booting? (3m)**

- ✓ When the system restarts or when Reset button is pressed, we call it Warm Booting or Soft Booting.
- ✓ The system does not start from initial state and so all diagnostic tests need not be carried out in this case.
- ✓ There are chances of data loss and system damage as the data might not have been stored properly.

**27. Write short notes on optical mouse? (3m)**

- ✓ 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.
- ✓ Optical mouse is less sensitive towards surface.

**28. Write short notes on Laser mouse? (3m)**

- ✓ 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

## 29. Define booting

If these devices are ready, then the BIOS (Basic Input Output System) gets executed. This process is called **Booting**.

### 5 MARKS

#### 1. List a few commonly used inputs devices and explain them briefly? (Any five)

##### Input devices.

- ✓ Keyboard
- ✓ Mouse
- ✓ Scanner
- ✓ Finger print scanner
- ✓ Track ball
- ✓ Retinal scanner
- ✓ Bar Code Reader / QR code reader
- ✓ Digital Camera
- ✓ Magnetic Ink Character Recognition (MICR)
- ✓ Optical Character Recognition (OCR)
- ✓ Touch screen

##### Keyboard

- ✓ The most common input device is the keyboard.
- ✓ Keyboard consists of a set of typewriter like keys that enable you to enter data into a Computer.
- ✓ They have alphabetic keys to enter letters, numeric keys to enter numbers,
- ✓ Punctuation keys to enter comma, period, semicolon, etc.

##### Mouse

- ✓ Mouse is an input device that controls the movement of the cursor on the display screen.
- ✓ Mouse is a small device , you can roll along a flat surface.
- ✓ This movement of the ball is converted into signals and sent to the computer.

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Some of the mouse types followed

- ✓ Mechanical Mouse
- ✓ Optical mouse
- ✓ Laser Mouse
- ✓ Air Mouse

**Scanner**

- ✓ Scanners are used to enter the information directly into the computer's memory.
- ✓ This device works like a Xerox machine.
- ✓ The scanner converts any type of printed or written information including photographs into a digital format, which can be manipulated by the computer.

**Bar 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.

**Optical Character Recognition (OCR)**

- ✓ It is a device which detects characters printed or written on a paper with OCR, a user can scan a page from a book.
- ✓ The Computer will recognize the characters in the page as letters and punctuation marks and stores.
- ✓ The Scanned document can be edited using a wordprocessor.

**2. List a few commonly used output devices and explain them briefly? (Any 5)****Output Devices**

1. Monitors
2. Printers
3. Speakers
4. Plotters
5. Multimedia Projectors:

**Monitors**

- ✓ Monitor is the most commonly used output device to display the information.
- ✓ It looks like a TV.

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- ✓ 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.

**Printers**

- ✓ Printer is an output device that prints text or images on paper or other media .
- ✓ By printing you create what is known as a 'hard copy'.
- ✓ The two main types of printers are impact printers and non-impact printers.

**Speakers**

- ✓ Speakers produce voice output (audio) .
- ✓ Using speaker along with speech synthesizer software, the computer can provide voice output.
- ✓ This has become very common in places like airlines, schools, banks, railway stations, etc..

**Plotters**

- ✓ Plotter is an output device that is used to produce graphical output on papers.
- ✓ It uses single color or multi color pens to draw pictures.

**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.

**3. Explain CPU components and its types?**

- ✓ Control unit
- ✓ Arithmetic and logic unit (ALU)
- ✓ Memory unit.

**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.

**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.

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- ✓ 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.

**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 Primary Memory is volatile, that is, the content is lost when the power supply is switched off.
- ✓ The secondary memory is used to store the data permanently.
- ✓ 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.

**4. List out the types of generation in computer**

1. First generation -1942- 1955(vacuum tubes)
2. Second generation -1955-1964 (transistors)
3. Third generation -1964-1975 (integrated circuit)
4. Fourth generation -1975-1980 ( microprocessor )
5. Fifth generation -1980 to till date (ultra large scale integration)
6. Sixth generation - in future.

**First generation -1942- 1955(vacuum tubes)**

- ✓ Big in size
- ✓ Consumed more power
- ✓ Malfunction due to overheat
- ✓ Machine Language was used
- ✓ ENIAC , EDVAC , UNIVAC 1 ENIAC

**Second generation -1955-1964 (transistors)**

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- ✓ 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.
- ✓ IBM 1401, IBM 1620, UNIVAC 1108

**Third generation -1964-1975 (integrated circuit)**

- ✓ Computers were smaller, faster and more reliable
- ✓ Consumed less power
- ✓ High Level Languages were used
- ✓ IBM 360 series, Honeywell 6000 series

**Fourth generation -1975-1980 ( microprocessor )**

- ✓ Smaller and Faster
- ✓ Microcomputer series such as IBM and APPLE were developed
- ✓ Portable Computers were introduced.

**Fifth generation -1980 to till date (ultra large scale integration)**

- ✓ 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

**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

## 5. Explain the following

- a. Inkjet Printer   b. Multimedia projector   c. Bar code / QR code Reader

### **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 generally range from 1-20 PPM (Page Per Minute).
- ✓ An Inkjet printer can spread millions of dots of ink at the paper every single second.

### **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.

### **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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