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Computer Science / Computer Application / Computer Technology

11-std

Unit – 1 (Chapter 1 to 5)

Name : ....

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UNIT - I
Chapter - I
Introduction to Computers

One Mark Questions:

1. The first known calculating device **Abacus.**
2. **Abacus** has led us today to an extremely high speed calculating devices.
3. **Charles Babbage** is considered to be the father of computer
4. **Analytical Engine** was invented in the year **1837**
5. **Analytical Engine** led to the development of first genera l – purpose computer concept.
6. computers can be categorized into **6** different generations.
7. The First generation computers belongs to period **1942-1955**
8. The Components used in First generation computers are **Vacuum tubes**
9. Malfunction due to overheat in **First generation computers**
10. **Machine Language** was used in First Generation computers
11. **ENIAC -** Electronic Numerical Integrator And Calculator
12. **EDVAC**-Electronic Discrete Variable Automatic Computer
13. **UNIVAC**-Universal Automatic Computer
14. **ENIAC** weighed about **27 tons, size 8 feet × 100 feet × 3 feet** and consumed around **150 watts** of power
15. The Second generation computers belongs to period **1955-1964**
16. The Components used in Second generation computers are **Transistors**
17. **Punched cards** were used in Second generation computers
18. Second generation computers used in first operating system was developed **Batch Processing and Multiprogramming Operating System**
19. **Assembly language** was used in Second Generation computers
20. Second Generation Computers **IBM 1401, IBM 1620, UNIVAC 1108**
21. **IBM**-International Business Machine
22. The Third generation computers belongs to period **1964-1975**
23. The Components used in Third generation computers are **Integrated Circuits**
24. **IC** - Integrated Circuits
25. High Level Languages were used in Third generation computers
26. Third Generation Computers **IBM 360 series, Honeywell 6000 series**
27. The Fourth generation computers belongs to period **1975-1980**
28. The Components used in Fourth generation computers are **Microprocessor**
29. VLSI – Very Large Scale Integrated Circuits
30. Microcomputer series such as **IBM and APPLE** were developed in during Fourth generation computers.
31. Portable Computers were introduced in Fourth generation computers.
32. The Fifth generation computers belongs to period **1980 to till date**.
33. The Components used in Fifth generation computers are **Ultra Large Scale Integration**
34. **ULSI** – Ultra Large Scale Integration.
35. **Parallel Processing** are used in Fifth generation computers.
36. **Super conductors** are used in Fifth generation computers.
37. Fifth generation computers introduced software's are **Artificial Intelligence and Expert.**
38. AI- Artificial Intelligence
39. The Sixth generation computers belongs to **in future.**
40. **Parallel and Distributed computing** are used in Sixth generation computers.
41. Development of robotics used in **Sixth generation computers.**
42. **Natural Language Processing** used in Sixth generation computers.
43. **NLP** - Natural Language Processing.

44. Development of Voice Recognition Software used in **Sixth generation computers.**
45. The ENIAC was invented by **J. Presper Eckert and John Mauchly**
46. ENIAC was began to construct in the year **1943.**
47. **ENIAC** occupied about **1,800 square feet** and used about **18,000 vacuum tubes,**
48. weighing almost **50 tons.**
49. **ENIAC** was the first digital computer because it was fully functional.
50. **Sixth Generation computers** could be defined as the era of intelligent computers based on Artificial Neural Networks.
51. **ANN-** Artificial Neural Networks.
52. **WAN** - Wide Area Network.
53. **LAN** – Local Area Network.
54. **MAN** – Metropolitan Area Network.
55. **Natural Language Processing (NLP)** is a component of **Artificial Intelligence (AI).**
56. **Natural Language Processing** provides the ability to develop the computer program to understand human language
57. **OCR** - Optical Character Recognition.
58. **OGR** - Optical Grapheme Recognition.
59. **Indus Scripts** has been developed using **Deep Learning Neural Networks**
60. **DLNN** - Deep Learning Neural Networks.
61. **417** Symbols/Graphemes/ Characters in the Indus Scripts.
62. **3700** text inscriptions of data for the machine to learn and attain **expert-level status**.
63. The term **"computer"** is derived from the word **"compute"** which means to calculate.
64. The person who performs calculation is called as **Computer.**
65. **Computers** are electronic devices that accept data as input, process it, produce output and stores it for future reference.
66. **Computer** 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.
67. **Data** is defined as an unprocessed collection of raw facts, suitable for communication, interpretation or processing.
68. **Information** is a collection of facts from which conclusions may be drawn.
69. The conversion of data into information is called **data processing.**
70. **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."
71. The computer is the combination of **hardware and software.**
72. **Hardware** is the physical component of a computer.
73. Motherboard, memory devices, monitor, keyboard are examples for **Hardware.**
74. **Software** is the set of programs or instructions.
75. **IPO** - Input- Process- Output Cycle.
76. The **memory unit** holds the data and instructions during the processing.
77. **Input unit** is used to feed any form of data to the computer, which can bestored in the memory unit for further processing.
78. **Keyboard , Mouse** are examples for **Input Unit.**
79. **CPU** is the major component which interprets and executes software instructions.
80. **CPU** control the operation of all other components such as memory, input and output unit.
81. **CPU** accepts binary data as input, process the data according to the instructions and provide the result as output.
82. The CPU has **three** components.
83. The **ALU** is a part of the CPU where various computing functions are performed on data
84. The result of an **ALU** operation is stored in **internal memory** of CPU
85. The **logical operations** of ALU promote the decision-making ability of a computer
86. The **Control unit** controls the flow of data between the CPU, memory and I/O devices.
87. **Control Unit** controls the entire operation of a computer

88. An **Output Unit** is any hardware component that conveys information to users in an understandable form.
89. **Monitor, Printer** are examples for **Output Unit.**
90. The **Memory Unit** is of **two types** which are **primary memory** and **secondary memory.**
91. **Primary memory** is used to temporarily store the programs and data when the instructions are ready to execute.
92. **Primary Memory** is volatile
93. **Secondary memory** is used to store the data permanently.
94. **Secondary Memory** is non-volatile.
95. **RAM** is an example for Main Memory.
96. **Harddisk, CD-ROM** and **DVD ROM** are examples of **secondary memory.**
97. **Keyboard** is the most common input device used today
98. Individual keys for letters, numbers and special characters are collectively known as **character keys.**
99. **Mouse** is a pointing device used to control the movement of the cursor on the display screen.
100. **Mouse** can be used to select icons, menus, command buttons or activate something on a computer.
101. **Mouse** actions are move, click, double click, right click, drag and drop.
102. **Mechanical Mouse,Optical Mouse,Laser Mouse** are most commonly used mouse.
103. **Mechanical Mouse** is a small ball is kept inside and touches the pad through a hole at the bottom of the mouse.
104. Mechanical mouse was introduced by **Telefunken, German Company** in the year **02/10/1968.**
105. **Optical Mouse** uses light source instead of ball to judge the motion of the pointer.
106. Optical mouse has **three** buttons.
107. **Optical mouse** is less sensitive towards surface.
108. In **1988, Richard Lyon, Steve Krish** independently invented different versions of Optical Mouse.
109. **Laser Mouse** is highly sensitive and able to work on any hard surface.
110. **Optical mouse** and **Laser Mouse** are used Measures the motion and acceleration of pointer.
111. Computer mouse was invented and developed by **Douglas Engelbar.**
112. Computer mouse was invented with the assistance of **Bill English**, during the **1960's** and was patented on **November 17, 1970.**
113. **Scanners** are used to enter the information directly into the computer's memory.
114. **Scanner** device works like a Xerox machine.
115. **Scanner** converts printed or written information and photographs into a digital format.
116. **Finger print Scanner** is a fingerprint recognition device used for computer security
117. **Finger print Scanner** uses biometric technology.
118. **Fingerprint Reader / Scanner** is a very safe and convenient device for security instead of using passwords, which is vulnerable to fraud and is hard to remember.
119. **Track ball** is similar to the upside- down design of the mouse.
120. **Retinal Scanner** uses unique patterns on a person's retinal blood vessels.
121. **Light pen** is a pointing device shaped like a pen and is connected to a monitor.
122. **Light pen** detects the light from the screen enabling the computer to identify the location of the pen on the screen.
123. **Light pen** device can draw directly onto the screen.
124. **Optical Character Reader** is a device which detects characters printed or written on a paper..
125. **Optical Character Reader is** Computer will recognize the characters in the page as letters and punctuation marks and stores.
126. **Optical Character Reader** is Scanned document can be edited using a wordprocessor.
127. **Bar code** is a pattern printed in lines of different thickness.

128. **Bar Code** gives fast and error free entry of information into the computer.
129. **QR code** - Quick Response code
130. **QR code** is the two dimension bar code which can be read by a camera and processed to interpret the image.
131. **Microphone** serves as a voice Input device.
132. **Digital camera** captures images / videos directly in the digital form.
133. **CCD**- Charged Coupled Device
134. **Touch screen** is a display device that allows the user to interact with a computer by using the finger.
135. **Touch screen** is an alternative to a mouse or keyboard for navigating a Graphical User Interface.
136. **GUI -** Graphical User Interface.
137. **Keyer** is a device for signaling by hand, by way of pressing one or more switches
138. **Keyer** differs from a keyboard, which has "no board" but the keys are arranged in a cluster.
139. **Monitor** is the most commonly used output device to display the information.
140. Pictures on a monitor are formed with picture elements called **PIXELS**
141. **CRT** -Cathode Ray Tube
142. **LCD** -Liquid Crystal Display
143. **LED**-Light Emitting Diodes
144. **VGA** – Video Graphics Array
145. **Video graphics card** helps the keyboard to communicate with the screen.
146. **Video graphics card** acts as an interface between the computer and display monitor.
147. The **video graphics card** helps the keyboard to communicate with the screen.
148. The first computer monitor was part of the **Xerox Alto computer system**, which was released on **March 1, 1973**
149. **Plotter** is an output device that is used to produce graphical output on papers
150. **Printers** are used to print the information on papers.
151. **Printers** are divided into two main categories **Impact and Non-Impact printer.**
152. **Impact printers** print with striking of hammers or pins on ribbon.
153. **Dot Matrix printers** and **Line matrix printers** are impact printers.
154. **Dot matrix printer** prints using a fixed number of pins or wires.
155. The printing speed of Dot Matrix printers varies from **30 to 1550 CPS**
156. **CPS** - Character Per Second.
157. **Line matrix** printers use a fixed print head for printing.
158. **Line printers** are capable of printing much more than **1000 Lines Per Minute** in thousands of pages per hour.
159. **Non-impact printers** do not use striking mechanism for printing.
160. **Non-Impact printer** use electrostatic or laser technology.
161. **Laser printers** and **Inkjet printers** are non-impact printers.
162. One of the characteristics of laser printer is their **resolution.**
163. **DPI** – **D**ots **P**er **I**nch
164. Laser print can print **100 pages per minute.**
165. **PPM -** Pages Per Minute.
166. **Inkjet Printers** use colour cartridges which combined Magenta, Yellow and Cyan inks to create color tones.
167. The speed of Inkjet printers range from **1-20 PPM (Page Per Minute)**
168. Which printer use the technology of firing ink by heating – **Ink Jet printer**
169. An **Inkjet printer** can spread millions of dots of ink at the paper every single second.
170. **Speakers** produce voice output.
171. **Multimedia projectors** are used to produce computer output on a big screen
172. An **Operating system (OS)** is a basic software that makes the computer to work.
173. The pre-written program in ROM called **POST**
174. **POST** - Power on Self Test.

175. **BIOS** – Basic Input Output System.
176. **Booting** is all devices in CPU are ready, then the BIOS gets executed.
177. A program which transfers OS from hard disk into main memory is called **Bootstrap Loader.**
178. Booting process is of **two** types are **Cold booting** and **Warm Booting.**
179. System starting from initial state is called **Cold booting** or **Hard booting**
180. When the system restarts or when Reset button is pressed, we call it **Warm Booting** or **Soft Booting**
181. **Computers** are seen everywhere around us, in all spheres of life.
182. **Analog, Digital and Hybrid Computers** are classification of computer.

1. First generation computers used
    (a) Vacuum tubes (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

Two Marks:

1 **List out the types of generation in computers.**
   ❖ 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.

2 **Write the First Generation Computer Names.**
   ENIAC , EDVAC , UNIVAC 1

3 **Write the Second Generation Computer Names.**
   IBM 1401, IBM 1620, UNIVAC 1108

4 **Write the Third Generation Computer Names.**
   IBM 360 series, Honeywell 6000 series

5 **Write a name the types of computer in Fourth Generation Computers.**
   IBM and APPLE

6 **Write the name the software's Fifth Generation Computers.**
   Artificial Intelligence and Expert Systems

7 **Write the developments Sixth Generation Computers Names.**
   ❖ Parallel and Distributed computing

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❖ Development of robotics
❖ Natural Language Processing
❖ Development of Voice Recognition Software

8　What is a computer?

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.

9　Define Data.

❖ Data is defined as an unprocessed collection of raw facts, suitable for communication, interpretation or processing.
❖ For example, 134, 16 'Kavitha', 'C' are data.

10　Define Information.

❖ Information is a collection of facts from which conclusions may be drawn.
❖ For example Kavitha is 16 years old.

11　What is called data processing?

❖ "Kavitha is 16 years old".
❖ This information is about Kavitha and conveys some meaning.
❖ This conversion of data into information is called data processing.

12　What are the components of a CPU?

❖ Input unit
❖ CPU
❖ Output unit
❖ Memory unit

13　Define Software and Hardware.

❖ Software is the set of programs or instructions.
❖ Hardware is the physical component of a computer like motherboard, memory devices, monitor, keyboard etc.

14　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.
❖ 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.

15　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.

16　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.

17　List the types of memory?

❖ Primary memory
❖ Secondary memory

18　Distinguish Primary and Secondary memory.

Primary 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.

❖ Example : RAM

Secondary memory

❖ The secondary memory is used to store the data permanently.

❖ The Secondary memory is non volatile.

❖ Example: Hard disk, CD-ROM and DVD ROM

19   **Differentiate Input and output unit.**

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.

Output Unit

❖ An Output Unit is any hardware component that conveys information to

❖ users in an understandable form.

❖ Example: Monitor, Printer etc.

20   **What are the difference type of Mouse?**

❖ Mechanical Mouse

❖ Optical Mouse

❖ Laser Mouse

❖ Air Mouse

❖ 3D Mouse

❖ Tactile Mouse

❖ Ergonomic Mouse

❖ Gaming Mouse

21   **Who is invented Mouse?**

The computer mouse as we know it today was invented and developed by Douglas Engelbart, with the assistance ofBill English, during the 1960's and was patented on November 17, 1970.

22   **Define Pixels.**

Pictures on a monitor are formed with picture elements called PIXELS.

23   **What does work POST?**

❖ When a computer is switched on, there is no information in its RAM.

❖ At the same time, in ROM, the pre-written program called POST (Power on Self Test) will be executed first.

24   **What is called Booting?**

❖ The devices like RAM, keyboard, etc., are connected properly and ready to

❖ operate.

❖ If these devices are ready, then the BIOS (Basic Input Output System) gets

❖ executed.

❖ This process is called Booting.

25   **What is called Bootstrap Loader?**

❖ Bootstrap Loader" transfers OS from hard disk into main memory.

❖ Now the OS gets loaded (Windows/Linux, etc.,) and will get executed.

26   **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.

27   **What is Warm Booting?**

❖ 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.

28 Define Vacuum tube.

Vacuum tubes contain electrodes for controlling electron flow and were used in early computers as a switch or an amplifier.

29 Define Transistors.

❖ The transistor is made up of semiconductors.
❖ It is a component used to control the amount of current or voltage used for amplification/modulation of an electronic signal.

30 Define Punched cards.

Punch cards also known as Hollerith cards are paper cards containing several punched or perforated holes that were punched by hand or machine to represent data.

31 Define Machine Language.

Machine language is a collection of binary digits or bits that the computer reads and interprets.

32 Define Assembly language.

An assembly language is a low-level programming language.

33 Define Integrated Circuits.

The IC is a package containing many circuits, pathways, transistors, and other electronic components all working together to perform a particular function or a series of functions.

34 Define Microcomputer.

Micro computer is used to describe a standard personal computer.

35 Define High-level languages.

A high-level language is a computer programming language that isn't limited by the computer, designed for a specific job, and is easier to understand.

36 Define Natural Language Processing (NLP).

Natural Language Processing is a method used in artificial intelligence to process and derive meaning from the human language.

37 Define Robotics.

Robot is a term coined by Karel Capek in the 1921 to play RUR (Rossum's Universal Robots). It is used to describe a computerized machine designed to respond to input received manually or from its surroundings.

38 Define Nanotechnology.

Nanotechnology is an engineering, science, and technology that develops machines or works with one atom or one molecule that is 100 nanometers or smaller.

39 Define Bioengineering .

A discipline that applies engineering principles of design and analysis to biological systems and biomedical technologies

Three Marks:

1 Write short note on Analytical Engine.

❖ Charles Babbage is a Father of Computer.
❖ Charles Babbage is considered to be the father of computer, for his invention and the concept of Analytical Engine in 1837.
❖ The Analytical Engine contained an Arithmetic Logic Unit (ALU), basic flow control, and integrated memory; which led to the development of first general – purpose computer concept.

2 Define First digital computer.

❖ The ENIAC was invented by J. Presper Eckert and John Mauchly at the University of Pennsylvania and began construction in 1943 and was not completed until 1946.

❖ It occupied about 1,800 square feet and used about 18,000 vacuum tubes, weighing almost 50 tons.

❖ ENIAC was the first digital computer because it was fully functional.

3 **Write the merits of Fourth Generation Computers. (OR)**

Write the characteristics of Fourth Generation Computers

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

4 **Write the merits of Fifth Generation Computers.(OR)**

Write the characteristics of Fourth Generation Computers .

❖ 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

5 **Write the merits of Sixth Generation Computers.(OR)**

Write the characteristics of Fourth Generation Computers –

❖ Parallel and Distributed computing
❖ Computers have become smarter, faster and smaller
❖ Development of robotics
❖ Natural Language Processing
❖ Development of Voice Recognition Software

6 **Write short note on CPU.**

❖ CPU is the major component which interprets and executes softwareinstructions.
❖ 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 accordingto 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.

7 **What is an Input device? Give two examples.**

❖ 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 **Name any three output devices**

Monitor, Plotter, Printer are three output devices.

9 **Explain most commonly used mouse in computer.**

Mechanical Mouse

❖ A small ball is kept inside and touches the pad through a hole at the bottom of the mouse.
❖ When the mouse is moved, the ball rolls.
❖ This movement of the ball is converted into signals and sent to the computer.
❖ It is developed Telefunken, German Company, 02/10/1968

Optical Mouse

❖ 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.

❖ It is developed in 1988,Richard Lyon,Steve Krish independently invented different versions of Optical Mouse.

Laser Mouse

❖ 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.

10 **Differentiate optical and Laser mouse.**

Optical Mouse

❖ 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.
❖ It is developed in 1988,Richard Lyon,Steve Krish independently invented different versions of Optical Mouse.

Laser Mouse

❖ 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.

11 **Write the significant features of monitor.**

❖ Monitor is the most commonly used output device to display the information.
❖ Pictures on a monitor are formed with picture elements called PIXELS.
❖ 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.

12 **Write short note on impact printer ?**

❖ These printers print with striking of hammers or pins on ribbon.
❖ These printers can print on multi-part by using mechanical pressure.
❖ For example, Dot Matrix printers and Line matrix printers.

Dot Matrix printers:

➢ A Dot matrix printer that prints using a fixed number of pins or wires.
➢ The printing speed of these printers varies from 30 to 1550 CPS.

Line matrix printers:

➢ Line matrix printers use a fixed print head for printing. Basically, it prints a page-wide line of dots.
➢ Line printers are capable of printing much more than 1000 Lines Per Minute, resulting in thousands of pages per hour.

13 **Write short note on Non impact printer?**

❖ These printers do not use striking mechanism for printing.
❖ They use electrostatic or laser technology.
❖ Quality and speed of these printers are better than Impact printers.
❖ For example, Laser printers and Inkjet printers.

Laser Printers

❖ Laser printers mostly work with similar technology used by photocopiers.
❖ The available resolution range around 1200 dpi. Approximately it can print 100 pages per minute(PPM).

Inkjet Printers:

❖ Inkjet Printers use colour cartridges which combined Magenta, Yellow and Cyan
❖ inks to create color tones.
❖ The speed of Inkjet printers generally range from 1-20 PPM.

14 **What are the two types of Booting of computer? Explain.**

Booting process is of two types.
1) Cold Booting
2) Warm Booting

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.

Warm Booting:
- ❖ 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.

15   What are the characteristics of a computer?
- ❖ Speed
- ❖ Accuracy
- ❖ Diligence
- ❖ Versatility
- ❖ Storage
- ❖ Automatic
- ❖ Processing
- ❖ Non-intelligent

16   Write the application of computer.
- ❖ Business
- ❖ Education
- ❖ Marketing
- ❖ Banking
- ❖ Insurance
- ❖ Communication
- ❖ Health Care
- ❖ Military
- ❖ Engineering Design

Five Marks:

1   Discuss the various generations of computers.

❖ 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.	

First Generation of computer:
- ❖ Big in size
- ❖ Consumed more power
- ❖ Malfunction due to overheat
- ❖ Machine Language was used
- ❖ ENIAC , EDVAC , UNIVAC 1

Second Generation of Computer:
- ❖ 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 of Computer:
❖ Computers were smaller,faster and more reliable
❖ Consumed less power
❖ High Level Languages were Used
❖ IBM 360 series, Honeywell 6000 series

Fourth Generation of Computer:
❖ Smaller and Faster
❖ Microcomputer series such as IBM and APPLE were developed.
❖ Portable Computers were introduced.

Fifth Generation of Computer:
❖ 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 of Computer:
❖ Parallel and Distributed computing
❖ Computers have become smarter, faster and smaller
❖ Development of robotics
❖ Natural Language Processing
❖ Development of Voice Recognition Software

2   Explain the basic components of a computer with a neat diagram.
❖ The computer is the combination of hardware and software.
❖ Software is the set of programs or instructions.
❖ Hardware is the physical component of a computer like motherboard, memory devices, monitor, keyboard etc.
❖ Both hardware and software together make the computer system to function.
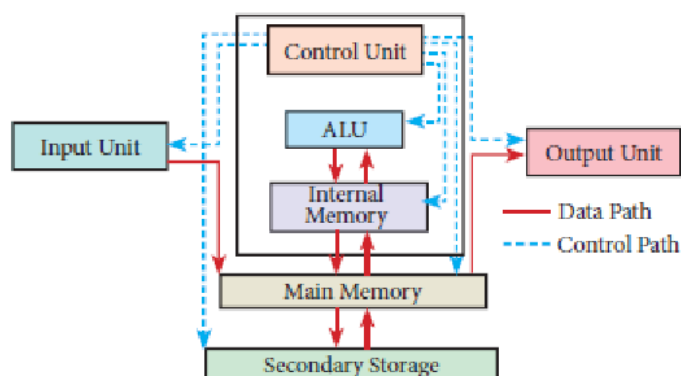
Input Unit
❖ Input unit is used to feed any form of data to the computer, which can be stored in the memory unit for further processing.

❖ Example: Keyboard, mouse, etc.

Central Processing Unit (CPU)

❖ CPU is the major component which interprets and executes softwareinstructions.
❖ 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 accordingto 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.

Arithmetic and logic unit (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.
❖ 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 (CU)

❖ 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.

Memory unit (MU)

❖ The Memory Unit is of two types which are primary memory and secondary memory.

Primary 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.
❖ Example : RAM

Secondary memory

❖ The secondary memory is used to store the data permanently.
❖ The Secondary memory is non volatile.
❖ Example: Hard disk, CD-ROM and DVD ROM

Output unit

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

3   **List a few commonly used inputs devices and explain them briefly?**

Keyboard

❖ Keyboard is the most common input letters, numbers and special characters are collectively known as character keys.
❖ This keyboard layout is derived from the keyboard of original typewriter.
❖ The data and instructions are given as input to the computer by typing on the keyboard.
❖ Apart from alphabet and numeric keys, it also has Function keys for performing
❖ different functions.
❖ There are different set of keys available in the keyboard such as character keys, modifier keys, system and GUI keys, enter and editing keys, function keys, navigation keys, numeric keypad and lock keys.

Mouse

❖ Mouse is a pointing device used to control the movement of the cursor on the display screen.
❖ It can be used to select icons, menus, command buttons or activate something on a computer.
❖ Some mouse actions are move, click, double click, right click, drag and drop.

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.

Fingerprint Scanner
❖ Finger print Scanner is a fingerprint recognition device used for computer security, equipped with the fingerprint recognition feature that uses biometric technology.
❖ Fingerprint Reader / Scanner is a very safe and convenient device for security instead of using passwords, which is vulnerable to fraud and is hard to remember.

Track Ball
❖ Track ball is similar to the upside- down design of the mouse.
❖ The user moves the ball directly, while the device itself remains stationary. The user spins the ball in various directions to navigate the screen movements.

Retinal Scanner
This performs a retinal scan which is a biometric technique that uses unique patterns on a person's retinal blood vessels.

Light Pen
❖ A light pen is a pointing device shaped like a pen and is connected to a monitor.
❖ The tip of the light pen contains a light-sensitive element which detects the light from the screen enabling the computer to identify the location of the pen on the screen.
❖ Light pens have the advantage of 'drawing' directly onto the screen, but this becomes hard to use, and is also not accurate.

Optical Character Reader
❖ 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 word processor.

Bar Code
❖ A Bar code is a pattern printed in lines of different thickness. Te 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 interpreter the image

Voice Input Systems
❖ Microphone serves as a voice Input device. It captures the voice data and sends it to the Computer.
❖ Using the microphone along with speech recognition software can offer a completely new approach to input information into the Computer.

Digital Camera
❖ It captures images / videos directly in the digital form.
❖ It uses a CCD (Charge Coupled Device) electronic chip.
❖ When light falls on the chip through the lens, it converts light rays into digital format.

Touch Screen:
❖ A touch screen is a display device that allows the user to interact with a computer by using the finger.
❖ It can be quite useful as an alternative to a mouse or keyboard for navigating a Graphical User Interface (GUI).
❖ Touch screens are used on a wide variety of devices such as computers, laptops, monitors, smart phones, tablets, cash registers and information kiosks.
❖ Some touch screens use a grid of infrared beams to sense the presence of a finger instead of utilizing touch-sensitive input.

Keyer
❖ A Keyer is a device for signaling by hand, by way of pressing one or more switches.

- ❖ Modern keyers have a large number of switches but not as many as a full size keyboard.
- ❖ Typically, this number is between 4 and 50.
- ❖ A keyer differs from a keyboard, which has "no board", but the keys are arranged in a cluster.

4   List a few commonly used outputs devices and explain them briefly?

Monitor
- ❖ Monitor is the most commonly used output device to display the information.
- ❖ Pictures on a monitor are formed with picture elements called PIXELS.
- ❖ 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.

Plotter
- ❖ 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.

Printers

Printers are used to print the information on papers. Printers are divided into two main categories:
- ❖ Impact Printers
- ❖ Non Impact printers
  - ➢ **Impact printer**
- ❖ These printers print with striking of hammers or pins on ribbon.
- ❖ These printers can print on multi-part by using mechanical pressure.
- ❖ For example, Dot Matrix printers and Line matrix printers.

Dot Matrix printer:
- ➢ A Dot matrix printer that prints using a fixed number of pins or wires.
- ➢ The printing speed of these printers varies from 30 to 1550 CPS.

Line matrix printer:
- ➢ Line matrix printers use a fixed print head for printing. Basically, it prints a page-wide line of dots.
- ➢ Line printers are capable of printing much more than 1000 Lines Per Minute, resulting in thousands of pages per hour.
  - ➢ **Non impact printer**
- ❖ These printers do not use striking mechanism for printing.
- ❖ They use electrostatic or laser technology.
- ❖ Quality and speed of these printers are better than Impact printers.
- ❖ For example, Laser printers and Inkjet printers.

Laser Printer
- ➢ Laser printers mostly work with similar technology used by photocopiers.
- ➢ The available resolution range around 1200 dpi. Approximately it can print 100 pages per minute(PPM).

Inkjet Printer
- ➢ Inkjet Printers use colour cartridges which combined Magenta, Yellow and Cyan inks to create color tones.
- ➢ The speed of Inkjet printers generally range from 1-20 PPM.

Speakers
- ❖ Speakers produce voice output (audio) .
- ❖ Using speaker along with speech synthesize software, the computer can provide voice output.

❖ This has become very common in places like airlines, schools, banks, railway stations, etc.

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.

5   Explain Booting of computer and its types.
❖ An Operating system (OS) is a basic software that makes the computer to work.
❖ Pictures on a monitor are formed with picture elements called PIXELS.
❖ When a computer is switched on, there is no information in its RAM. At the same time, in ROM, the pre-written program called POST (Power on Self Test) will be executed first.
❖ The devices like RAM, keyboard, etc., are connected properly and ready to operate. If these devices are ready, then the BIOS (Basic Input Output System) gets executed. This process is called Booting.
❖ Bootstrap Loader" transfers OS from hard disk into main memory. Now the OS gets loaded (Windows/Linux, etc.,) and will get executed.
❖ Booting process is of two types.
1) Cold Booting
2) Warm Booting

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.

Warm Booting:
❖ 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.

Chapter - 2
Number System

One Mark Questions:
1. The term data comes from the word **datum** which means a raw fact.
2. The **data** is a fact about people, places or some objects.
3. Computer handles data in the form of **0 or 1.**
4. 0 or 1 that the Computer can understand is called **Machine language**.
5. 0 or 1 are called **Binary Digits - BIT.**
6. A **bit** is the short form of **Binary digit** which can be '0' or '1'.
7. **Bit** is the basic unit of data in computers.
8. A **nibble** is a collection of 4 bits.
9. A collection of 8 bits is called **Byte.**
10. A **byte** is considered as the basic unit of measuring the memory size in the Computer.
11. **Word length** refers to the number of bits processed by a Computer's CPU.
12. Present day Computers use **32 bits or 64 bits.**
13. **1 Bit = 0,1**
14. **4 Bit = Nibble**
15. **8 Bit = 1 Byte**
16. **1024 Byte = 1 Kilo Byte**
17. **1024 Kilo Byte = 1 Mega Byte**

18. **1024 Mega Byte = 1 Giga Byte**
19. **1024 Giga Byte = 1 Tera byte**
20. **1024 Tera Byte = 1 Peta byte**
21. **1024 Peta Byte = 1 Exa byte**
22. **1024 Exa Byte = 1 Zetta byte**
23. **1024 Zetta Byte = 1 Yotta byte**
24. **Computer memory** is normally represented in terms of KiloByte(KB) or MegaByte(MB).
25. In decimal system, **1 Kilo represents 1000.**
26. In binary system, 1 KiloByte represents **1024 bytes.**
27. The memory size of 1 kilo byte is **2^{10}.**
28. The memory size of 1 mega byte is **2^{20}**.
29. The memory size of 1 giga byte is **2^{30}.**
30. The memory size of 1 tera byte is **2^{40}.**
31. The memory size of 1 peta byte is **2^{50}.**
32. The memory size of 1 exa byte is **2^{60}.**
33. The memory size of 1 zetta byte is **2^{70}.**
34. The memory size of 1 yotta byte is **2^{80}.**
35. **Bytes** are used to represent characters in a text
36. ASCII stands for **American Standard Code for Information Interchange**
37. The ASCII code is 0 to 127.
38. The ASCII value for blank space is **32.**
39. ASCII value of numeric 0 is **48.**
40. ASCII values for lower case alphabets is from **97 to 122.**
41. ASCII values for the upper case alphabets is **65 to 90.**
42. A **numbering system** is a way of representing numbers.
43. The most commonly used numbering system in real life is **Decimal number system.**
44. Each number system is uniquely identified by its **base value** or **radix.**
45. **Radix or base** is the count of number of digits in each number system.
46. The numbers in the binary system are represented to the base **2**
47. The left most bit in the binary number is called as the **Most Significant Bit.**
48. **MSB** - Most Significant Bit.
49. The right most bit is the Least Significant Bit.
50. **LSB** - Least Significant Bit.
51. Octal number system uses **(0 to 7) 8** digits.
52. The base value of octal number is **8**
53. Hexadecimal number system uses **(0 to 15) 16** digits.
54. Hexadecimal number system values are **0 to 9, A,B,C,D,E,F.**
55. A hexadecimal number is represented using base **16.**
56. **Hexadecimal Number system** is used to represent data in a more compact manner.
57. To convert Decimal to Binary "**Repeated Division by 2**" method can be used.
58. To convert Decimal to Octal, "**Repeated Division by 8**" method can be used.
59. To convert Decimal to Hexadecimal, "**Repeated division by 16**" method can be used.
60. The method of **repeated multiplication by 2** has to be used to convert fractional decimal to binary.
61. The simplest method to represent negative binary numbers is called **Signed Magnitude.**
62. In signed magnitude method, the left most bit is Most Significant Bit (MSB), is called **sign bit or parity bit.**
63. The value of the whole numbers has '+' sign or no sign it will be considered as **positive.**
64. The value of the whole numbers has '−' sign it will be considered as **negative.**
65. **BCD** – Binary Coded Decimal
66. **EBCDIC** – Extended Binary Coded Decimal Interchange Code
67. **ASCII** – American Standard Code for Information Interchange
68. **ISCII** - Indian Standard Code for Information Interchange
69. BCD can handle **2^6 = 64 characters.**

70. **ASCII** is most popular encoding system recognized by United States.
71. ASCII can handle $2^7 = \textbf{128 characters}$.
72. The new edition (version) ASCII -8 can handle $2^8 = \textbf{256 characters}$.
73. The ASCII code equivalent to the uppercase letter 'A' is **65**.
74. The ASCII code equivalent to the uppercase letter 'B' is **66**.
75. The ASCII code equivalent to the uppercase letter 'Y' is **89**.
76. The ASCII code equivalent to the uppercase letter 'Z' is **90**.
77. The binary representation of ASCII (7 bit) value is **1000001**.
78. The binary representation of ASCII (8 bit) value is **01000001**.
79. **EBCDIC** coding system is formulated by International Business Machine(IBM)
80. EBCDIC can handle **256 characters**.
81. **ISCII** is a **8-bit** coding system.
82. ISCII was formulated in the year **1986-88**.
83. ISCII recognized by **Bureau of Indian Standards**
84. BIS - Bureau of Indian Standards.
85. **Unicode** coding system is used in most of the modern computers.
86. The popular coding scheme after ASCII is **Unicode**.
87. **English** and **European** Languages alone can be handled by ASCII
88. **Unicode** was generated to handle all the coding system of **Universal languages**
89. **Unicode** is a **16 bit code** and can handle **65536 characters**
90. Unicode scheme is denoted by **hexadecimal numbers.**
91. The name Boolean algebra has been given in honor of an English mathematician **George Boole.**
92. **George Boole** who proposed the basic principles of this **Boolean algebra.**
93. George Boole was born in the year **1815-1864**.
94. The sentences which can be determined to be True or False are called **"Logical Statement" or "Truth Functions".**
95. The truth values depicted by logical constant **1 means True**.
96. The truth values depicted by logical constant **0 means False.**
97. The variable which can store these truth values are called **"Logical variable" or "Binary valued variables" or "Boolean Variables".**
98. The basic logical operations are **AND, OR and NOT**.
99. AND operator are symbolically represented by **dot (.).**
100. OR operator are symbolically represented by **plus (+).**
101. Fundamental gates are **AND, OR and NOT**.
102. Derived gates are **NAND,NOR, XOR and XNOR**
103. **NAND and NOR** gates are called Universal gates.
104. Theorem of Algebra:
$$A + 0 = A$$
$$A \cdot 1 = A$$
Complement
$$A + \overline{A} = 1$$
$$A \cdot \overline{A} = 0$$
Commutative
$$A + B = B + A$$
$$A \cdot B = B \cdot A$$
Associative
$$A + (B + C) = (A + B) + C$$
$$A \cdot (B \cdot C) = (A \cdot B) \cdot C$$
Distributive
$$A \cdot (B + C) = A \cdot B + A \cdot C$$
$$A + (B \cdot C) = (A + B) \cdot (A + C)$$
Null Element
$$A + 1 = 1$$

A . 0 = 0
Involution
  (A) = A
Indempotence
  A + A = A
  A . A = A
Absorption
  A + (A . B) = A
  A . (A + B) = A
3rd Distributive
  A + A . B = A + B
De Morgan's
  A + B = A . B
  (A . B) = A + B

1. Which refers to the number of bits processed by a computer's CPU?
    A) Byte B) Nibble C) Word length **D) Bit**
2. How many bytes does 1 KiloByte contain?
    A) 1000 B) 8 C) 4 **D) 1024**
3. Expansion for ASCII
    A) American School Code for Information Interchange
    B) American Standard Code for Information Interchange
    C) All Standard Code for Information Interchange
    D) American Society Code for Information Interchange
4. 2^{50} is referred as
    A) Kilo B) Tera **C) Peta** D) Zetta
5. How many characters can be handled in Binary Coded Decimal System?
    A) 64 B) 255 C) 256 D) 128
6. For 1101_2 what is the Hexadecimal equivalent?
    A) F B) E C) D **D) B**
7. What is the 1's complement of 00100110?
    A) 00100110 **B) 11011001** C) 11010001 D) 00101001
8. Which amongst this is not an Octal number?
    A) 645 B) 234 **C) 876** D) 123
9. Which is a basic electronic circuit which operates on one or more signals?
    (A) Boolean algebra (B) Gate (C) Fundamental gates (D) Derived gates
10. Which gate is called as the logical inverter?
    (A) AND (B) OR **(C) NOT** (D) XNOR
11. A + A = ?
    (A) A (B) O (C) 1 (D) A
12. NOR is a combination of ?
    (A) NOT(OR) (B)NOT(AND) (C) NOT(NOT) (D) NOT(NOR)
13. NAND is called as …… Gate
    (A) Fundamental Gate **(B) Derived Gate** (C) Logical Gate (D) Electronic gate

Two marks and Three marks:

1   **What is Bit?**
    ❖ A bit is the short form of Binary digit which can be '0' or '1'.
    ❖ It is the basic unit of data in computers.
2   **What is Nibble?**
    A Nibble is a collection of 4 bits (Binary digits).
3   **What is Byte?**
    ❖ A collection of 8 bits is called Byte.
    ❖ A byte is considered as the basic unit of measuring the memory size in the computer.

4   What is Word length?

❖ Word length refers to the number of bits processed by a Computer's CPU.
❖ For example, a word length can have 8 bits, 16 bits, 32 bits and 64 bits.

5   What are the data representation memory size?

1 Bit = 0,1
4 Bit = Nibble
8 Bit = 1 Byte
1024 Byte = 1 Kilo Byte
1024 Kilo Byte = 1 Mega Byte
1024 Mega Byte = 1 Giga Byte
1024 Giga Byte = 1 Tera byte
1024 Tera Byte = 1 Peta byte
1024 Peta Byte = 1 Exa byte
1024 Exa Byte = 1 Zetta byte
1024 Zetta Byte = 1 Yotta byte

6   Write a note on table represents the various memory sizes.

❖ Computer memory is normally represented in terms of KiloByte(KB) or MegaByte(MB).
❖ In decimal system, 1 Kilo represents 1000.
❖ In binary system, 1 KiloByte represents 1024 bytes.
❖ The memory size of 1 kilo byte is 2^{10}.
❖ The memory size of 1 mega byte is 2^{20}.
❖ The memory size of 1 giga byte is 2^{30}.
❖ The memory size of 1 tera byte is 2^{40}.
❖ The memory size of 1 peta byte is 2^{50}.
❖ The memory size of 1 exa byte is 2^{60}.
❖ The memory size of 1 zetta byte is 2^{70}.
❖ The memory size of 1 yotta byte is 2^{80}.

7   What is Number system?

❖ A numbering system is a way of representing numbers.
❖ The most commonly used numbering system in real life is Decimal number system. Other number systems are Binary, Octal, Hexadecimal number system.
❖ Each number system is uniquely identified by its **base value** or **radix**.
❖ Radix or base is the count of number of digits in each number system.

8   What are the different types of Number system?

Decimal Number System

❖ Decimal number system uses (0 to 7) 8 digits.
❖ The base value of octal number is 10.
❖ Example: $(987)_{10}$

Binary Number System

❖ Binary number system uses (0,1) 2 digits.
❖ The base value of octal number is 2.
❖ Example: $(1010)_2$

Octal Number System

❖ Octal number system uses (0 to 7) 8 digits.
❖ The base value of octal number is 8
❖ Example: $(765)_8$

Hexadecimal Number System

❖ Hexadecimal number system uses (0 to 15) 16 digits.
❖ Hexadecimal number system values are 0 to 9, A,B,C,D,E,F.
❖ A hexadecimal number is represented using base 16.
❖ Example: $(9CD)_{16}$

9   What is base value or radix?

❖ Each number system is uniquely identified by its base value or radix.
❖ Radix or base is the count of number of digits in each number system.
❖ Radix or base is the general idea behind positional numbering system.

10   How will you convert Decimal to Binary?

❖ To convert Decimal to Binary "Repeated Division by 2" method can be used.
❖ Any Decimal number divided by 2 will leave a remainder of 0 or 1.
❖ Repeated division by 2 will leave a sequence of 0s and 1s that become the binary equivalent of the decimal number.

Example:

Convert $(65)_{10}$ into its equivalent binary number

```
2 | 65
2 | 32 - 1
2 | 16 - 0
2 |  8 - 0        (65)₁₀ = (1 0 0 0 0 0 1)₂
2 |  4 - 0
2 |  2 - 0
       1 - 0
```

$(65)_{10} = (1\,0\,0\,0\,0\,0\,1)_2$

11   How will you convert Decimal to Octal?

❖ To convert Decimal to Octal "Repeated Division by 8" method can be used.
❖ Any Decimal number divided by 8 will leave a remainder of 0 to 7.
❖ Repeated division by 2 will leave a sequence of 0 to 7 that become the octal equivalent of the decimal number.

Example:

Convert $(65)_{10}$ into its equivalent Octal number

```
8 | 65
8 |  8 - 1        (65)₁₀ = (1 0 1)₈
       1 - 0
```

$(65)_{10} = (1\,0\,1)_8$

12   How will you convert Decimal to Hexadecimal?

❖ To convert Decimal to Hexadecimal "Repeated Division by 16" method can be used.
❖ Any Decimal number divided by 16 will leave a remainder of 0 to 15.
❖ Repeated division by 16 will leave a sequence of 0 to 15 that become the Hexadecimal equivalent of the decimal number.

Example:

Convert $(31)_{10}$ into its equivalent hexadecimal number.

```
16 | 31
        1 - 15       (16)₁₀ = (1F)₁₆
```

$(16)_{10} = (1F)_{16}$

13   List the encoding systems for characters in memory? (or)
What are the several encoding system?

There are several encoding systems used for computer. They are
❖ BCD – Binary Coded Decimal
❖ EBCDIC – Extended Binary Coded Decimal Interchange Code
❖ ASCII – American Standard Code for Information Interchange
❖ Unicode
❖ ISCII - Indian Standard Code for Information Interchange

14   **Write note on Binary Coded Decimal (BCD).**
- ❖ This encoding system is not in the practice right now.
- ❖ This is 2^6 bit encoding system.
- ❖ This can handle $2^6 = 64$ characters only.

15   **Write note on ASCII.**
- ❖ This is the most popular encoding system recognized by United States. Most of the computers use this system. Remember this encoding system can handle English characters only. This can handle 27 bit which means 128 characters.
- ❖ The new edition (version) ASCII -8, has 28 bits and can handle 256 characters are represented from 0 to 255 unique numbers.
- ❖ The ASCII code equivalent to the uppercase letter 'A' is 65.
- ❖ The binary representation of ASCII (7 bit) value is 1000001. Also 01000001 in ASCII-8 bit.

16   **Write note on EBCDIC.**
- ❖ This is similar to ASCII Code with 8 bit representation.
- ❖ This coding system is formulated by International Business Machine(IBM).
- ❖ The coding system can handle 256 characters.
- ❖ The input code in ASCII can be converted to EBCDIC system and vice - versa.

17   **Write note on ISCII.**
- ❖ ISCII is the system of handling the character of Indian local languages. This as a 8-bit coding system. Therefore it can handle 256 (2^8) characters.
- ❖ This system is formulated by the department of Electronics in India in the year 1986- 88 and recognized by Bureau of Indian Standards (BIS).
- ❖ Now this coding system is integrated with Unicode.

18   **Write note on Unicode.**
- ❖ This coding system is used in most of the modern computers. The popular coding scheme after ASCII is Unicode. ASCII can represent only 256 characters.
- ❖ Therefore English and European Languages alone can be handled by ASCII. Particularly there was a situation, when the languages like Tamil, Malayalam, Kannada and Telugu could not be represented by ASCII.
- ❖ Hence, the Unicode was generated to handle all the coding system of Universal languages. This is 16 bit code and can handle 65536 characters.
- ❖ Unicode scheme is denoted by hexadecimal numbers.

19   **We cannot find 1's complement for $(28)_{10}$. State reason.**
- ❖ It is a positive number.
- ❖ 1's complement apply only with negative number.
- ❖ Example : $(-28)_{10}$

20   **Convert $(65)_{10}$ into its equivalent binary number.**

21   **Convert $(65)_{10}$ into its equivalent Octal number.**

22   **Convert $(31)_{10}$ into its equivalent hexadecimal number.**

23   **Convert $(111011)_2$ into its equivalent decimal number.**

24   **Convert $(11010110)_2$ into octal equivalent number.**

25   **Convert $(1111010110)_2$ into Hexadecimal number.**

26   **Convert the given Binary number $(11.011)_2$ into its decimal equivalent.**

27   **Convert $(1265)_8$ to equivalent Decimal number.**

28   **Convert $(6213)_8$ to equivalent Binary number.**

29   **Convert $(25F)_{16}$ into its equivalent Decimal number.**

30   **Convert $(8BC)_{16}$ into equivalent Binary number.**

31   **Find 1's complement for $(-24)_{10}$**

32   **2's Complement represent of $(-24)_{10}$**

33   Add: $1011_2 + 1001_2$
34   Perform Binary addition for the following: $23_{10} + 12_{10}$
35   Subtract $1001010_2 - 10100_2$
36   Binary Addition of –21 and 5
37   Convert $(46)_{10}$ into Binary number
38   Convert $(150)_{10}$ into Binary, then convert that Binary number to Octal

Five Marks:

1   **Write the procedure to convert fractional Decimal to Binary.**
     The steps involved in the method of repeated multiplication by 2
     Step 1: Multiply the decimal fraction by 2 and note the integer part. The integer part is either 0 or 1.
     Step 2: Discard the integer part of the previous product. Multiply the fractional part of the Previous product by 2.Repeat Step 1 until the same fraction repeats or terminates (0).
     Step 3: The resulting integer part forms a sequence of 0s and 1s that become the binary equivalent of decimal fraction.
     Step 4: The final answer is to be written from first integer part obtained till the last integer part obtained.

2   **Write the procedure to convert fractional Binary to Decimal.**
3   **Convert the following Decimal numbers to its equivalent Binary, Octal, Hexadecimal.**
     1) 1920   2) 255   3)126
4   **Convert the given Binary number into its equivalent Decimal, Octal and Hexadecimal number.**
     1) 101110101   2) 1011010   3) 101011111
5   **Convert the following Octal numbers into Binary numbers.**
     a. 472 (B) 145 (C) 347 (D) 6247 (E) 645
     b. **Convert the following Hexadecimal numbers to Binary numbers** (A)A6 (B) BE (C) 9BC8 (D) BC9
6   **Write the 1's complement number and 2's complement number for the following decimal numbers: (A) 22 (B) -13 (C) -65 (D) -46**
7   **Perform the following binary computations:**
     a. $10_{10} + 15_{10}$ (B) $-12_{10} + 5_{10}$ (C) $14_{10} - 12_{10}$ (D) $(-2_{10}) - (-6_{10})$
8   **Add a) $-22_{10}+15_{10}$ b) $20_{10}+25_{10}$**
9   **Convert $(98.46)_{10}$ to Binary**
10   **Find 1's Complement and 2's Complement for the following Decimal number   a)-98 b) -135**
11   **Perform the following binary computations:**
     a. **Add $1101010_2+101101_2$ b. Subtract $1101011_2 - 111010_2$**

Part II – Boolean Algebra

Two marks and Three marks:

1   What is Boolean Algebra? – 40
2   What is called Logical Operators? – 40
3   Define Truth Table. – 40
4   Define AND Gate. -41
5   Define OR Gate. -41
6   Define NOT Gate. -41
7   Define NAND Gate. -41

8   Define NOR Gate. -42

9   What are Fundamental Gates? -42

10   What are derived gates? -42

11   What are Universal gates? -42

12   Write a short note on AND Gate. -42

13   Write a short note on OR Gate. -43

14   Write a short note on NOT Gate. -43

15   Write a short note on NAND Gate. -45

16   Write a short note on NOR Gate. -44

17   Write a short note on Bubbled AND Gate. -44

18   Write a short note on Bubbled OR Gate. -45

19   Draw the truth table for AND gate.

20   Draw the truth table for OR gate.

21   Draw the truth table for NAND gate.

22   Draw the truth table for NOR gate.

23   Draw the truth table for Bubbled AND gate.

24   Draw the truth table for Bubbled OR gate.

25   Draw the truth table for XOR gate.

26   Draw the truth table for XNOR gate.

27   Write the truth table of fundamental gates. - 49

28   Reason out why the NAND an NOR are called universal gates? -42

29   Write the Commutative laws? - 48

30   Write the Associative laws? - 48

31   Write the Distributive laws? - 48

32   Write the Absorption laws? - 48

33   Write the De Morgan's law. - 48

Five marks:

1   Explain the fundamental gates with expression and truth table.

2   How AND and OR can be realized using NAND and NOR gate.

3   Explain the Derived gates with expression and truth table.

4   Explain XOR Gate. - 46

5   Explain XNOR Gate. – 46,47.

6   Write in details of Theorems of Boolean Algebra. - 48

Chapter-3
Computer Organization

One Mark Questions:

1   **Computer organization** deals with the hardware components of a computer system.

2   **Computer organization** is concerned with how the various components of computer hardware operate.

3   **Computer organization** deals with how they are interconnected to implement an architectural specification.

4   **Computer architecture** deals with the engineering considerations involved in designing a computer.

5   **Computer Organization** deals with the hardware components that are transparent to the programmer.

6	**CPU** is the major component of a computer, which performs all tasks.
7	Microprocessors were first introduced in early **1970.**
8	The first general purpose microprocessor, **4004** was developed by **Intel Inc.**
9	The **microprocessor** is a programmable multipurpose **silicon chip.**
10	**Microprocessor** is driven by **clock pulses.**
11	The microprocessor is made up of **3** main units.
12	**Arithmetic and Logic unit (ALU)** is a to perform arithmetic and logical instructions based on computer instructions.
13	**Control unit** is aTo control the overall operations of the computer through signals.
14	**Registers** is also known as Internal memory.
15	**Registers** is used to hold the instruction and data for the execution of the processor.
16	**Microprocessor** is able to communicate with the memory units and the Input /Output devices
17	The system bus is a bunch of wires which is the collection of **three** bus.
18	The **system bus** is a bunch of wires which is the collection of **address bus, data bus and control bus.**
19	The **system bus** serves as communication channels between the Microprocessor and other devices.
20	In **1823**, **Baron Jones Jacob Perseilyse** invented a **silicon**e device.
21	In **1903**, **Nicola Delicella** invented the **electric gate circuit** device.
22	In **1947**, **John Bartin, Walter Friedman and William Shockley** invented the **first transistor** device.
23	In **1956**, **John Bartin, Walter Friedman and William Shockley** received the **Nobel Prize** for Physics.
24	In **1956**, the first **integrated circuit** was created by **Robers Nice and Jack Gilby** on **September 12, 1958.**
25	In **1960, IBM** originally created a device for the production of a **large chip** in **New York City.**
26	A Microprocessor's performance depends on **three** characteristics.
27	A Microprocessor's performance depends on **Clock speed, Instruction set, Word size.**
28	**Hertz** is the standard unit of measurement used for measuring frequency.
29	One hertz equals **one cycle per second.**
30	The average human ear can detect sound waves between **20 and 20,000 Hz.**
31	Sound waves close to **20 Hz** have a low pitch and are called **"bass"** frequencies.
32	Sound waves above **5,000 Hz** have a high pitch and are called **"treble"** frequencies.
33	**Hertz** can be used to measure measure the speed of computer processors.
34	Every microprocessor has an **internal clock** that regulates the speed at which it executes instructions.
35	The speed at which the microprocessor executes instructions is called the **clock speed.**
36	Clock speed is measured in **MHz (Mega Hertz)**
37	Clock speed is measured in **GHz (Giga Hertz).**
38	A command which is given to a computer to perform an operation on data is called an **instruction.**
39	set of machine level instructions that a microprocessor is designed to execute is called as an **instruction set.**
40	The number of bits that can be processed by a processor in a single instruction is called its **word size.**
41	**Word size** determines the amount of RAM that can be accessed by a microprocessor at one time.
42	**Word size** accessed the total number of pins on the microprocessor.
43	Total number of input and output pins in turn determines the **architecture of the microprocessor.**
44	The first commercial microprocessor **Intel 4004**
45	**Intel 4004 Produced From late 1971 to 1981.**

46	Intel 4004 Manufacturerd from Intel Inc.
47	Intel 4004 Clock Speed 740 kHZ
48	Intel 4004 Size 10 Micrometer (μm)
49	Intel 4004 Transistors 2300
50	Intel 4004 Data width 4 bits
51	Intel 4004 Package 16 pin
52	**Intel 8085 which is an 8 bit processor.**
53	**Intel 8086 which is a 16 bit processor.**
54	Currently used most of the microprocessors use **32 bit or 64 bit** architecture.
55	**MDR –** Memory Data Register
56	**MAR-** Memory Address Register
57	The **Memory Data Register (MDR)** keeps the data which is transferred between the Memory and the CPU.
58	The **Program counter** is a special register in the CPU which always keeps the address of the next instruction to be executed.
59	A **bus** is a collection of wires used for communication between the internal components of a computer.
60	The **address bus** is used to point a memory location.
61	A **decoder** a digital circuit is used to point to the specific memory location.
62	A **data bus** is used to transfer data between the memory and the CPU.
63	The data bus is **bidirectional** and the address bus is **unidirectional.**
64	The **control bus** controls both read and write operations.
65	The data bus has **eight** parallel wires.
66	If R/W is **1** it means **Read** operation, if **0** means **write** operation.
67	The **read operation** fetches data from memory and transfers to MDR.
68	**Write operation** transfers data from the MDR to memory.
69	Microprocessors are **two** types.
70	Depending on width of data, Microprocessor can be classified into **4** types.
71	**RISC –** Reduced Instruction Set Computers
72	**RISC** have small set of highly optimized instructions
73	Examples of RISC processors are **Pentium IV, Intel P6, AMD K6 and K7.**
74	**CISC –** Complex Instruction Set Computers
75	Examples of CISC processors are **Intel 386 & 486, Pentium, Pentium II and III, and Motorola 68000.**
76	There are **two** types of accessing methods to access (read or write) the memory.
77	In **sequential access**, the memory is accessed in an orderly manner.
78	In **random access**, any byte of memory can be accessed directly.
79	The main memory is otherwise called as **Random Access Memory.**
80	The smallest unit of information that can be stored in the memory is called as a **bit.**
81	RAM is a **volatile** memory
82	There are **two** basic types of RAM **i) Dynamic RAM ii) Static RAM.**
83	**Dynamic RAM** needs to be refreshed frequently.
84	**Static RAM** needs to be refreshed less often.
85	**Static RAM** is more expensive.
86	**ROM –** Read Only Memory
87	**PROM –** Programmable Read Only Memory
88	**EPROM -** Erasable Programmable Read Only Memory
89	**EEPROM -** Electrically Erasable Programmable Read Only Memory
90	**Read only memory** refers to special memory in a computer with prerecorded data at manufacturing time.
91	**ROM** stores critical programs such as the program that boots the computer.
92	**ROM** is called as a non-volatile memory.
93	Programmable Read Only Memory is also a **non-volatile memory.**
94	**Programmable Read Only Memory** on which data can be written only once.

95   **PROM burner** is used to write data to a PROM chip.
96   The process of programming a PROM is called **burning the PROM.**
97   In Erasable Programmable Read Only the content can be erased using **ultraviolet rays.**
98   Electrically Erasable Programmable Read Only Memory content can be erased by exposing it to an **electrical charge.**
99   **EEPROM** is slower in performance.
100   The **cache memory** is a very high speed and expensive memory.
101   Response time is also known as **Access time.**
102   **Response time** refers to how quickly the memory can respond to a read / write request.

103   To store data and programs permanently **secondary storage devices** are used.
104   **Secondary storage** devices serve as a supportive storage to main memory.
105   Secondary storage is also called as **Backup storage.**
106   **Hard disk** is a magnetic disk on which you can store data.
107   **Hard disk** has the stacked arrangement of disks accessed by a pair of heads for each of the disks.
108   **CD-ROM** is made from 1.2 millimeters thick, polycarbonate plastic material.
109   CD data is represented as tiny indentations known as "**pits".**
110   The areas between pits are known as "**lands".**
111   The capacity of an ordinary CDROM is **700MB.**
112   A **DVD** is an optical disc.
113   **DVD -** Digital Versatile Disc or Digital Video Disc.
114   The capacity of single sided and double layer is **8.5 GB.**
115   DVD can store upto **4.7 GB** of data.
116   The 8 cm DVD has **1.5 GB** capacity.
117   **Double-layered sides** are usually **gold-coloured.**
118   **Single-layered** sides are usually **silver-coloured.**
119   **Flash memory** is an electronic (solid-state) non-volatile computer storage medium.
120   Examples for Flash memories are **pendrives, memory cards.**
121   **PDA -** Personal Digital Assistants
122   The time taken to read or write a character in memory is called **access time.**
123   The capacity of the flash memories vary from **1 Gigabytes (GB)** to **2 Terabytes (TB).**
124   **Blu-Ray Disc** is a high-density optical disc similar to DVD.
125   A double-layer Blu-Ray disc can store up to **50GB (gigabytes)** of data.
126   **DVD** uses a **red laser** to read and write data.
127   **Blu-ray** uses a **blue-violet laser** to write.
128   To connect the external devices **serial port** is used.
129   To connect printers **Parallel port** is used.
130   **USB Port** is used to connect external devices like cameras, scanners, mobile phones, external hard disks.
131   **USB -** Universal Serial Bus.
132   **USB 3.0** can transfer data up to 5 Giga byte/second.
133   To connect a monitor or any display device like LCD projector **VGA connector** is used.
134   **PS/2 Port-**To connect mouse and keyboard to PC.
135   **SCSI Port:** To connect the hard disk drives and network connectors.
136   **HDMI -** High-Definition Multimedia Interface
137   **High-Definition Multimedia Interface** is an audio/video interface which transfers the uncompressed video and audio data to a compatible computer monitor.

1.   Which of the following is sadi to be the brain of a computer?
      (a) Input devices   (b) Output devices   (c) Memory device   **(d) Microprocessor**
2.   Which of the following is not the part of a microprocessor unit?
      (a) ALU   (b) Control unit   **(c) Cache memory** (d) register
3.   How many bits constitute a word?
      (a) 8 (b) 16 (c) 32 **(d) determined by the processor used.**

4. Which of the following device identifies the location when address is placed in the memory address register?
    (a) Locator (b) encoder **(c) decoder** (d) multiplexer
5. Which of the following is a CISC processor?
    (a) Intel P6   (b) AMD K6   **(c) Pentium III**   (d) Pentium IV
6. Which is the fastest memory?
    (a) Hard disk (b) Main memory **(c) Cache memory** (d) Blue-Ray dist
7. How many memory locations are identified by a processor with 8 bits address bus at a time?   (a) 28 (b) 1024 **(c) 256** (d) 8000
8. What is the capacity of 12cm diameter DVD with single sided and single layer?
    (a) 4.7 GB (b) 5.5 GB (c) 7.8GB (d) 2.2 GB
9. What is the smallest size of data represented in a CD?
    (a) blocks (b) sectors **(c) pits** (d) tracks
10. Display devices are connected to the computer through.
    (a) USB port (b) Ps/2 port (c) SCSI port **(d) VGA connector**

Two Marks:

1   **Define Computer Organization.**
    ❖ Computer organization deals with the hardware components of a computer system.
    ❖ It includes Input / Output devices, the Central Processing Unit, storage devices and primary memory.
2   **What is Microprocessor?**
    ❖ The microprocessor which is an Integrated Circuit.
    ❖ Microprocessors were first introduced in early 1970s.
    ❖ The first general purpose microprocessor, 4004 was developed by Intel Inc.
3   **Draw the Block diagram of a Microprocessor based system.**

4   **What is the use of Registers?**
    They are used to hold the instruction and data for the execution of the processor.
5   **Draw the Block diagram of a interconnecting the microprocessor with other Devices.**
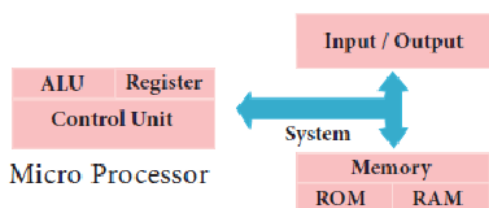
6   **What is Clock speed? – 53**
    ❖ Every microprocessor has an internal clock that regulates the speed at which it executes instructions.
    ❖ The speed at which the microprocessor executes instructions is called the clock speed.
    ❖ Clock speed is measured in MHz (Mega Hertz) or in GHz (Giga Hertz).
7   **What is Instruction?**
    ❖ A command which is given to a computer to perform an operation on data is called an instruction.
8   **What is Instruction Set?**
    ❖ Basic set of machine level instructions that a microprocessor is designed to execute is called as an instruction set.
9   **What is Word size?**

❖ The number of bits that can be processed by a processor in a single instruction is called its word size.

10 **What is Hertz?**

❖ **Hertz** – abbreviated as Hz is the standard unit of measurement used for measuring frequency.

❖ Since frequency is measured in cycles per second, one hertz equals one cycle per second.

11 **What is the use of Hertz?**

Hertz is commonly used to measure wave frequencies, such as sound waves, light waves, and radio waves.

12 **What is the bass frequency and treble frequency?**

❖ Sound waves close to 20 Hz have a low pitch and are called "bass" frequencies.

❖ Sound waves above 5,000 Hz have a high pitch and are called "treble" frequencies.

13 **Write the measurement of clock speed of the computer.**

❖ Hertz can be used to measure wave frequencies, it is also used to measure the speed of computer processors.

❖ For example, each CPU is rated at a specific clock speed. This number indicates how many instruction cycles the processor can perform in every second.

❖ Since modern processors can perform millions or even billions of instructions per second, clock speeds are typically measured in megahertz or gigahertz.

14 **What are the parameters which influence the characteristics of microprocessor?**

❖ Clock speed
❖ Instruction set
❖ Word size

15 **What is MDR?**

❖ The Memory Data Register (MDR) keeps the data which is transferred between the Memory and the CPU.

16 **Expand MDR and MAR.**

MDR - Memory Data Register

MAR - Memory Address Register

17 **What is Program Counter?**

❖ The Program Counter (PC) is a special register in the CPU which always keeps the address of the next instruction to be executed.

❖ The Arithmetic and Logic unit of CPU places the address of the memory to be fetched, into the Memory Address Register.

18 **Define Bus?**

❖ A bus is a collection of wires used for communication between the internal components of a computer.

❖ Address bus
❖ Data bus
❖ Control bus

19 **What is the use of address bus?**

The address bus is used to point a memory location.

20 **Define Decoder?**

A decoder, a digital circuit is used to point to the specific memory location where the word can be located.

21 **Define Data bus?**

❖ A data bus is used to transfer data between the memory and the CPU.
❖ The data bus is bidirectional.

22 **Define Address bus?**

❖ The address bus is used to point a memory location.

❖ The address register is connected with the address bus, which provides the address of the instruction.
❖ The address bus is unidirectional.

23 **Define Control bus?**
❖ The control bus controls both read and write operations.
❖ The read operation fetches data from memory and transfers to MDR.
❖ The write operation transfers data from the MDR to memory.

24 **Define read and write operation.**
❖ The read operation fetches data from memory and transfers to MDR.
❖ The write operation transfers data from the MDR to memory.

25 **Write a two types of microprocessor.**
❖ The width of data that can be processed
❖ The instruction set

26 **Expand RISC and CISC.**
❖ **RISC** - Reduced Instruction Set Computers.
❖ **CISC** – Complex Instruction Set Computers.

27 **What is Computer Memory?**
❖ Computer memory is the storage space in the computer, where data and instructions are stored.
❖ There are two types of accessing methods to access (read or write) the memory.

28 **What are the two types of RAM?**
There are two basic types of RAM
❖ Dynamic RAM (DRAM)
❖ Static RAM (SRAM)

29 **Differentiate Dynamic RAM and Static RAM.**
❖ Dynamic RAM being a common type needs to be refreshed frequently.
❖ Static RAM needs to be refreshed less often, which makesit faster.

30 **Which source is used to erase the content of a EPROM?**

EPROM content can be erased using ultraviolet rays.

31 **What is called Backup storage?**
❖ To store data and programs permanently, secondary storage devices are used.
❖ Secondary storage devices serve as a supportive storage to main memory and they are non-volatile in nature, secondary storage is also called as Backup storage.

32 **What is use of cache memory?**
❖ **Cache memory** is used to speed up the memory retrieval process.
❖ It is extremely fast memory would store data that is frequently accessed and if possible, the data that is closer to it.

33 **What is pits and Lands in microprocessor?**
CD data is represented as tiny indentations known as"pits", encoded in a spiral track moulded into the top of the polycarbonate layer. The areas between pits are known as "lands".

34 **Expand CD-ROM and DVD-ROM.**

CD-ROM – Compact Disc Read Only Memory

DVD-ROM - Digital Versatile Disc or Digital Video Disc-Read Only Memory.

35 **What is Flash memory?**
❖ Flash memory is an electronic (solid-state) non-volatile computer storage medium that can be electrically erased and reprogrammed.
❖ Examples for Flash memories are pen drives, memory cards etc.

36 **What are the uses of Flash memory?**

Flash memories can be used in personal computers, Personal Digital Assistants (PDA), digital audio players, digital cameras and mobile phones.

37   **What is Blu-Ray Disc?**

Blu-Ray Disc is a high-density optical disc similar to DVD. Blu-ray is the type of disc used for PlayStation games and for playing High-Definition (HD) movies.

38   **What is use of HDMI?**

High-Definition Multimedia Interface is an audio/video interface which transfers the uncompressed video and audio data from a video controller, to a compatible computer monitor, LCD projector, digital television etc.

39   **Define Intel.**

Intel Corporation is an American multinational corporation and technology company involving in hardware manufacturing, especially mother board and processors.

40   **Define Silicon chip.**

Silicon chip is an integrated , set of electronic circuits on one small flat piece of semiconductor material, silicon.

41   **Define Data transfer.**

Data Transfer means moving data from one component to another.

42   **Define Bidirectional.**

Bidirectional means both the directions/ways.

43   **Define Unidirectional.**

Unidirectional means only one direction.

44   **Define Access time.**

Access time is the time delay or latency between a request to an electronic system, and the access being completed or the requested data returned

Three Marks:

1   **Differentiate Computer organization from Computer architecture.**

Computer organization:

Computer Organization deals with the hardware components that are transparent to the programmer.

Computer architecture:

computer architecture deals with the engineering considerations involved in designing a computer.

2   **Write a short note on microprocessor based system.**

* ❖ The microprocessor which is an Integrated Circuit.
* ❖ Microprocessors were first introduced in early 1970s.
* ❖ The first general purpose microprocessor, 4004 was developed by Intel Inc.
* ❖ The microprocessor is a programmable multipurpose silicon chip.
* ❖ It is driven by clock pulses. It accepts input as a binary data and after processing, it provides the output data as per the instructions stored in the memory.
* ❖ A block diagram of a microprocessor based system is shown.
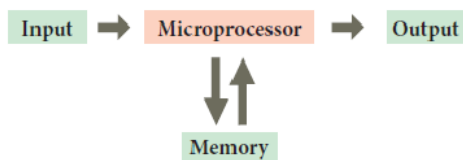
The microprocessor is made up of 3 main units. They are

Arithmetic and Logic unit (ALU):

To perform arithmetic and logical instructions based on computer instructions.

Control unit:

To control the overall operations of the computer through signals.

Registers:

They are used to hold the instruction and data for the execution of the processor.

3   **What are the three main units of microprocessor?**

The microprocessor is made up of 3 main units. They are

Arithmetic and Logic unit (ALU):

To perform arithmetic and logical instructions based on computer instructions.

Control unit:

To control the overall operations of the computer through signals.

Registers:

They are used to hold the instruction and data for the execution of the processor.

4   **Write a short note on Instruction set? – 53**

- ❖ A command which is given to a computer to perform an operation on data is called an **instruction**.
- ❖ Basic set of machine level instructions that a microprocessor is designed to execute is called as an **instruction set**.
- ❖ This instruction set carries out the following types of operations:
  - ➢ Data transfer
  - ➢ Arithmetic operations
  - ➢ Logical operations
  - ➢ Control flow
  - ➢ Input/output

5   **Explain measure the speed of computer processor?.**

- ❖ Each CPU is rated at a specific clock speed.
- ❖ This number indicates how many instruction cycles the processor can perform in every second.
- ❖ Since modern processors can perform millions or even billions of instructions per second, clock speeds are typically measured in megahertz or gigahertz.

6   **Explain First commercial microprocessor.**

- ❖ The first commercial microprocessor, Intel 4004 is a 4 bit processor.
- ❖ It has 4 input pins and 4 output pins.
- ❖ Number of output pins is always equal to the number of input pins.
- ❖ It can process 4 bits at a time. So it is called as a 4 bit processor.
- ❖ Intel 4004 Produced From late 1971 to 1981.
- ❖ It is Manufactured from Intel Inc. and Clock Speed 740 kHZ.
- ❖ Intel 4004 Size 10 Micrometer (μm) and Transistors 2300.
- ❖ Intel 4004 Data width 4 bits and Package 16 pin.
- ❖ Intel 8085 which is an 8 bit processor and Intel 8086 which is a 16 bit processor.
- ❖ Currently used most of the microprocessors use 32 bit or 64 bit architecture.

7   **Write down the classification of microprocessor based on instruction set.**

- ❖ Depending on the data width, microprocessors can process instructions. The microprocessors can be classified as follows:
- ➢ 8-bit microprocessor
- ➢ 16-bit microprocessor
- ➢ 32-bit microprocessor
- ➢ 64-bit microprocessor

8   **Write a note on RISC.**

- ❖ RISC stands for Reduced Instruction Set Computers. They have a small set of highly optimized instructions. Complex instructions are also implemented using simple instructions, thus reducing the size of the instruction set.
- ❖ Examples of RISC processors are Pentium IV, Intel P6, AMD K6 and K7.

9   **Write a note in CISC.**

- ❖ CISC stands for Complex Instruction Set Computers. They support hundreds of instructions. Computers supporting CISC can accomplish a wide variety of tasks, making them ideal for personal computers.

❖ Examples of CISC processors are Intel 386 & 486, Pentium, Pentium II and III, and Motorola 68000.

10   Classify the microprocessor based on the size of the data.

Microprocessors can be classified based on the following criteria:
❖ The width of data that can be processed
❖ The instruction set.

11   Expand . RAM, ROM, PROM, EPROM, EEPROM.

RAM- Random Access Memory

ROM- Read Only Memory

PROM –Programmable Read Only Memory

EPROM- Erasable Programmable Read Only Memory

EEPROM- Electrical Erasable Programmable Read Only Memory

12   Differentiate RAM and ROM.

RAM :
❖ Random Access Memory
❖ RAM is a type of volatile memory.
❖ Data in RAM is not permanently written.
❖ When you power off your computer the data stored in RAM is deleted.

ROM:
❖ Read Only Memory
❖ ROM is a type of non- volatile memory.
❖ Data in ROM is permanently written
❖ ROM is not erased when you power off your computer.

13   Differentiate PROM and EPROM.

PROM:
❖ Programmable read only memory
❖ It is also a non-volatile memory on which data can be written only once.
❖ PROM burner is used to write data to a PROM chip.

EPROM:
❖ Erasable Programmable Read Only Memory
❖ It is also a non-volatile memory and a special type of memory which serves as a PROM, but the content can be erased using ultraviolet rays.

14   Write down the interfaces and ports available in a computer.
❖ Serial Port
❖ Parallel Port
❖ USB Ports
❖ USB 3.0
❖ VGA Connector
❖ Audio Plugs
❖ PS/2 Port
❖ SCSI Port
❖ High Definition Multimedia Interface (HDMI)

15   Differentiate CD and DVD.

CD
❖ CD-ROM is Compact Disc Read Only Memory.
❖ A CD or CD-ROM is made from 1.2 millimeters thick, polycarbonate plastic material.
❖ A thin layer of aluminum or gold is applied to the surface.
❖ CD data is represented as tiny indentations known as "pits", The areas between pits are known as "lands".
❖ The capacity of an ordinary CDROM is 700MB.

DVD

- DVD is Digital Versatile Disc or Digital Video Disc.
- A 12 cm diameter disc with single sided, single layer has 4.7 GB capacity,Double layer has 8.5 GB capacity.
- DVDs are often used to store movies at a better quality. DVDs are read with a laser.
- The disc can have one or two sides, and one or two layers of data per side.
- A DVD is an optical disc Capable of storing up to 4.7 GB of data. The 8 cm DVD has 1.5 GB capacity.

17   How will you differentiate a flash memory and an EEPROM?

Flash memory
- Flash memory is an electronic non-volatile computer storage medium that can be electrically erased and reprogrammed.
- Flash memories can be used in personal computers, Personal Digital Assistants (PDA), digital audio players, digital cameras and mobile phones.
- Flash memory offers fast access times.
- The time taken to read or write a character in memory is called access time.
- Examples for Flash memories are pen drives, memory cards etc.

EEPROM:
- Electrically Erasable Programmable Read Only Memory can be erased by exposing it to an electrical charge.
- EEPROM is slower in performance.

Five Marks:

1   Explain the characteristics of microprocessor. – 52,53
- A Microprocessor's performance depends on the following characteristics:
  - Clock speed
  - Instruction set
  - Word size

Clock Speed
- Every microprocessor has an internal clock that regulates the speed at which it executes instructions.
- The speed at which the microprocessor executes instructions is called the clock speed.
- Clock speed is measured in MHz (Mega Hertz) or in GHz (Giga Hertz).

Instruction set
- A command which is given to a computer to perform an operation on data is called an **instruction**.
- Basic set of machine level instructions that a microprocessor is designed to execute is called as an **instruction set**.
- This instruction set carries out the following types of operations:
  - Data transfer
  - Arithmetic operations
  - Logical operations
  - Control flow
  - Input/output

Word Size
- The number of bits that can be processed by a processor in a single instruction is called its word size.
- Word size determines the amount of RAM that can be accessed by a microprocessor at one time and the total number of pins on the microprocessor.
- Total number of input and output pins in turn determines the architecture of the microprocessor.

2   Explain types of microprocessor.

Microprocessors can be classified based on the following criteria:
- The width of data that can be processed
- The instruction set.

Classification of Microprocessors based on the Data Width:
- ❖ Depending on the data width, microprocessors can process instructions. The microprocessors can be classified as follows:
  - ➢ 8-bit microprocessor
  - ➢ 16-bit microprocessor
  - ➢ 32-bit microprocessor
  - ➢ 64-bit microprocessor

Classification of Microprocessors based on Instruction Set:
- ❖ microprocessors had very small instruction sets because complex hardware was expensive as well as difficult to build.
- ❖ As technology had developed to overcome these issues, more and more complex instructions were added to increase the functionality of microprocessors.
- ❖ There are two types of microprocessors based on their instruction sets.

RISC
- ❖ RISC stands for Reduced Instruction Set Computers. They have a small set of highly optimized instructions. Complex instructions are also implemented using simple instructions, thus reducing the size of the instruction set.
- ❖ Examples of RISC processors are Pentium IV, Intel P6, AMD K6 and K7.

CISC.
- ❖ CISC stands for Complex Instruction Set Computers. They support hundreds of instructions. Computers supporting CISC can accomplish a wide variety of tasks, making them ideal for personal computers.
- ❖ Examples of CISC processors are Intel 386 & 486, Pentium, Pentium II and III, and Motorola 68000.

3   How the read and write operations are performed by a processor? Explain.

The Central Processing Unit(CPU) has a MDR - Memory Data Register and MAR - Memory Address Register.

MDR
- ❖ The Memory Data Register (MDR) keeps the data which is transferred between the Memory and the CPU.

Program Counter
- ❖ The Program Counter (PC) is a special register in the CPU which always keeps the address of the next instruction to be executed.
- ❖ The Arithmetic and Logic unit of CPU places the address of the memory to be fetched, into the Memory Address Register.

Bus
- ❖ A bus is a collection of wires used for communication between the internal components of a computer.
- ❖ Address bus
- ❖ Data bus
- ❖ Control bus

Decoder
A decoder, a digital circuit is used to point to the specific memory location where the word can be located.

Data bus
- ❖ A data bus is used to transfer data between the memory and the CPU.
- ❖ The data bus is bidirectional.

Address bus
- ❖ The address bus is used to point a memory location.
- ❖ The address register is connected with the address bus, which provides the address of the instruction.
- ❖ The address bus is unidirectional.

Control bus
- ❖ The control bus controls both read and write operations.

Read and Write operation.
- ❖ The read operation fetches data from memory and transfers to MDR.
- ❖ The write operation transfers data from the MDR to memory.
- ❖ If the size of the MDR is eight bits, which can be connected with a word in the memory which is also eight bits size.
- ❖ The data bus has eight parallel wires to transfer data either from MDR to word or word to MDR based on the control(Read or write).
- ❖ This control line is labeled as R/W , which becomes 1 means READ operation and 0 means WRITE operation.
- ❖ The content of MDR and the word before the READ operation.
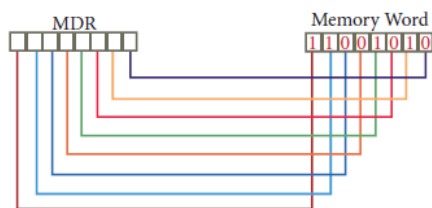
- ❖ The content of MDR and the word after the READ operation.
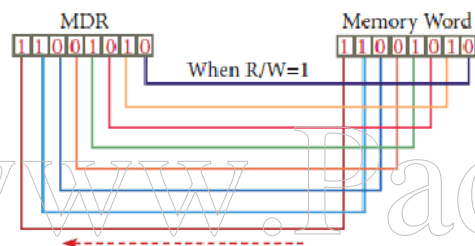
4   Explain RAM in details.

- ❖ The main memory is otherwise called as Random Access Memory.
- ❖ This is available in computers in the form of Integrated Circuits (ICs).
- ❖ It is the place in a computer where the Operating System, Application Programs and the data in current use are kept temporarily so that they can be accessed by the computer's processor.
- ❖ RAM is a volatile memory, which means that the information stored in it is
- ❖ not permanent.
- ❖ As soon as the power is turned off , whatever data that resides in RAM is lost.
- ❖ It allows both read and write operations.

Types of RAM
- ❖ There are two basic types of RAM
- ❖ Dynamic RAM (DRAM)
- ❖ Static RAM (SRAM)
- ❖ Dynamic RAM being a common type needs to be refreshed frequently.
- ❖ Static RAM needs to be refreshed less often, which makes it faster.
- ❖ Hence, Static RAM is more expensive than Dynamic RAM.

5   Explain types of ROM?
ROM:

- ❖ Read only memory refers to special memory in a computer with prerecorded data at manufacturing time which cannot be modified.
- ❖ The stored programs that start the computer and perform diagnostics are available in ROMs.
- ❖ ROM stores critical programs such as the program that boots the computer.
- ❖ Once the data has been written onto a ROM chip, it cannot be modified or removed and can only be read.
- ❖ ROM retains its contents even when the computer is turned off.
- ❖ ROM is called as a non-volatile memory.

PROM:
- ❖ Programmable read only memory is also a non-volatile memory on which data can be written only once.
- ❖ PROM is non-volatile
- ❖ PROM is manufactured as a blank memory, whereas a ROM is programmed during the
- ❖ manufacturing process itself.
- ❖ PROM programmer or a PROM burner is used to write data to a PROM chip.
- ❖ The process of programming a PROM is called burning the PROM.

EPROM:
- ❖ Erasable Programmable Read Only Memory is a special type of memory which serves as a PROM.
- ❖ The content can be erased using ultraviolet rays.
- ❖ An EPROM differs from a PROM, PROM can be written only once and cannot be erased.
- ❖ EPROMs are used widely in personal computers because they enable the manufacturer to change the contents of the PROM to replace with updated versions or erase the contents before the computer is delivered.

EEPROM:
- ❖ Electrically Erasable Programmable Read Only Memory can be erased by exposing it to an electrical charge.
- ❖ EEPROM is slower in performance.

6   **Explain Secondary storage devices.**
- ❖ To store data and programs permanently, secondary storage devices are used.
- ❖ Secondary storage devices serve as a supportive storage to main memory and they are non-volatile in nature, secondary storage is also called as Backup storage

Hard Disks
- ❖ Hard disk is a magnetic disk on which you can store data.
- ❖ The hard disk has the stacked arrangement of disks accessed by a pair of heads for each of the disks.
- ❖ The hard disks come with a single or double sided disk.

CD
- ❖ CD-ROM is Compact Disc Read Only Memory.
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Flash memory

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- ❖ Flash memory offers fast access times.
- ❖ The time taken to read or write a character in memory is called access time.
- ❖ Examples for Flash memories are pen drives, memory cards etc.

Blu-Ray Disc
- ❖ Blu-Ray Disc is a high-density optical disc similar to DVD. Blu-ray is the type of disc used for PlayStation games and for playing High-Definition (HD) movies.
- ❖ A double-layer Blu-Ray disc can store up to 50GB (gigabytes) of data.
- ❖ The format was developed to enable recording, rewriting and playback of high-definition video, as well as storing large amount of data.
- ❖ DVD uses a red laser to read and write data. But, Blu-ray uses a blue-violet laser to write. Hence, it is called as Blu-Ray.

7   Arrange the memory devices in ascending order based on the access time.
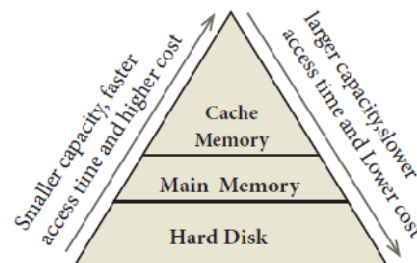
- ❖ Computer memory is the storage space in the computer, where data and instructions are stored.
- ❖ There are two types of accessing methods to access (read or write) the memory.
- ❖ They are sequential access and random access.
- ❖ In sequential access, the memory is accessed in an orderly manner from starting to end. But, in random access, any byte of memory can be accessed directly without navigating through previous bytes.
- ❖ Different memory devices are arranged according to the capacity, speed and cost as shown.

8   What are the various types of ports and interfaces? Explain. (or)
Write down the interfaces and ports available in a computer.Explain.
- ❖ Serial Port
- ❖ Parallel Port
- ❖ USB Ports
- ❖ USB 3.0
- ❖ VGA Connector
- ❖ Audio Plugs
- ❖ PS/2 Port
- ❖ SCSI Port
- ❖ High Definition Multimedia Interface (HDMI)

Serial Port: To connect the external devices, found in old computers.
Parallel Port: To connect the printers, found in old computers.
USB Ports: To connect external devices like cameras, scanners, mobile phones, external hard disks and printers to the computer.
USB 3.0 is the third major version of the Universal Serial Bus (USB) standard to connect computers with other electronic gadgets.
VGA Connector: To connect a monitor or any display device like LCD projector.
Audio Plugs: To connect sound speakers, microphone and headphones.
PS/2 Port: To connect mouse and keyboard to PC.

SCSI Port: To connect the hard disk drives and network connectors.

CHAPTER 4
Theoretical concepts of Operating System

One Mark Questions:
1. A **software** is set of instructions that perform specific task.
2. **software** interacts basically with the hardware to generate the desired output.
3. Software is classified into **two types** are **Application Software and System Software.**
4. **Application software** is a set of programs to perform specific task.
5. Example for Application software are **MS Word and VLC Player.**
6. **System software** ihs a type ofcomputer program that is designed to run the computer's hardware and application programs.
7. Example for Sytem software are **Operating System and Language Processor.**
8. **Operating System** is a system software which serves as an interface between a user and a computer.
9. The functions of an Operating Systems are **file management, memory management, process management and device management.**
10. Some of the popular Operating Systems used in personal computers and laptops are **Windows, UNIX and Linux**.
11. The mobile devices mostly use **Android and ioS** as mobile **OS.**
12. **Operating System** manages all the Software and Hardware.
13. The need of Operating System is basically an interface between the **user and hardware.**
14. **Operating System** converts processed information into user readable form.
15. The **operating system** uses of Easy interaction between the users and computers.
16. The **operating system** uses of Controlling Input and Output Devices
17. The **operating s**ystem uses of Manage the utilization of main memory.
18. The **operating system** uses of Providing security to user programs.
19. Operating System are classified into **two types** are **Single User Operating Systems and Multi-user Operating Systems.**
20. An operating system allows only a single user to perform a task at a time. It
21. is called as a **Single user and single Task operating system**.
22. **MS-DOS** is an example for a single user and single task Example for a single user and single task Operating System.
23. **Multi-user Operating Systems** is used in computers and laptops that allow same data and applications to be accessed by multiple users at the same time.
24. **Multi-user Operating Systems** users can also communicate with each other.
25. **Windows, Linux and UNIX** are examples for multi-user Operating System.
26. Build a cheap computers are **raspbion OS and a Raspberry Pi**.
27. **GUI** - Graphical User Interface.
28. The **GUI** is a window based system with a pointing device to direct I/O, choose from menus, make selections and a keyboard to enter text.
29. **Memory Management** is the process of controlling and coordinating computer's main memory and assigning memory block (space) to various running programs to optimize overall computer performance.
30. **memory management** ensures the availability of adequate memory for each running program at all times.
31. **Process management** is function that includes creating and deleting processes and providing mechanisms for processes to communicate and synchronize with each other.

32. A **process** is the unit of work (program) in a computer.
33. A **word processing** program being run by an individual user on a computer is a **process.**
34. A system task, such as sending output to a printer or screen, can also be called as a **Process.**
35. **Process** is Operating System processes which is executed by system code.
36. **Process** is User Processes which is execute by user code.
37. **FIFO** – First In First Out
38. **FIFO** is based on queuing technique.
39. **SJF** – Shortest Job First
40. **SJF** works based on the size of the job being executed by the CPU.
41. The **Round Robin** (RR) scheduling algorithm is designed especially for time
42. sharing systems.
43. **Operating System** provides three levels of securities to the user end.
44. **File access level** -In order to access the files created by other people, you should have the access permission.
45. **System level** security is offered by the password in a multi-user environment.
46. **Network security** is an indefinable one.
47. **File management** is an important function of OS which handles the data storage techniques.
48. **FAT** - File Allocation Table.
49. **NTFS**-Next Generation File System.
50. **Multi processing** has two or more processors for a single running process job).
51. Processing takes place in parallel is known as **parallel processing**.
52. **Time Sharing** is a one of the features of Operating Systems.
53. **Time Sharing** allows execution of multiple tasks or processes concurrently.
54. For each task a fixed time is allocated and division of time is called **Time- sharing.**
55. The **Distributed Operating System** is used to access shared data and files that reside in any machine around the world.
56. **Distributed Operating System** is user can handle the data from different locations.
57. **Distributed Operating System** Reduces the load on the host computer.
58. Prominent Operating Systems are **UNIX,Microsoft Windows,Linux,iOS,Android**
59. Modern operating systems use a **Graphical User Interface(GUI)**
60. **UNIX** is a family of multitasking, multi-user operating systems.
61. **UNIX** is a derive originally from **AT&T Bell Lab.**
62. **UNIX** is a developed in the year **1970** by **Ken Thompson and Dennis Ritchie.**
63. **Linux** is a family of open-source operating systems.
64. The **Linux** operating system was originated in **1991**, as a project of "**Linus**
65. **Torvalds"** from a university student of **Finland.**
66. **Unix and the C programming language** were developed by **AT&T Lab.**
67. Mobile Operating Systems are **Apple iOS and Google Android.**
68. **Android** is a mobile operating system developed by Google.
69. Android operating systems are **Alpha, Beta, Cupcake, Donut, Éclair, Froyo, Gingerbread, Honeycomb, Ice Cream Sandwich, Jelly Bean, Kitkat, Lollipop, ,Marshmallow, Nougat.**
70. **iOS** - iPhone OS
71. **iOS** is a mobile Operating System created and developed by Apple Inc.

1) Operating system is a
   A)Application Software B) Hardware **C)System Software** D)Component
2) Identify the usage of Operating Systems
   A)Easy interaction between the human and computer
   B)Controlling input & output Devices

C)Managing use of main memory
D)All the above
3) Which of the following is not a function of an Operating System?
A)Process Management **B)Memory Management**
C)Security management D)Complier Environment
4) Which of the following OS is a Commercially licensed Operating system?
A)Windows B)UBUNTU C)FEDORA D)REDHAT
5) Which of the following Operating systems support Mobile Devices?
A)Windows 7 B)Linux C)BOSS **D)iOS**
6) File Management manages
A)Files B)Folders C)Directory systems **D)All the Above**
7) Interactive Operating System provides
A)Graphics User Interface (GUI) B)Data Distribution
C)Security Management D)Real Time Processing
8) Android is a
A)Mobile Operating system B)Open Source C)Developed by Google D)All the above
9) Which of the following refers to Android operating system's version?
A)JELLY BEAN B)UBUNTU C)OS/2 D)MITTIKA

Two Marks :
1   What is Software? And it types.
  ❖ A software is set of instructions that perform specific task.
  ❖ It interacts basically with the hardware to generate the desired output.
  ❖ Software is classified into two types are Application Software and System Software
2   Define Operating System.
  ❖ An Operating System (OS) is a system software which serves as an interface between a user and a computer.
  ❖ This controls input, output and other peripheral devices such as disk drives, printers and electronic gadgets.
3   What does functions of Operating System?
The functions of an Operating Systems are
  ❖ File management
  ❖ Memory management
  ❖ Process management
  ❖ Device management
4   List out some of popular Operating Systems.
  ❖ Some of the popular Operating Systems used in personal computers and laptops are Windows, UNIX and Linux.
  ❖ The mobile devices mostly use Android and ioS as mobile OS.
5   Write the types of Operating System.
  ❖ Single user Operating System
  ❖ Multi- user Operating System
6   What is single user Operating System?
  ❖ An operating system allows only a single user to perform a task at a time. It is called as a Single user and single Task operating system.
  ❖ For a user, a task is a function such as printing a document, writing a file to disk, editing a file or downloading a file etc.
  ❖ MS-DOS is an example for a single user and single task Operating System.
7   What is multi- user Operating System?
  ❖ It is used in computers and laptops that allow same data and applications to be accessed by multiple users at the same time.
  ❖ The users can also communicate with each other.
  ❖ Windows, Linux and UNIX are examples for multi-user Operating System.
8   What is a GUI?

❖ GUI is Graphical User Interface.
❖ The GUI is a window based system with a pointing device to direct I/O, choose from menus, make selections and a keyboard to enter text.

9   What is main use of GUI?
❖ User interface is one of the significant feature in Operating System.
❖ The only way that user can make interaction with a computer.

10   What is memory management?
Memory Management is the process of controlling and coordinating computer's main memory and assigning memory block (space) to various running programs to optimize overall computer performance.

11   What are the advantages of memory management in Operating System?
❖ Keeping track of which portion of memory are currently being used and who is using them.
❖ Determining which processes (or parts of processes) and data to move in and out of memory.
❖ Allocation and de-allocation of memory blocks as needed by the program in main memory.

12   What is Process management?
Process management is function that includes creating and deleting processes and providing mechanisms for processes to communicate and synchronize with each other.

13   What is Process?
A system task, such as sending output to a printer or screen, can also be called as a Process.

14   What is File access level?
❖ In order to access the files created by other people, you should have the access permission.
❖ Permissions can either be granted by the creator of the file or by the administrator of the system.

15   What is System level?
❖ System level security is offered by the password in a multi-user environment.
❖ Windows and Linux offer the password facility.

16   What is Network level?
❖ Network security is an indefinable one.
❖ People from all over the world try to provide such a security.

17   What are the security management features available in Operating System ?
File access level
System level
Network level

18   What is Time-sharing?
❖ This is a one of the features of Operating Systems.
❖ It allows execution of multiple tasks or processes concurrently.
❖ For each task a fixed time is allocated. This division of time is called Time- sharing.

19   List out different distributions of Linux operating system.
❖ Ubuntu
❖ Mint
❖ Fedora
❖ RedHat
❖ Debian
❖ Google's Android
❖ Chrome OS
❖ Chromium OS.

20   What is multi-processing?
❖ This is a one of the features of Operating System.
❖ It has two or more processors for a single running process.

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21   What are the different Operating Systems used in computer?
- ❖ Single User Operating System
- ❖ Multi-user Operating System
- ❖ Multi-Processing Operating System
- ❖ Distributed Operating System
- ❖ Prominent Operating System

Three Marks:

1   What is Application software? Give an example.
- ❖ Application software is a set of programs to perform specific task.
- ❖ Example: MS-word and VLC player

2   What is System software? Give an example.
- ❖ System software is a type of computer program that is designed to run the computer's hardware and application programs.
- ❖ Example: OS and Language Processor.

3   Why do we need an Operating System?
- ❖ Operating System enables the users to design applications without the knowledge of the computer's internal structure of hardware.
- ❖ Operating System manages all the Software and Hardware.
- ❖ It is the interface between the user and hardware.
- ❖ Operating System works as translator, it translates the user request into machine language.
- ❖ Operating System converts processed information into user readable form.

4   What are the main use of Operating System.
- ❖ To ensure that a computer can be used to extract what the user wants it do.
- ❖ Easy interaction between the users and computers.
- ❖ Starting computer operation automatically when power is turned on (Booting).
- ❖ Controlling Input and Output Devices
- ❖ Manage the utilization of main memory.
- ❖ Providing security to user programs.

5   Write the various key features Operating System.
- ❖ User Interface
- ❖ File Management
- ❖ Memory Management
- ❖ Process Management
- ❖ Fault tolerance
- ❖ Security Management

6   Write note on single user Operating System. Give an example.
- ❖ An operating system allows only a single user to perform a task at a time. It is called as a Single user and single Task operating system.
- ❖ For a user, a task is a function such as printing a document, writing a file to disk, editing a file or downloading a file etc.
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7   Write note on multi- ser Operating System. Give an example.
- ❖ It is used in computers and laptops that allow same data and applications to be accessed by multiple users at the same time.
- ❖ The users can also communicate with each other.
- ❖ Windows, Linux and UNIX are examples for multi-user Operating System.

8   What are the two categories of process?
- ❖ Operating System processes which is executed by system code.
- ❖ User Processes which is execute by user code

9   Write note on FIFO.
- ❖ This algorithm is based on queuing technique.

- ❖ The process that enters the queue first is executed first by the CPU, followed by the next and so on.
- ❖ The processes are executed in the order of the queue (row).

10 Write note on Shortest Job First.
- ❖ This algorithm works based on the size of the job being executed by the CPU. Consider two jobs A and B.
- ❖ A = 6 kilo bytes 2) B = 9 kilo bytes. First the job "A" will be assigned and then job "B" gets its turn.

11 Write note on Round Robin.
- ❖ The Round Robin (RR) scheduling algorithm is designed for time sharing systems.
- ❖ Jobs (processes) are assigned and processor time in a circular **method**.
- ❖ **Example** take three jobs A, B, C. First the job A is assigned to CPU then job B and job C and then again A, B and C

12 Write note on Based on Priority.
- ❖ The given job (process) is assigned based on a Priority.
- ❖ The job which has higher priority is processed first Take two jobs A and B.
- ❖ Let the priority of A be 5 and priority B be 7.
- ❖ Job B is assigned to the processor before job A.

13 Explain the process management algorithms in Operating System.
The following algorithms are mainly used to allocate the job (process) to the processor.
- ❖ FIFO
- ❖ SJF
- ❖ Round Robin
- ❖ Based on Priority

FIFO
- ❖ This algorithm is based on queuing technique.
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- ❖ The job which has higher priority is processed first Take two jobs A and B.
- ❖ Let the priority of A be 5 and priority B be 7.
- ❖ Job B is assigned to the processor before job A.

14 Write note on FAT.
- ❖ The operating System manages the files, folders and directory systems on a computer.
- ❖ Any type of data in a computer is stored in the form of files and directories/folders through File Allocation Table (FAT).
- ❖ The FAT stores general information about files like filename, type (text or binary), size, starting address and access mode.
- ❖ The file manager of the operating system helps to create, edit, copy, allocate memory to the files and also updates the FAT.

15 What are the advantages and disadvantages of Time-sharing features?
Advantages

❖ Provides the advantage of quick response.
❖ Avoids duplication of software.
❖ Reduces CPU idle time.

Disadvantages
❖ Problem of reliability.
❖ Question of security and integrity of user programs and data.
❖ Problem of data communication.

16   Explain and List out examples of mobile operating system.
❖ Android OS (Google Inc.)
❖ Bada (Samsung Electronics)
❖ BlackBerry OS (Research In Motion)
❖ iPhone OS / iOS (Apple)
❖ MeeGo OS (Nokia and Intel)
❖ Palm OS (Garnet OS)
❖ Symbian OS (Nokia)
❖ webOS (Palm/HP)
❖ Windows Mobile (Windows Phone)

17   What are the differences between Windows and Linux Operating system?

Windows and Linux Operating system

❖ Memory Management
❖ Processor Management
❖ Device Management
❖ File Management
❖ Security
❖ Control over system performance
❖ Job accounting
❖ Error detecting aids
❖ Coordination between other software and users

Linux Operating system
❖ Portable
❖ Open Source
❖ Multi-User
❖ Multiprogramming
❖ Hierarchical
❖ File System
❖ Shell
❖ Security

18   Write note on Unix.
UNIX is a family of multitasking, multi-user operating systems that derive originally from AT&T Bell Labs, where the development began in the 1970s by Ken Thompson and Dennis Ritchie.

19   Write note on Linux.
❖ The Linux operating system was originated in 1991, as a project of "Linus Torvalds" from a university student of Finland.
❖ Linux is a family of open-source operating systems.
❖ The main advantage of Linux operating system is that it is open source.
❖ There are many versions and their updates.
❖ Most of the servers run on Linux because it is easy to customize.
❖ There are a few different distributions of Linux, like Ubuntu, Mint, Fedora, RedHat, Debian, Google's Android, Chrome OS, and Chromium OS.

20   Write note on Android.
- ❖ Android is a mobile operating system developed by Google, based on Linux and designed primarily for touch screen mobile devices such as smart phones and tablets.
- ❖ Google has further developed Android TV for televisions, Android Auto for cars and Android Wear for wrist watches, each with a specialized user interface.
- ❖ Variants of Android are also used on game consoles, digital cameras, PCs and other electronic gadgets.

21   Write note on iOS - iPhone OS.
- ❖ iOS (formerly iPhone OS) is amobile Operating System created and developed by Apple Inc., exclusively for its hardware.
- ❖ It is the Operating System that presently powers many of the company's mobile devices, including the iPhone, iPad and iPod Touch.
- ❖ It is the second most popular mobile Operating System globally after Android.

Five Marks:

1   What is called Software? And it types. Explain.

Software
- ❖ A software is set of instructions that perform specific task.
- ❖ It interacts basically with the hardware to generate the desired output.

Types of Software
- ❖ Software is classified into two types are Application Software and System Software

Application software
- ❖ Application software is a set of programs to perform specific task.
- ❖ Example: MS-word and VLC player

System software
- ❖ System software is a type of computer program that is designed to run the computer's hardware and application programs.
- ❖ Example: OS and Language Processor.

2   Explain types of Operating System.

There are two types of Operating Systems:
- ❖ Single user Operating System
- ❖ Multi- user Operating System

Single user Operating System
- ❖ An operating system allows only a single user to perform a task at a time. It is called as a Single user and single Task operating system.
- ❖ For a user, a task is a function such as printing a document, writing a file to disk, editing a file or downloading a file etc.
- ❖ MS-DOS is an example for a single user and single task Operating System.

Multi- user Operating System
- ❖ It is used in computers and laptops that allow same data and applications to be accessed by multiple users at the same time.
- ❖ The users can also communicate with each other.
- ❖ Windows, Linux and UNIX are examples for multi-user Operating System.

3   Explain Memory management.
- ❖ Memory Management is the process of controlling and coordinating computer's main memory.
- ❖ Assigning memory block (space) to various running programs to optimize overall computer performance.
- ❖ The Memory management involves the allocation of specific memory blocks to individual programs based on user demands.
- ❖ Memory management ensures the availability of adequate memory for each running program at all times.

The Operating System is responsible for the following activities in connection with memory management:

❖ Keeping track of which portion of memory are currently being used and who is using them.

❖ Determining which processes (or parts of processes) and data to move in and out of memory.

❖ Allocation and de-allocation of memory blocks as needed by the program in main memory.

4   Explain the Process Management.

Process management

Process management is function that includes creating and deleting processes and providing mechanisms for processes to communicate and synchronize with each other.

Process

A system task, such as sending output to a printer or screen, can also be called as a Process.

Two categories of process

❖ Operating System processes which is executed by system code.

❖ User Processes which is execute by user code

The following algorithms are mainly used to allocate the job (process) to the processor.

❖ FIFO

❖ SJF

❖ Round Robin

❖ Based on Priority

FIFO

❖ This algorithm is based on queuing technique.

❖ The process that enters the queue first is executed first by the CPU, followed by the next and so on.

❖ The processes are executed in the order of the queue (row).

Shortest Job First

❖ This algorithm works based on the size of the job being executed by the CPU. Consider two jobs A and B.

❖ A = 6 kilo bytes 2) B = 9 kilo bytes. First the job "A" will be assigned and then job "B" gets its turn.

Round Robin

❖ The Round Robin (RR) scheduling algorithm is designed for time sharing systems.

❖ Jobs (processes) are assigned and processor time in a circular **method**.

❖ **Example** take three jobs A, B, C. First the job A is assigned to CPU then job B and job C and then again A, B and C

Based on Priority

❖ The given job (process) is assigned based on a Priority.

❖ The job which has higher priority is processed first Take two jobs A and B.

❖ Let the priority of A be 5 and priority B be 7.

❖ Job B is assigned to the processor before job A.

5   Explain Security Management.

The Operating System provides three levels of securities to the user end. They are

❖ File access level

❖ System level

❖ Network level

File access level

❖ In order to access the files created by other people, you should have the access permission.

❖ Permissions can either be granted by the creator of the file or by the administrator of the system.

System level

❖ System level security is offered by the password in a multi-user environment.

❖ Windows and Linux offer the password facility.

Network level

❖ Network security is an indefinable one.

❖ People from all over the world try to provide such a security.

6   Explain File Management.

❖ The operating System manages the files, folders and directory systems on a computer.

❖ Any type of data in a computer is stored in the form of files and directories/folders through File Allocation Table (FAT).

❖ The FAT stores general information about files like filename, type (text or binary), size, starting address and access mode.

❖ The file manager of the operating system helps to create, edit, copy, allocate memory to the files and also updates the FAT.

❖ The OS also takes care of the files that are opened with proper access rights to read or edit them.

❖ There are few other file management techniques available like Next Generation File System (NTFS) and ext2(Linux).

7   Explain the concept of a Distributed Operating System.

❖ This feature takes care of the data and application that are stored and processed on multiple physical locations across the world over the digital network (internet/intranet).

❖ The Distributed Operating System is used to access shared data and files that reside in any machine around the world.

❖ The user can handle the data from different locations.

❖ The users can access as if it is available on their own computer.

The advantages of distributed Operating System are as follows:

❖ A user at one location can make use of all the resources available at another location over the network.

❖ Many computer resources can be added easily in the network

❖ Improves the interaction with the customers and clients.

❖ Reduces the load on the host computer.

8   Explain the main purpose of an operating system.

Operating System

❖ An Operating System (OS) is a system software which serves as an interface between a user and a computer.

❖ This controls input, output and other peripheral devices such as disk drives, printers and electronic gadgets.

Functions of Operating System

The functions of an Operating Systems are

❖ File management

❖ Memory management

❖ Process management

❖ Device management

Some of popular Operating Systems.
- ❖ Some of the popular Operating Systems used in personal computers and laptops are Windows, UNIX and Linux.
- ❖ The mobile devices mostly use Android and ioS as mobile OS.

9   Explain advantages and disadvantages of open source operating systems.

Open-source operating systems have the advantage of having many number of people working upon, ease of distribution, many people debugging codes, and faster updates. And students and programmers can view and modify the source code. They are free to use compared to the commercial operating systems. Some companies prefer commercial operating systems which provide paid support, so that they have someone to hold accountable when they face problem. Backward compatibility is lacking making upgrades difficult.

Chapter - 5
Working with typical operating systems

One Mark Questions:

1   **Windows Series** are used for desktop and laptop computers.
2   **Android** are used for smart phones.
3   **iOS** are used for Apple phones, i-Pad and i-Pod.
4   **Linux** are used Open source Operating System for desktop and server.
5   **Microsoft Windows** is one of the most popular Graphical User Interface (GUI).
6   Multiple applications can execute simultaneously in Windows, and this is known as **Multitasking.**
7   **Windows operating system** are used Access applications (programs) on the computer (word processing, games, spread sheets, calculators and so on).
8   **Windows operating system** are used Load any new program on the computer.
9   **Windows operating system** are used Manage hardware such as printers, scanners, mouse, digital cameras etc.,
10   **Windows operating system** are used File management activities (For example creating, modifying, saving, deleting files and folders).
11   **Windows operating system** are used Change computer settings such as colour scheme, screen savers of your monitor, etc.
12   **Windows 1.x** – 1985
13   **Windows 1.x** -Introduction of GUI in 16 - bit. processor
14   **Windows 1.x** -Mouse was introduced as an input device.
15   **Windows 2.x -**1987
16   **Windows 1.x** -Supports to minimize or maximize windows.

17 **Windows 1.x** - Control panel feature was introduced with various system settings and customising options.

18 **Windows 3.x** - 1992

19 **Windows 3.x** -Introduced the concept of multitasking.

20 **Windows 3.x** -Supported 256 colours which brought a more modern, colorful look to the interface.

21 **Windows 95** - 1995

22 **Windows 95** -Introduced Start button, the taskbar,Windows Explorer and Start menu.

23 **Windows 95** - Introduced 32 - bit processor and focused more on multitasking.

24 **Windows98** -1998

25 **Windows98** -Integration of the Web browser (Internet Explorer) with the Operating System.

26 **Windows98** -DOS gaming began to disappear as Windows based games improved.

27 **Windows98** -Plug and play feature was introduced.

28 **Windows -NT** - Designed to act as servers in network.

29 **Windows Me** -2000

30 **Windows Me** -It introduced automated system diagnostics and recovery tools.

31 **Windows2000-** 2000

32 **Windows Me** -Served as an Operating System forbusiness desktop and laptop systems.

33 **Windows Me** - **Four versions of Windows** 2000 were released: **Professional** (for businessdesktop and laptop systems), **Server** (both a Web server and an office server), **Advanced Server** (for line-of-business applications) and **Data Centre Server** (for high-traffic computer networks).

34 **Windows XP** -2001

35 **Windows XP** -Introduced 64-bit Processor.

36 **Windows XP** -Improved Windows appearance with themes and offered a stable version.

37 **Windows Vista** -2006

38 **Windows Vista** -Updated the look and feel of Windows.

39 **Windows 7-** 2009

40 **Windows 7-** Booting time was improved, introduced new user interfaces like Aero Peek, pinning programs to taskbar, handwriting recognition etc. and Internet Explorer 8.

41 **Windows 8** -2012

42 **Windows 8** is faster than previous versions of Windows.

43 **Windows 8** -Start button was removed.

44 **Windows 8** takes better advantage of multi-core processing, solid state drives (SSD), touch screens and other alternate input methods.

45 **Windows 8** -Served as common platform for mobile and computer.

46 **Windows 10** - 2015

47 **Windows 10** - Start Button was added again.

48 **Windows 10** - Multiple desktop.

49 **Windows 10** - Central Notification Center for App notification and quick actions.

50 **Windows 10** - Cortana voice activated personal assistant.

51 **Point to an item** - Move the mouse pointer over the item.

52 **Click** - Point to the item on the screen, press and release the left mouse button.

53 **Right click** - Point to the item on the screen, press and release the right mouse button. Clicking the right mouse button displays a pop up menu with various   options.

54 **Double-click**- Point to the item on the screen, quickly press twice the left mouse button.

55 **Drag and drop** - Point to an item then hold the left mouse button as you move the pointer press and you have reached the desired position, release the mouse   button.

56 The opening screen of Windows is called "**Desktop**".

57 **Winkey + D or Aero Peek** are used in display the windows desktop.

58 **Icon** is a graphic symbol representing the window elements.

59	**Icons** play a vital role in GUI based applications.
60	The icons which are available on desktop by default while installing Windows OS are called **standard icons.**
61	The standard icons available in all Windows OS are **My Computer, Documents and Recycle Bin.**
62	**Shortcut icons** can be created for any application or file or folder.
63	**Shortcut icons** represents the shortcut to open a particular application.
64	The **disk drive icons** graphically represent five disk drive options.
65	**Window** is a typical rectangular area in an application or a document.
66	**Window** is an area on the screen that displays information for a specific program.
67	**Application Window** It is an area on a computer screen with defined boundaries, and within which information is displayed.
68	An **Application Window** contains an open application i.e. current application such as Word or Paint.
69	When two or more windows are open, **only one** of them is active and the rest are inactive.
70	A **document window** is a section of the screen used to display the contents of a document.
71	**Application Window** helps the user to communicate with the Application program.
72	The **smaller window**, which is inside the Application Window, is called the Document window.
73	The **smaller window** is used for typing, editing, drawing, and formatting the text and graphics.
74	The **title bar** will display the name of the application and the name of the document opened.
75	The **workspace** is the area in the document window to enter or type the text of your document.
76	Pressing **Alt or F10** brings the focus on the first menu of the menu bar.
77	The **scroll bars** are used to scroll the workspace horizontally or vertically.
78	The **corners and borders** of the window helps to drag and resize the windows.
79	At the bottom of the screen is a horizontal bar called the **taskbar.**
80	The **system tray** which consist of volume control, network, date and time etc.
81	**Quick Launch Toolbar** which contains task for frequently used applications.
82	**My computer** clicked the user can see the disk drivers mounted in the system.
83	In windows XP, Vista, this icon is called **"My computer"**
84	In Windows 8 and 10, it is called **"This PC".**
85	**File->New->Folder** command is clicked, to create new folder.
86	To create a folder in the desktop **right click → New → Fold**er.
87	**Wordpad** is an in-built word processor application in Windows OS.
88	**Wordpad** is to create and manipulate text documents.
89	To open a wordpad **Start -> All Programs -> Accessories -> Wordpad**
90	The **search box** on the **Start** menu to quickly search a particular folder or file in the computer or in a specific drive.
91	To rename files or folders Click **File-> Rename** Command.
92	Select **Rename** from the pop-up menu click the right mouse button to rename files or folders.
93	**F2** button is used to rename files or folders.
94	**Edit -> Cut** command is used to move the file or folder.
95	**Ctrl + X** keyboard shortcut is used to move the file or folder.
96	Select **Cut** from the pop-up menu click the right mouse button to move the file or folder
97	**Edit -> Paste** command is used to paste the moved file or folder.
98	**Ctrl + V** keyboard shortcut is used to paste the moved file or folder.

99	Select **Paste** from the pop-up menu click the right mouse button to paste the moved file or folder.
100	**Edit -> Copy** command is used to copy the file or folder.
101	**Ctrl + C** keyboard shortcut is used to copy the file or folder.
102	Select **Copy** from the pop-up menu click the right mouse button to copy the file or folder.
103	To select multiple files or folders, use **Ctrl + Click.**
104	**Copy and Paste** methods of transferring files to or from a removable disk .
105	**Send To** methods of transferring files to or from a removable disk .
106	When you delete a file or folder, it will move into the **Recycle Bin.**
107	**Delete** button is used to delete the file or folder.
108	Select **Delete** from the pop-up menu click the right mouse button to delete selected file or folder.
109	**Shift + Delete** key combination is used to delete the file or folder permanently.
110	**Recycle bin** is a special folder to keep the files or folders deleted by the user.
111	Right click on a file or folder to be restored and select **Restore** option from
112	the pop-up menu.
113	To restore multiple files or folders, select **Restore all** items.
114	To delete all files in the Recycle bin, select **Empty the Recycle Bin.**
115	Select **Send to** from the pop-up menu click the right mouse button to creating shortcuts on the desktop.
116	**Start → Shutdown** command is used to shut down the computer.
117	**Switch User -** Switch to another user account on the computer without closing your open programs and Windows processes.
118	**Log Off -** Switch to another user account on the computer after closing all your open programs and Windows processes.
119	**Lock -** Lock the computer while you're away from it.
120	**Restart -** Reboot the computer
121	**Sleep -** Puts the computer into a low-power mode that retains all running programs and
122	open Windows in computer memory for a super-quick restart.
123	**Hibernate -** Puts the computer into a low-power mode after saving all running programs and open windows on the machine's hard drive for a quick restart.
124	Open Source refers to a program or software in which the source code is available in the web to the general public free of cost.
125	**Linux** is one of the popular Open Source versions of the UNIX Operating System.
126	**Ubuntu Linux, Linux Mint, Arch Linux, Deepin, Fedora, Debian, CentOS** are most popular Linux server distributors.
127	**Ubuntu** is a Linux-based operating system.
128	**Ubuntu** is developed by a UK based company called **Canonical Ltd.**
129	Ubuntu was developed in 2004 by **Mark Shuttleworth.**
130	The desktop version of **Ubuntu** supports all normal software like Windows such
131	as Firefox, Chrome, VLC, etc.
132	**Ubuntu** supports the office suite called **LibreOffice.**
133	Ubuntu has in-built email software called **Thunderbird.**
134	**Ubuntu** is a free operating system and is backed by a huge open source community.
135	**Ubuntu** based on the concept of a Graphical User Interface (GUI).
136	**Ubuntu** Manages network connections, allowing you to connect to a wired or wireless network.
137	The vertical bar of icons on the left side of the desktop is called the **Launcher.**
138	**LibreOffice Writer** to create document preparation.
139	**LibreOffice Writer** to create calculation sheet preparation.
140	**LibreOffice Impress** to prepare any presentations.

1. From the options given below, choose the operations managed by the operating system.
    a. Memory   b. Processor   c. I/O devices   **d. all of the above**
2. Which is the default folder for many Windows Applications to save your file?
    a. My Document   b. My Pictures   c. Documents and Settings   d. My Computer
3. Under which of the following OS, the option Shift + Delete – permanently deletes a   file or folder?
    a. Windows 7   b.Windows 8   c.Windows10   **d. None of the OS**
4. What is the meaning of "Hibernate" in Windows XP/Windows 7?
    a. Restart the Computer in safe mode
    b. Restart the Computer in hibernate mode
    c. Shutdown the Computer terminating all the running applications
    d. Shutdown the Computer without closing the running applications
5. Which of the following OS is not based on Linux?
    a. Ubuntu b. Redhat c.CentOs **d.BSD**
6. Which of the following in Ubuntu OS is used to view the options for the devices installed?
    a. Settings b. Files c. Dash d. VBox_GAs_5.2.2
7. Identify the default email client in Ubuntu.
    a. Thunderbird b. Firefox c.Internet Explorer d. Chrome
8. Which is the default application for spreadsheets in Ubuntu? This is available in the software launcher.
    a. LibreOffice Writer b**. LibreOffice Calc** c. LibreOffice Impress d. LibreOffice Spreadsheet
9. Which is the default browser for Ubuntu?
    a. Firefox b. Internet Explorer c. Chrome d. Thunderbird
10. Where will you select the option to log out, suspend, restart, or shut down from the desktop of Ubuntu OS?
    a. Session Indicator b. Launcher c. Files d. Search.

TWO MARKS:

1   What is Operating System?
*   ❖ An Operating System (OS) is a system software that enables the hardware to communicate and operate with other software.
*   ❖ It also acts as an interface between the user and the hardware and controls the overall execution of the computer.

2   What is Multitasking.
*   ❖ Every computer needs an Operating System to function.
*   ❖ Microsoft Windows is one of the most popular Graphical User Interface (GUI).
*   ❖ Multiple applications can execute simultaneously in Windows, and this is known as "Multitasking".

3   What are the specific features of windows 1.x?
*   ❖ • Introduction of GUI in 16 - bit. Processor.
*   ❖ • Mouse was introduced as an input device.

4   What are the specific features of windows 2.x?
*   ❖ Supports to minimize or maximize windows.
*   ❖ Control panel feature was introduced with various system settings and customizing options.

5   What are the specific features of windows 3.x?
*   ❖ Introduced the concept of multitasking.
*   ❖ Supported 256 colours which brought a more modern, colorful look to the interface.

6   List out Four versions of Windows 2000.
*   ❖ Professional (for business desktop and laptop systems)
*   ❖ Server (both a Web server and an office server)
*   ❖ Advanced Server (for line-of-business applications)

❖ Data Centre Server (for high-traffic computer networks).

7   What is the uses of Aero Peek?

Booting time was improved, introduced new user interfaces like Aero Peek, pinning programs to taskbar, handwriting recognition etc. and Internet Explorer 8.

8   Write the action and reaction of mouse right click.

❖ Point to the item on the screen, press and release the right mouse button.

❖ Clicking the right mouse button displays a pop up menu with various options.

9   Write the action and reaction of mouse drag and drop.

Point to an item then hold the left mouse button as you move the pointer press and you have reached the desired position, release the mouse button.

10   What is desktop?

❖ The opening screen of Windows is called "Desktop". desktop shows the Start button, Taskbar, Notification Area and date and time.

11   What is icons?

❖ Icon is a graphic symbol representing the window elements like files, folders, shortcuts etc.,

❖ Icons play a vital role in GUI based applications.

12   What is called standard icons?

The icons which are available on desktop by default while installing Windows OS are called standard icons.

13   What are the standard icons available in windows OS?

The standard icons available in all Windows OS are My Computer, Documents and Recycle Bin.

14   What is use Winkey + D?

You can move to the Desktop any time by pressing the Winkey + D or using Aero Peek while working in any application.

15   Define shortcut icons.

❖ Shortcut icons can be created for any application or file or folder.

❖ By double clicking the icon, the related application or file or folder will open.

❖ This represents the shortcut to open a particular application.

16   What are the graphical representation Disk drive icons?

❖ The disk drive icons graphically represent five disk drive options.

❖ Hard disk

❖ CD-ROM/DVD Drive

❖ Pen drive

❖ Other removable storage such as mobile, smart phone, tablet etc.,

❖ Network drives if your system is connected with other system.

17   Define window.

Window is a typical rectangular area in an application or a document. It is an area on the screen that displays information for a specific program.

18   What is Application window?

❖ It is an area on a computer screen with defined boundaries, and within which information is displayed.

❖ Such windows can be resized, maximized, minimized, placed side by side, overlap, and so on.

19   What is Document window?

A document window is a section of the screen used to display the contents of a document.

19   What is use of Start menu?

❖ In the lower left-hand corner of the windows screen is the Start button.

❖ When

❖ you click on the button, the Start menu

❖ will appear. Using the start menu, you can

❖ start any application.

20   What is Taskbar?

❖ At the bottom of the screen is a horizontal bar called the taskbar.

21 **Write the following parts displayed in the Taskbar.**

❖ The Taskbar contains (from left to right) the Start button, shortcuts to various programs, minimized programs

❖ and in the extreme right corner you can see the system tray which consist of volume control, network, date and time etc.

22 **What is called My computer and This pc?**

In windows XP, Vista, this icon is called "My computer" in Windows 8 and 10, it is called "This PC".

23 **How will you rename files or folder using Left Mouse button?**

❖ Select the file or folder you wish to rename.

❖ Press F2 or click over the file or folder.

❖ A surrounding rectangle will appear around the name.

❖ Type in the new name.

❖ To finalise the renaming operation, press Enter.

24 **How will you delete Files and Folders?**

❖ Right- click the file or folder, select **Delete** option from the pop-up menu or

❖ Click **File → Delete** or press **Delete** key from the keyboard.

❖ The file will be deleted and moved to the Recycle bin.

25 **What is Recycle bin?**

❖ Recycle bin is a special folder to keep the files or folders deleted by the user, which means you still have an opportunity to recover them.

❖ The user cannot access the files or folders available in the Recycle bin without restoring it.

❖ To restore file or folder from the Recycle Bin.

26 **How to use Shift + Delete on the keyboard?**

To permanently delete a file or folder hold down the SHIFT key, and press **delete** on the keyboard.

27 **How to restore file in Recycle bin?**

❖ Open Recycle bin.

❖ Right click on a file or folder to be restored and select Restore option from the pop-up menu.

❖ To restore multiple files or folders, select Restore all items.

28 **What is functions of Shut down the computer?**

❖ Once you have closed all open applications, you can do your computer or shut down the computer. Click Start → Shutdown .

29 **What is functions of Log off the computer?**

Switch to another user account on the computer after closing all your open programs and Windows processes. Click start → log off.

30 **What is functions of Switch user?**

Switch to another user account on the computer without closing your open programs and Windows processes.

31 **What is functions of Lock ?**

Lock the computer while you're away from it.

32 **What is functions of Restart?**

Reboot the computer. (This option is often required as part of installing new software or Windows update.)

33 **What is functions of Sleep?**

Puts the computer into a low-power mode that retains all running programs and open Windows in computer memory for a super-quick restart.

34 **What is functions of Hibernate?**

Puts the computer into a low-power mode after saving all running programs and open windows on the machine's hard drive for a quick restart.

THREE MARKS:

1   Write the functions of an Operating System.
- ❖ Memory Management
- ❖ Process Management
- ❖ Device Management
- ❖ File Management
- ❖ Security Management
- ❖ Control overall system performance
- ❖ Error detecting aids
- ❖ Coordination between other software and users

2   Write the most popular Operating System.
- ❖ Windows Series - for desktop and laptop computers.
- ❖ Android - for smart phones.
- ❖ iOS - for Apple phones, i-Pad and i-Pod.
- ❖ Linux - Open source Operating System for desktop and server.

3   List out Some of the functions of Windows Operating System.
- ❖ Access applications (programs) on the computer (word processing, games, spread sheets, calculators and so on).
- ❖ Load any new program on the computer.
- ❖ Manage hardware such as printers, scanners, mouse, digital cameras etc.,
- ❖ File management activities (For example creating, modifying, saving, deleting files and folders).
- ❖ Change computer settings such as colour scheme, screen savers of your monitor, etc.

4   What is difference between Windows 95 and windows 98.
Windows 95
- ❖ Developed year 1995.
- ❖ Introduced Start button, the taskbar, Windows Explorer and Start menu.
- ❖ Introduced 32 - bit processor and focused more on multitasking.

Windows 98
- ❖ Developed year 1998
- ❖ Integration of the Web browser (InternetExplorer) with the Operating System.
- ❖ DOS gaming began to disappear as Windows based games improved.
- ❖ Plug and play feature was introduced.

5   What is difference between Windows 7 and windows 8.
Windows 7
- ❖ Developed year 2009
- ❖ Booting time was improved, introduced new user interfaces like Aero Peek, pinning programs to taskbar, handwriting recognition etc. and Internet Explorer 8.

Windows 8
- ❖ Developed year 2012
- ❖ Windows 8 is faster than previous versions of Windows.
- ❖ Start button was removed.
- ❖ Windows 8 takes better advantage of multi-core processing, solid state drives (SSD), touch screens and other alternate input methods.
- ❖ Served as common platform for mobile and computer.

6   What are the specific features of windows 10.
- ❖ Developed year 2015
- ❖ Start Button was added again.
- ❖ Multiple desktop.
- ❖ Central Notification Center for App notification and quick actions.
- ❖ Cortana voice activated personal assistant.

7   Differentiate between Application window and Document window.
Application window

❖ It is an area on a computer screen with defined boundaries, and within which information is displayed.
❖ Such windows can be resized, maximized, minimized, placed side by side, overlap, and so on.
❖ The larger Window is called the Application Window. This Window helps the user to communicate with the Application program.

Document window
❖ A document window is a section of the screen used to display the contents of a document
❖ The smaller window, which is inside the Application Window, is called the Document window. This Window is used for typing, editing, drawing, and formatting the text and graphics.

8   List out elements of window.
❖ Title bar
❖ Menu bar
❖ Workspace
❖ Scroll bar
❖ Corner and Border

9   How will you Starting and Closing Applications?
❖ Click the Start button and then point to All Programs. The Program menu appears.
❖ Point to the group that contains the application you want to start, and then click the application name.
❖ You can also open an application by clicking Run on the Start menu, and the name of the application.
❖ To quit a application, click the Close button in the upper right corner of the application window.

10   How will you create a New Folder using File menu?
Step 1: Open Computer Icon.
Step 2: Open any drive where you want to create a new folder. (For example select D:)
Step 3: Click on File → New → Folder.
Step 4: A new folder is created with the default name "New folder".
Step 5: Type in the folder name and press Enter key.

11   How will you create a New Folder in desktop?
In order to create a folder in the desktop:
Step 1: In the Desktop, right click → New → Folder.
Step 2: A Folder appears with the default name "New folder" and it will be highlighted.
Step 3: Type the name you want and press Enter Key.

12   How will you create a New File in Wordpad?
❖ Click Start → All Programs → Accessories → Wordpad or Run → type Wordpad, click OK.
❖ Wordpad window will be opened as shown.
❖ Type the contents in the workspace and save the file using File → Save or Ctrl + S.
❖ Save As dialog box will be opened. In the dialog box, select the location where you want to save the file by using **look in** drop down list box.
❖ Type the name of the file in the **file name** text box.
❖ Click save button.

13   How will you rename files or folder using File menu?
❖ Using the FILE Menu
❖ Select the File or Folder you wish to Rename.
❖ Click File→ Rename.
❖ Type in the new name.
❖ To finalise the renaming operation, press Enter.

14   How will you rename files or folder using Right Mouse button?
Using the Right Mouse Button
❖ Select the file or folder you wish to rename.
❖ Click the right mouse button over the file or folder.

❖ Select Rename from the pop-up menu.
❖ Type in the new name.
❖ To finalise the renaming operation,press Enter.

15   Differentiate moving and copying files or folders.
Moving files or folders:
❖ To move a file or folder, first select the file or folder and then choose one of the following:
❖ Click on the **Edit → Cut** or **Ctrl + X** Or right **click → cut** from the pop-up menu.
❖ To move the file(s) or folder(s) in the new location, navigate to the new location and paste it.
❖ Click **Edit →Paste** from edit menu or **Ctrl + V** using keyboard.
❖ Or Right **click → Paste** from the popup menu. The file will be pasted in the new location.

Copying files or folders:
❖ To copy a file or folder, first select the file or folder and then choose one of the following:
❖ Click **Edit → Copy** or **Ctrl + C** or right **click→ Copy** from the pop-up menu.
❖ To move the file(s) or folder(s) in the new location, navigate to the new location and paste it.
❖ Click **Edit →Paste** from edit menu or **Ctrl + V** using keyboard.
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FIVE MARKS:
1   Explain the versions of the operating system.
Windows 1.x
❖ Developed year 1985
❖ • Introduction of GUI in 16 - bit. processor
❖ • Mouse was introduced as an input
❖ device.
Windows 2.x
❖ Developed year 1987
❖ • Supports to minimize or maximize
❖ windows.
❖ • Control panel feature was introduced
❖ with various system settings and
❖ customising options.
Windows 3.x
❖ Developed year 1992
❖ • Introduced the concept of multitasking.
❖ • Supported 256 colours which brought
❖ a more modern, colourful look to the
❖ interface.
Windows 95
❖ Developed year 1995.
❖ Introduced Start button, the taskbar,Windows Explorer and Start menu.
❖ Introduced 32 - bit processor andfocused more on multitasking.
Windows 98
❖ Developed year 1998
❖ Integration of the Web browser (InternetExplorer) with the Operating System.
❖ DOS gaming began to disappear as Windows based games improved.
❖ Plug and play feature was introduced.
Windows NT
Designed to act as servers in network.
Windows Me
❖ Developed year 2000
❖ It introduced automated system
❖ diagnostics and recovery tools.

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Windows 2000.
- ❖ Developed year 2000
- ❖ Professional (for business desktop and laptop systems)
- ❖ Server (both a Web server and an office server)
- ❖ Advanced Server (for line-of-business applications)
- ❖ Data Centre Server (for high-traffic computer networks).

Windows XP
- ❖ Developed year 2001
- ❖ Introduced 64-bit Processor.
- ❖ Improved Windows appearance with themes and offered a stable version.

Windows Vista
- ❖ Developed year 2006
- ❖ Updated the look and feel of Windows.

Windows 7
- ❖ Developed year 2009
- ❖ Booting time was improved, introduced new user interfaces like Aero Peek, pinning programs to taskbar, handwriting recognition etc. and Internet Explorer 8.

Windows 8
- ❖ Developed year 2012
- ❖ Windows 8 is faster than previous versions of Windows.
- ❖ Start button was removed.
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Windows 10.
- ❖ Developed year 2015
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2   **Explain mouse actions.**

Point to an item
- ❖ Move the mouse pointer over the item.

Click
- ❖ Point to the item on the screen, press and release theleft mouse button.

Right click
- ❖ Point to the item on the screen, press and release the right mouse button.
- ❖ Clicking the right mouse button displays a pop up menu with various options.

Double-click
- ❖ Point to the item on the screen, quickly press twice the left mouse button.

Drag and drop
- ❖ Point to an item then hold the left mouse button as you move the pointer press and you have reached the desired position, release the mouse button.

3   **Explain elements of windows (or)Explain the different types of icons in windows desktop.**

Title Bar
- ❖ The title bar will display the name of the application and the name of the document opened.
- ❖ It will also contain minimize, maximize and close button.

Menu Bar
- ❖ The menu bar is seen under the title bar.
- ❖ Menus in the menu bar can be accessed by pressing Alt key and the letter that appears underlined in the menu title.

The Workspace

❖ The workspace is the area in the document window to enter or type the text of your document.

❖ Shows the workspace area in the document window.

Scroll bars

❖ The scroll bars are used to scroll the workspace horizontally or vertically.

❖ Shows the Scroll bars.

Corners and borders

❖ The corners and borders of the window helps to drag and resize the windows.

❖ The mouse pointer changes to a double headed arrow when positioned over a border or a corner.

❖ Drag the border or corner in the direction indicated by the double headed arrow to the desired size.

4   Explain the different ways of creating a New Folder.

Create a New Folder using File menu

Step 1: Open Computer Icon.

Step 2: Open any drive where you want to create a new folder. (For example select D:)

Step 3: Click on File → New → Folder.

Step 4: A new folder is created with the default name "New folder".

Step 5: Type in the folder name and press Enter key.

Create a New Folder in desktop

In order to create a folder in the desktop:

Step 1: In the Desktop, right click → New → Folder.

Step 2: A Folder appears with the default name "New folder" and it will be highlighted.

Step 3: Type the name you want and press Enter Key.

5   Explain Finding Files and Folders.

To find a file or folder:

❖ Click the **Start** button, the **search** box appears at the bottom of the start menu.

❖ Type the name of the file or the folder you want to search.

❖ Even if you give the part of the file or folder name, it will display the list of files or folders starting with the specified name.

❖ The files or the folders with the specified names will appear, if you click that file, it will directly open that file or the folder There is another option called "**See more results**" which appears above the **search** box.

❖ If you click it, it will lead you to a **Search Results** dialog box where you can click and open that file or the folder.

Searching Files or folders using Computer icon

❖ Click **Computer Icon** from desktop or from **Start menu**.

❖ The Computer disk drive screen will appear and at the top right corner

❖ of that screen, there is a **search** box option.

❖ Type the name of the file or the folder you want to search. Even if you give the part of the file or folder name, it will display the list of files or folders starting with the specified name.

❖ Just click and open that file or the folder.

6   Explain Renaming Files and Folders.

Rename files or folder using File menu

❖ Using the FILE Menu

❖ Select the File or Folder you wish to Rename.

❖ Click File→ Rename.

❖ Type in the new name.

❖ To finalise the renaming operation, press Enter.

Rename files or folder using Right Mouse button

❖ Using the Right Mouse Button

❖ Select the file or folder you wish to rename.

❖ Click the right mouse button over the file or folder.

❖ Select Rename from the pop-up menu.
❖ Type in the new name.
❖ To finalise the renaming operation,press Enter.

Rename files or folder using Left Mouse button

❖ Select the file or folder you wish to rename.
❖ Press F2 or click over the file or folder.
❖ A surrounding rectangle will appear around the name.
❖ Type in the new name.
❖ To finalise the renaming operation, press Enter.

7 **Explain moving Files and Folders.**

 Moving files or folders:

❖ To move a file or folder, first select the file or folder and then choose one of the following:
❖ Click on the **Edit → Cut** or **Ctrl + X** Or right **click → cut** from the pop-up menu.
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8 **Explain copying Files and Folders.**

 Copying files or folders:

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