**📘 Chapter 1: Storage and Memory Devices**

**🔍 Chapter Overview**

**In this chapter, you will learn:**

* **What are data, instructions, and information**
* **The IPO cycle (Input → Process → Output)**
* **Different memory units and their conversions**
* **Types of memory – internal (RAM, ROM) and external (hard disk, CD, DVD, etc.)**
* **Examples of memory devices**
* **Important computer manners**

**🧠 Key Concepts**

**🧾 Data and Information**

* **Data: Raw facts. Example: Your name, age, roll number.**
* **Instructions: Commands that tell the computer what to do.**
* **Information: Output or result after processing data with instructions.**

**🔄 IPO Cycle**

**Example 1 – Mixer Blender:**

* **Input: Mango pulp, milk, sugar**
* **Instruction: Switch on blender**
* **Output: Mango shake**

**Example 2 – Drawing Triangle on Computer:**

* **Input: 3 numbers (sides)**
* **Instruction: Draw a triangle**
* **Output: Triangle drawing**

**🧠 Human vs Computer Memory**

* **Human brain remembers names, facts = Memory**
* **Computer stores data/instructions/information = Memory**

**💾 Data Storage Units**

**Computers store all data in binary form (0 and 1).**

| **Unit** | **Symbol** | **Conversion** |
| --- | --- | --- |
| **Bit** | **–** | **Binary digit (0 or 1)** |
| **Byte** | **B** | **1 Byte = 8 bits** |
| **Kilobyte** | **KB** | **1 KB = 1024 Bytes** |
| **Megabyte** | **MB** | **1 MB = 1024 KB** |
| **Gigabyte** | **GB** | **1 GB = 1024 MB** |
| **Terabyte** | **TB** | **1 TB = 1024 GB** |
| **Petabyte** | **PB** | **1 PB = 1024 TB** |
| **Exabyte** | **EB** | **1 EB = 1024 PB** |
| **Zettabyte** | **ZB** | **1 ZB = 1024 EB** |
| **Yottabyte** | **YB** | **1 YB = 1024 ZB** |

**💡 Fact: 1 Nibble = 4 bits (used in old devices like pocket calculators)**

**🧠 Types of Memory**

**📌 Internal Memory (Primary)**

* **Directly accessed by the CPU**
* **Stores temporary working data**
* **Two types:**
  + **RAM (Random Access Memory) – Volatile**
  + **ROM (Read-Only Memory) – Non-volatile**

**💡 RAM**

* **Read/Write memory**
* **Loses data when power is off (volatile)**
* **Example: Whiteboard with erasable marker**

**💡 ROM**

* **Read-only memory**
* **Data is not lost when power is off (non-volatile)**
* **Example: Permanent marker on notebook**

| **Type** | **Special Feature** |
| --- | --- |
| **PROM** | **Programmed once; cannot be erased** |
| **EPROM** | **Erased using UV light** |
| **EEPROM** | **Erased using electrical signals** |

**💿 External Memory (Secondary)**

* **Not directly used by CPU**
* **Stores large data for future use**
* **Non-volatile and cheaper than RAM**

| **Device** | **Details** |
| --- | --- |
| **Hard Disk** | **Magnetic device, stores 500 GB – 20 TB** |
| **CD** | **Optical disc, stores 700 MB, needs CD-ROM drive** |
| **DVD** | **Similar to CD but stores 4.7 GB, used in DVD players** |
| **Blu-ray** | **Optical disc storing 25–128 GB, uses blue-violet laser** |
| **Flash Drive** | **USB device, 4 GB – 1 TB, portable** |
| **Memory Card** | **Used in mobiles/cameras, fits into card slot** |

**🧠 Tech Terms**

| **Term** | **Meaning** |
| --- | --- |
| **Bit** | **Smallest binary digit (0 or 1)** |
| **Byte** | **8 bits** |
| **RAM** | **Random Access Memory (Volatile)** |
| **ROM** | **Read Only Memory (Non-volatile)** |
| **PROM** | **Programmable Read Only Memory** |
| **EPROM** | **Erasable Programmable ROM (via UV light)** |
| **EEPROM** | **Electrically Erasable Programmable ROM** |
| **Hard Disk** | **Magnetic storage disk** |
| **CD-ROM** | **Compact Disc – Read Only Memory** |
| **DVD** | **Digital Versatile Disc (Optical)** |
| **Blu-ray** | **High-capacity optical disc** |
| **Flash Drive** | **Portable USB-based memory** |

**📝 To Sum Up**

* **A computer works with only two digits – 0 and 1. These are called binary digits or bits.**
* **The memory of a computer is measured in bytes.**
* **Higher memory units include Kilobyte (KB), Megabyte (MB), Gigabyte (GB), Terabyte (TB), Petabyte (PB).**
* **There are two types of memory: Primary memory and Secondary memory.**
* **RAM is called read/write memory.**
* **Volatile memory loses content when power is off (example: RAM).**
* **Non-volatile memory retains content without power (example: ROM).**
* **Types of ROM include PROM, EPROM, EEPROM.**
* **Hard disks, CDs, DVDs, Blu-ray discs, flash drives are external/secondary memory.**
* **Memory cards are used in portable devices (mobiles, tablets).**
* **Primary memory is faster than secondary memory.**
* **Hard disks are magnetic, while CDs, DVDs, Blu-ray are optical.**

**📚 Exercise Questions and Answers**

**A. Fill in the blanks:**

**Fill in the blanks with the correct words:  
Internal, ROM, Information, Bytes, Bits**

1. **A computer language represented in bits is known as binary language.**
2. **Information is the output given by the computer.**
3. **1 KB = 1024 bytes**
4. **Primary memory is also called internal memory.**
5. **ROM is a non-volatile memory.**

**B. Write T (True) or F (False)**

1. **One byte is equal to 12 bits. – F**
2. **A hard disk is made up of a collection of discs known as platters. – T**
3. **You can only read instructions from RAM. – F**
4. **A CD can store up to 700 MB of data. – T**
5. **A DVD is square in shape. – F**

**C. Choose the correct option:**

1. **Memory enables the computer to store:  
   a. Data  
   b. Instructions  
   c. Information  
   d. All of these ✅**
2. **A computer works with which of the following digits?  
   a. 0  
   b. 1  
   c. Both a and b ✅  
   d. None of these**
3. **Which of the following is a volatile memory?  
   a. ROM  
   b. RAM ✅  
   c. Both a and b  
   d. None of these**
4. **A Blu-ray disc looks similar to a:  
   a. CD  
   b. DVD  
   c. Both a and b ✅  
   d. None of these**
5. **Which of these is usually the smallest in storage capacity?  
   a. CD ✅  
   b. DVD  
   c. Pen drive  
   d. Blu-ray disc**
6. **1024 KB is equal to:  
   a. 1 GB  
   b. 1 TB  
   c. 1 MB ✅  
   d. None of these**

**D. Descriptive Type Questions**

1. **What is the difference between data and information?**
   * **Data is raw, unprocessed facts.**
   * **Information is meaningful output generated after processing data.**
2. **What is a byte?**
   * **A byte is a group of 8 bits. It is the basic unit of computer memory.**
3. **1 TB is equal to how many GB?**
   * **1 TB = 1024 GB**
4. **Why is RAM called a volatile memory?**
   * **Because it loses all its data when the computer is turned off.**
5. **What are the different types of ROM?**
   * **PROM, EPROM, EEPROM**

**E. Application-Based Questions**

1. **Tanya’s mother made tea using water, milk, sugar, and tea leaves. What are data and information here?**
   * **Data: Water, milk, sugar, tea leaves**
   * **Information: Final tea**
2. **Wareesha needs to copy movies from home to school. Which device should she use? What should be its minimum storage?**
   * **Use a flash drive/pen drive**
   * **Minimum storage: 16 GB or more**

**📘 Chapter 2: Desktop Management**

**📙 Tech Terms:**

* **Desktop** – The first screen you see after the computer starts. It has icons and a taskbar.
* **Icons** – Small pictures on the desktop that represent files, folders, or programs.
* **Taskbar** – The bar at the bottom of the desktop showing Start menu, open programs, time, etc.
* **Start Menu** – A menu that appears when you click the Start button. It gives access to programs, files, and settings.
* **Recycle Bin** – A folder on the desktop where deleted files are temporarily stored.
* **Wallpaper** – The background image or color of the desktop.
* **Right-click** – Pressing the right mouse button to see a shortcut menu.
* **Shortcut** – A link to open a program or file quickly without navigating folders.
* **Double-click** – Quickly pressing the left mouse button twice to open a file or folder.

**📌 To Sum Up:**

* The **desktop** is the main screen of a computer after it is switched on.
* **Icons** are small symbols on the desktop used to open programs, folders, or files.
* The **taskbar** is present at the bottom of the desktop. It includes the **Start button**, open program buttons, and system tray.
* The **Start menu** allows access to all programs, files, and system settings.
* **Right-clicking** on the desktop shows a shortcut menu with options like Refresh, New, Properties, etc.
* The **Recycle Bin** stores deleted files temporarily until they are permanently removed.
* You can **customize the desktop** by changing the wallpaper, screen saver, and icon settings.

**📚 Exercises**

**🔘 A. Tick the correct option:**

1. Which of the following is present at the bottom of the desktop?
   * a) Start menu
   * b) Icons
   * ✅ **c) Taskbar**
   * d) Title bar
2. What does the Recycle Bin store?
   * a) New files
   * b) Opened files
   * ✅ **c) Deleted files**
   * d) Copied files
3. What does right-clicking on the desktop show?
   * a) Open window
   * ✅ **b) Shortcut menu**
   * c) Dialog box
   * d) Title bar
4. What is the background of the desktop called?
   * ✅ a) Wallpaper
   * b) Icon
   * c) Taskbar
   * d) Start button
5. Which of these shows all the installed programs?
   * a) Taskbar
   * b) Recycle Bin
   * ✅ **c) Start Menu**
   * d) Desktop

**✍️ B. Fill in the blanks:**

1. The first screen that appears when a computer is turned on is called the **desktop**.
2. The **taskbar** is present at the bottom of the screen.
3. The **Recycle Bin** stores deleted files temporarily.
4. The background image on the desktop is called the **wallpaper**.
5. To open a file or folder, we usually **double-click** it.

**🔤 C. Match the columns:**

| **Column A** | **Column B** |
| --- | --- |
| Recycle Bin | Stores deleted files |
| Icons | Small pictures on desktop |
| Right-click | Opens shortcut menu |
| Taskbar | Bottom bar on screen |
| Wallpaper | Desktop background |

**❓ D. Answer the following questions:**

1. **What is a desktop?**  
   👉 A **desktop** is the main screen that appears when the computer is turned on. It contains icons, taskbar, and the background image.
2. **What is the use of the Recycle Bin?**  
   👉 The **Recycle Bin stores files and folders that have been deleted**, so they can be recovered if needed before being permanently deleted.
3. **Write two uses of the taskbar.**  
   👉
   * It shows all **open programs and files**.
   * It contains the **Start menu** and **system tray** (time, volume, notifications).
4. **What do you mean by a shortcut menu?**  
   👉 A **shortcut menu** is a list of commands that appears when you **right-click** on the desktop or an item. It helps to perform tasks quickly.
5. **Write two ways to customize your desktop.**  
   👉
   * You can change the **wallpaper** (background image).
   * You can **arrange or rename icons** and change the **screen saver**.