

Here is a **comprehensive and well-structured set of notes** covering the **Learning Outcome: Identification of Computer Components**. These notes are ideal for teaching, self-study, or exam preparation.

1. Identification of Computer Components

◆ Definition of a Hardware Device

A **hardware device** is any **physical component** of a computer system that can be **touched or seen**. It includes all mechanical, electrical, and electronic parts that help the computer function.

◆ Terminologies Related to Hardware Devices

Term	Definition
Hardware	The physical components of a computer system.
Peripheral Device	External hardware connected to the computer (e.g., printer, scanner).
Port	A physical interface for connecting devices to a computer (e.g., USB, HDMI).
Driver	Software that allows the operating system to communicate with hardware.
Interface	The point of interaction between hardware and software or between two hardware components.

◆ Hardware Devices

Input Devices (Used to send data to the computer)

Device	Description
Mouse	A pointing device used to control the cursor.

Keyboard	An input device for typing characters and commands.
Scanner	Converts physical documents into digital format.
Digital Camera	Captures and transfers photos to the computer.
Microphones	Capture audio input for recording or communication.
Joysticks	Used for gaming or simulation control.

✓ Output Devices (Used to convey results from the computer)

Device	Description
Monitor	Displays visual output (also known as VDU - Visual Display Unit).
Printer	Produces hard copies of digital documents.
Speakers	Output audio signals from the computer.
Headsets	Combine headphones and microphones for communication.
Projector	Projects computer screen onto a wall/screen.

✓ Desktop/Laptop Computers

- **Desktop:** Stationary PC with separate components (monitor, CPU, keyboard).
 - **Laptop:** Portable PC with integrated screen, keyboard, and battery.
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✓ Storage Devices (Used to store data)

Type	Examples
Primary Storage	RAM, ROM
Secondary Storage	Hard Drives (HDD), Solid-State Drives (SSD), Flash drives, CDs/DVDs, Memory cards

✓ Memory

Memory refers to the devices that **store data temporarily or permanently**.

Type	Description
RAM (Random Access Memory)	Temporary memory; loses data when powered off.
ROM (Read Only Memory)	Permanent memory; stores firmware.
Cache	High-speed memory close to CPU for storing frequently used data.

◆ Functions of Hardware Devices

Function	Description
Input	Captures data from user/environment.
Output	Presents data to the user.
Processing	Manipulates and interprets data (done by CPU).
Storage	Saves data permanently or temporarily for use.

◆ Configure Hardware Devices

Configuring hardware means setting up devices to work correctly with the operating system or other software.

Steps may include:

- Connecting the device.
 - Installing drivers.
 - Adjusting settings (resolution, audio levels, etc.).
 - Testing the device.
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◆ Document Hardware Devices

Proper documentation includes:

- **Device name and type**
- **Model/serial number**
- **Date of installation**
- **Configuration details**
- **Location of use**
- **Assigned user/department**
- **Maintenance schedule**

Documentation helps with tracking, troubleshooting, and auditing.

Operating Systems and Software

◆ Definition of Operating System (OS)

An **Operating System** is a system software that **manages computer hardware and software resources** and provides **common services** for computer programs.

◆ Related Terminologies

Term	Description
Kernel	Core part of OS managing memory, processes, and hardware.
User Interface (UI)	Part of OS that users interact with (GUI or CLI).

Driver	Software enabling communication between OS and hardware.
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Multitasking	Running multiple tasks simultaneously.
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♦ Functions of Application and System Software

✓ System Software

- Controls and manages hardware and basic system operations.
- Provides a platform for other software.

Examples:

- Operating Systems
- Utilities
- Device drivers

Functions:

- File management
- Memory management
- Process scheduling
- Security enforcement

✓ Application Software

- Designed to perform specific user tasks.

Examples:

- Word processors

- Web browsers
- Media players

Functions:

- Document creation
- Data analysis
- Communication
- Image/video editing

◆ Differences Between Application and System Software

Feature	Application Software	System Software
Purpose	Solve user-specific tasks	Manage system resources
Dependency	Runs on top of system software	Essential for system functioning
Examples	MS Word, Excel	Windows, Linux
Installation	Optional	Pre-installed or necessary for running the PC

◆ Types of Application Software

Type	Description
Word Processing	Used for creating/editing text documents (e.g., MS Word).
Spreadsheet	Used for calculations, data analysis (e.g., MS Excel).
Database	Organizes and stores large amounts of data (e.g., MS Access).
Multimedia	For playing, editing audio/video (e.g., VLC, Adobe Premiere).

Graphics

For designing images/visuals (e.g., Adobe Photoshop, CorelDRAW).

♦ Examples of Operating System Software

OS	Description
MS DOS	Command-line OS by Microsoft.
Linux	Open-source, UNIX-like OS (e.g., Ubuntu, Fedora).
Windows	Graphical OS by Microsoft (e.g., Windows 10, 11).
Mac OS	Apple's OS for Macintosh systems.
Android	Open-source mobile OS based on Linux by Google.

Summary Table

Category	Examples
Input Devices	Mouse, Keyboard, Scanner, Camera
Output Devices	Monitor, Printer, Speakers
Storage	HDD, SSD, Flash drives
Memory	RAM, ROM, Cache
System Software	OS, Drivers
Application Software	MS Word, Excel, VLC, Photoshop
Operating Systems	Windows, Linux, macOS, Android

Assignment & Practice Questions

Assignments

1. List and explain any five input and five output devices.

2. Document the hardware devices used in your school/organization.
3. Configure any hardware device and explain the steps.
4. Compare and contrast system software and application software.
5. List five application software and explain their uses.

Multiple Choice Sample Questions

1. Which of the following is NOT an input device?

- ☐ A. Keyboard
- ☐ B. Microphone
- ☐ C. Printer
- ☐ D. Scanner

→ **Answer: C**

2. What does an operating system do?

- ☐ A. Manages only application software
- ☐ B. Manages both hardware and software
- ☐ C. Only stores data
- ☐ D. Prints documents

→ **Answer: B**

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