G.C.E. O/L Grade 10 ICT · Lesson 2

2.2 Computer System Functions: Input, Process, Output, Storage, Communication

Every computer – a laptop, a phone or an ATM – does five main jobs: it takes **input**, **processes** it, gives **output**, **stores** data and **communicates** with other devices. In this note you will learn these five functions and the devices (peripherals) that do each job.

1. The five functions of a computer

Input
Getting data and instructions into the computer.

Processing
Working on the data – calculating, comparing, sorting. Done by the CPU.

Output
Giving the results to the user as text, pictures, sound or movement.

Storage
Keeping data and programs to use now or later.

Communication
Sending and receiving data to and from other devices and networks.

💡 Think of a kottu shop: the customer's order is input, the cook chopping and mixing is processing, the plate of kottu is output, the fridge with ingredients is storage, and the phone for delivery orders is communication.

2. Input devices

An **input device** sends data into the computer. Common ones: **keyboard**, **mouse**, **touch screen**, **microphone**, **webcam / camera**, **scanner**, **barcode reader**, **QR code scanner**, **fingerprint reader**, **sensors** (temperature, motion, light).

3. Processing

The **CPU (Central Processing Unit)** is the brain of the computer. It follows program instructions to process data. A phone or laptop CPU is a small chip called a **microprocessor**. Many new chips also have an **NPU** (AI engine) to run AI tasks like face unlock.

4. Output devices

An **output device** shows or gives results. Common ones: **monitor / display** (LED, OLED), **printer** (inkjet, laser), **3D printer**, **speakers / headphones**, **projector**, and **actuators** like motors that

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move things.

5. Storage

Type	What it is	Example
Primary (main memory)	Fast memory used while working. RAM loses data when power is off; ROM keeps start-up instructions.	8 GB RAM in a laptop
Secondary storage	Keeps data permanently, even when power is off.	SSD, NVMe SSD, hard disk (HDD), pen drive, memory card
Cloud storage	Data kept on Internet servers; open from any device.	Google Drive, OneDrive, iCloud

6. Communication

Communication devices connect the computer to other devices: **network card (NIC)**, **Wi-Fi**, **Bluetooth**, **modem / router**, **4G/5G SIM** in phones. They let you send WhatsApp messages, join a Zoom class or print to a Wi-Fi printer.

Device	Input	Process	Output	Storage / Communication
ATM	Card, PIN keypad, touch screen	Check PIN and balance	Cash, screen, receipt	Bank server over network
Supermarket POS	Barcode scanner	Add prices, discount	Bill printer, display	Stock database
Smart speaker	Microphone (voice)	AI understands the request	Speaker (answer)	Wi-Fi to cloud

> **NEW 2026** IoT and AI devices use all five functions: a smart door camera senses motion (input), an AI chip recognises a face (process), sends an alert to your phone (communication), saves the video to the cloud (storage) and sounds a chime (output).

Some devices do **both input and output**: a **touch screen** (you touch = input, it shows = output), a **headset with microphone**, and a multifunction printer that also scans.

Key Words

Input – Data or instructions entered into a computer.

Processing – Working on data to produce information, done by the CPU.

Output – Results given by a computer (screen, print, sound).

Storage – Keeping data and programs for now or later.

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Communication – Sending and receiving data between devices.

CPU – Central Processing Unit – the 'brain' that processes data.

Peripheral – A device connected to the computer, e.g. keyboard, printer.

RAM – Main memory that loses its data when power is off.

SSD – Solid State Drive – fast storage with no moving parts.

Cloud storage – Saving files on Internet servers, e.g. Google Drive.

Sensor – An input device that measures things like heat, light or motion.

Actuator – An output device that makes movement, e.g. a motor or valve.

Sample Q&A

1. List the five functions of a computer.

> **Answer:** Input, processing, output, storage and communication.

2. Give three input devices.

> **Answer:** Keyboard, mouse, microphone (also scanner, webcam, sensor, barcode reader).

3. Which part of the computer processes data?

> **Answer:** The CPU (Central Processing Unit).

4. What is the difference between RAM and an SSD?

> **Answer:** RAM is fast working memory that loses data when power is off; an SSD keeps data permanently.

5. Why is a touch screen both input and output?

> **Answer:** You give input by touching it, and it shows output on the same screen.

6. Name two communication devices.

> **Answer:** Network interface card (NIC) and router (also modem, Wi-Fi adapter, Bluetooth).

MCQ

1. Which is an input device?

A. Printer
B. Speaker
C. Projector
D. Microphone

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2. Which device is used for output?

A. Monitor
B. Barcode reader
C. Scanner
D. Keyboard

3. Which part processes data in a computer?

A. Mouse
B. CPU
C. Monitor
D. Router

4. Which memory loses its data when power is switched off?

A. SSD
B. Pen drive
C. Hard disk
D. RAM

5. Saving a school project on Google Drive is an example of:

A. Input
B. Cloud storage
C. RAM
D. Processing

6. At a supermarket, the barcode scanner performs which function?

A. Input
B. Storage
C. Output
D. Processing

7. Which device can do BOTH input and output?

A. Touch screen
B. Speaker
C. Webcam
D. Mouse

8. A temperature sensor in a smart greenhouse is a(n):

A. Output device
B. Input device
C. Storage device
D. Processor

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9. A motor that opens a water valve on a smart farm is a(n):

A. Actuator (output)
B. Storage device
C. Sensor (input)
D. CPU

10. Which is a modern secondary storage device with no moving parts?

A. RAM
B. Hard disk (HDD)
C. SSD
D. Floppy disk

11. Joining a Zoom class through home Wi-Fi mainly uses which function?

A. Storage
B. Processing only
C. Communication
D. Printing

12. In an ATM, checking the PIN against the bank record is:

A. Input
B. Processing
C. Output
D. Storage

13. A smart speaker answers ‘What is the weather today?’. The spoken answer is:

A. Storage
B. Processing
C. Input
D. Output

14. Which is the correct order of the basic data flow?

A. Output → Input → Process
B. Input → Output → Process
C. Input → Process → Output
D. Process → Output → Input

Structured Questions

1. (i) List the five functions of a computer system. (5 marks)
(ii) Give one device for input and one for output. (2 marks) *(7 marks)*

> (i) Input, processing, output, storage, communication.
> (ii) Input – keyboard / mouse / microphone; output – monitor / printer / speaker.

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2. A supermarket uses a POS system. Name the device used for: (i) input (ii) output (iii) storage, and explain what is processed. (4 marks) *(4 marks)*

> (i) Barcode scanner. (ii) Bill printer / customer display. (iii) Hard disk / SSD / server database. Processing: finding the price, adding the total, applying discounts, updating stock.

3. Compare primary memory (RAM) and secondary storage (SSD) under two points. *(4 marks)*

> RAM – loses data when power is off; very fast; smaller (e.g. 8 GB). SSD – keeps data permanently; slower than RAM; larger (e.g. 512 GB).

4. Give two advantages and one disadvantage of cloud storage. *(3 marks)*

> Advantages: open from any device anywhere; easy sharing; automatic backup. Disadvantage: needs Internet; privacy / security risk; monthly cost for more space.

5. A smart greenhouse waters plants automatically. (i) Name the input device. (ii) Name the output device. (iii) Explain the processing. (3 marks) *(3 marks)*

> (i) Soil-moisture / temperature sensor. (ii) Motor / pump / valve (actuator). (iii) The microcontroller compares the moisture value with a set level; if it is too dry it switches the pump on.

6. Name two devices that work as both input and output and explain one. (3 marks) *(3 marks)*

> Touch screen, headset with microphone, multifunction printer (print + scan). Touch screen: finger touch gives input; the same screen displays output.

Summary

- Five functions: input, processing, output, storage, communication.
- Input devices: keyboard, mouse, touch screen, microphone, scanner, sensors.
- Processing is done by the CPU (microprocessor); new chips add an AI NPU.
- Output devices: LED/OLED monitor, printer, 3D printer, speaker, actuators.
- Primary memory: RAM (volatile), ROM. Secondary: SSD, NVMe, HDD, flash.
- Cloud storage keeps files on Internet servers (Google Drive, OneDrive).
- Communication: NIC, Wi-Fi, Bluetooth, router, 4G/5G.
- IoT and AI devices like smart cameras use all five functions.

MCQ answer key – 2.2

1. **D** – A microphone sends sound into the computer.
2. **A** – A monitor shows results.
3. **B** – The CPU is the brain that processes.
4. **D** – RAM is volatile.
5. **B** – Google Drive keeps files on Internet servers.

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6. **A** – It reads the product code into the computer.
7. **A** – Touch = input, display = output.
8. **B** – Sensors measure and send data in.
9. **A** – Actuators produce movement – output.
10. **C** – An SSD uses flash memory chips.
11. **C** – Data is sent and received over a network.
12. **B** – Comparing data is processing.
13. **D** – Sound from the speaker is output.
14. **C** – Data goes in, is processed, then results come out.

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