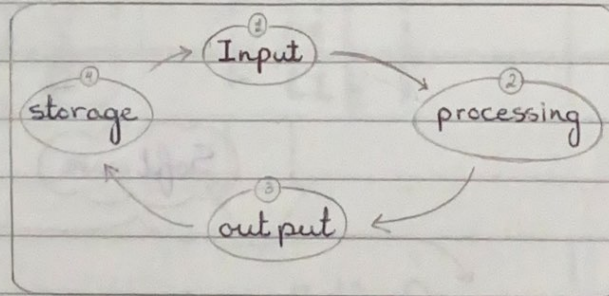* Define the word computer and name the 4 basic operations that a computer performs:

• Computer: - It's a machine that can be programmed to
① input      ② processing
accept data, process it into useful information,
③ storage
and store it away.
(It's a device that performs information processing cycle).
- It performs mathematical and logical operations
with high : ① performance.
② speed.
③ accuracy.

• The 4 basic operations:

```
          ④              ①
     ┌─────────┐    → ( Input )
     │ storage │              ↘
     └─────────┘           ② ( processing )
          ↖                      ↙
              ( output ) ←
                  ③
```

| Computer | Computer system |
|---|---|
| - It's a machine that can be programed to accept data, process it into useful information and store it away. (performs information processing cycle). - It performs mathematical and logical operation with high : ① performance. ② speed. ③ accuracy. | - It's a group of associated components that work together. ① Hardware    ② software |

**Note:**

> • <u>Anti-virus</u> is a system software but not an operating system.

**\* Describe the 2 main components of a computer system :**

| Hardware | Software | |
|---|---|---|
| – It's made up of the (physical parts) of a computer. | – It's made up of all (programs) that instruct the computer. | |
| – ex : ① system unit. <br> ② monitor. <br> ③ Key board <br> ④ Mouse <br> ⑤ printer ... etc. | – ex : <br> system software <br> • Anti-virus. <br> • MAC <br> • LINOCS <br> • UNDCS <br> • windows <br> • OS | application software <br> • Office <br> • excel <br> • power point <br> • word |

**Software**

| System software | Application software |
|---|---|
| – It includes the (programs) that that assists with the proper functionning of the computer. | – It includes the (programs) used to perform tasks. |
| – ex : • MAC    • Anti-virus <br>   • LINOCS    • windows <br>   • UNOCS    • OS | – ex : – excel    • word <br>   – office    • power point |

②

# Information processing cycle

## ① Input

- Enables the computer to accept data. ← raw unorganised — through **Input devices**
  - keyboard.
  - Mouse.
  - Microphone. — voice or speech recognition
  - Bar code reader.
  - Track ball.
  - Scanner. (OCR) optical character recognition
  - Optical mark reader (OMR)

## ② Processing

- Converts data → information
  - raw · unorganised
  - consolidated · organised · processed
- Place: Central processing unit
  C P U

**Note:**
- Random access memory (RAM) temporary stores
  ① programs/② data needed by CPU.

## ③ Output

- Computers sends out data to display results for people to see or hear ① ② through **Output devices**
  - Monitor. — most popular
  - Printer.
  - Plotter
  - Speaker ⋙
  - Projector
  - Head phones
  - LCD
  - Multi function devices
  - DLP

## ④ Storage

- It holds ① programs ② software ③ Data that the computer system uses.

**Storage devices**
- Hard drives.
- CD drive.
- DVD drive.
- Media card readers. that are used with — USB drives. / flash memory cards.

③

**\* Provide examples of hardware devices that handle input, processing, output and storage tasks:**

① Input: · Keyboard.    · Microphone.      · Track ball.
          · Mouse.        · Bar code reader.    · Scanner.

② Processing: · CPU  (central processing unit)    · GPU   (graphics processing unit).

③ Output: · Monitor.      · Speaker.        · Head phones
          · printer.      · plotter.        · projector.

④ Storage: · Hard drives.    · Media card readers.
          · CD drives.      · DVD drives.

**\* Give an example for information processing cycle in action:**

| | Input $\longrightarrow$ | processing $\longrightarrow$ | Output $\longrightarrow$ | Storage |
|---|---|---|---|---|
| Your role: | ① Enter word-processed document. | ① Start spell-checker program. | ② Accept or reject suggested mis-spelled words | ① Save correct document |
| Computer's role: | ② Recieve document | ② Spell-checker program compares words in documents to built in dictinary. | ① Display list of mis-spelled word | ② Store final document to disk or drive. |

## Communication

- <u>Communications</u> :- It's the high speed (movement) of data or information

- <u>Communication device</u>: - It's a hard ware component that (moves) data into and out of a computer.

- <u>A Network</u>:- It connects two or more computers to share input/output devices and other resources through the use of a <u>network interface card</u>.

# Computers for

| Individuals | Organizations |
|---|---|
| **Designed for:** one user at a time | **Designed for:** many people at the same time. |

**Individuals**

**Personal computers (PCs):** are generally either Mac (apple's Macintosh) system
IBM - compatible systems.

- **Desktop computers:** designed for home or office use, now include all-in one computers that combine the system unit and the monitor.

- **Notebook computers:** small enough for easy computer mobility.

- **Subnotebooks:** run full desktop operating systems but have fewer components than notebooks, weighless and are smaller.

- **Net books** : are small, inexpensive notebooks designed primarily for wireless web browsing and e-mail

- **Smart phones:** combine the capabilities of hand held computers, such as PDAs (personal data assistant) and mobile phones.

- **Tablet PCs:** can be used to input data with a keyboard or mouse, and the user can write on the monitor with a special pen or stylus

- **Professional workstations:** are intended for technical applications that need powerful processing and output ②

**Organizations**

- **Servers:** enable users connected to a computer network to have access to the network's programs, hardware and data

- **Clients:** include the user computers connected to the network.

- **A client /server network:** includes the use of clients with centralized servers.

- **Mini computers or midrange servers:** are designed to meet the needs of (X) smaller companies or buisnesses.

- **Main frames:** carry out large processing jobs to meet the needs of large companies or agencies of the government

- **Super computers:** are able to perform extremely high-speed processing and show underlying patterns.

⑥

## Web based applications

* Online applications such as Google Docs encourage collaboration.

* A wiki allows anyone to contribute or modify content of a collection of web pages.

* Social interaction forms include instant messaging, twitter and games

* Social networks include Facebook and My space

* What are the fundamental characteristics of computer?

  · Speed
  · Reliability.
  · Storage capacity.

* Errors cause programs to: 1) run slowly.  ⎫ impossible to
                            2) miscalculate. ⎬ be eliminated
                                             ⎭ completely

* Un ethical behaviors include:
  1) Sending viruses.
  2) Stealing credit card information.
  3) Computer stalking.
  4) Installing illegitimate copies of software on computers.

* __When using computer hardware:__

1) Don't plug too many devices into electrical outlet.

2) Use surge protectors. ⬜ o o o

3) Place hardware where it can't fall or be damaged.

4) Provide adequate space for air circulation around hardware.

5) Securely fasten computer cables, cords and wires.

* E-learing allow students to learn without requiring them to be at a specific location at a specific time.

* Automation is the replacement of people by machines and computers.