Introduction in Computer Sciences

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Basic Concepts of IT

Day 1	**Types of Computers + Main Parts of a PC + Hardware/Software**	أجازة **Sunday 27-9-2015** **Monday 28-9-2015**
Day 2	**Central Processing Unit (CPU) + Input Devices + Output Devices**	**Sunday 4 -10-2015** **Monday 5-10-2015**
Day 3	**Storage Devices + Types of Memory + Measuring Memory + Computer Performance**	
Day 4	**Operating System + Application Software + System Development**	

Day 5	**LAN and WAN +** **The Telephone Network +** **The Internet +** **Intranets and Extranets +** **Electronic Mail**	
Day 6	**Computers at Work +** **The Electronic World +**	
Day 7	**Health and Safety +** **Security Issues +** **Computer Viruses +** **Copyright +** **The Data Protection Act**	
Day 8	**Numbering System**	
Day 9	**Logic Gates**	

After Completing the Course Will Be Able To:

- Understand and distinguish between hardware & software

- Identify parts of a computer and its devices

- Identify and understand storage devices and memory

- Understand elements of computer performance

- Understand the purpose of an operating system

- Understand and identify software applications

- Understand the term systems development

- Understand the terms LAN & WAN

After Completing the Course Will Be Able To: (Continued)

- Understand the use of telephone networks, e-mail & Internet

- Be aware of the use of computers in everyday life

- Understand the implications of health & safety issues

- Understand the need for security and backups

- Understand the term computer virus

- Understand copyright laws and the Data Protection Act

Day 1	Types of Computers + Main Parts of a PC + Hardware/Software	28-9-2015 29-9-2015

Types of Computers

1- The Personal Computer (PC)

2- Laptop Computer

3- Personal Digital Assistant (PDA)

4- Network Computers

5- Mainframe Computers

1- The Personal Computer (PC)

* is a machine used to store and process data electronically.

* Personal Computer (PC): is used as a general term for any small computer (i.e., a desktop computer).

* A standard PC typically contains a <u>processor</u>, a <u>metal case</u>, a <u>monitor</u>, a <u>keyboard</u> and a <u>mouse</u>.

Capacity	Speed	Cost	Typical Users
(<u>Gigabytes</u>) of data.	Process data extremely quickly (<u>gigahertz</u>), display films and operate complex games.	Affordable	Students, families, small businesses.

2- Laptop

* is a much smaller version of a desktop PC approximately the size of an A4 pad.

* is portable and can be battery powered, allowing them to be used in any where.

Capacity	Speed	Cost	Typical Users
Similar to a PC	Similar to a PC	50-100% more expensive than a PC of comparable specification.	Business people who need to work and access information while out of the office

3- Personal Digital Assistant (PDA)

* Personal Digital Assistant (PDA) is a version of computer (Hand Size).

Capacity	Speed	Cost	Typical Users
A fraction of that of a PC (megabytes).	A fraction of that of a PC (megahertz).	10-25% of the price a PC.	Student, business person.

4- Network Computers

* are PCs can operate as stand alone computers (i.e., they can be connected together via cables as Networked Computers).

* share printers, programs and data stored between computers in the network.

* has a Server; provide users with access to this central data.
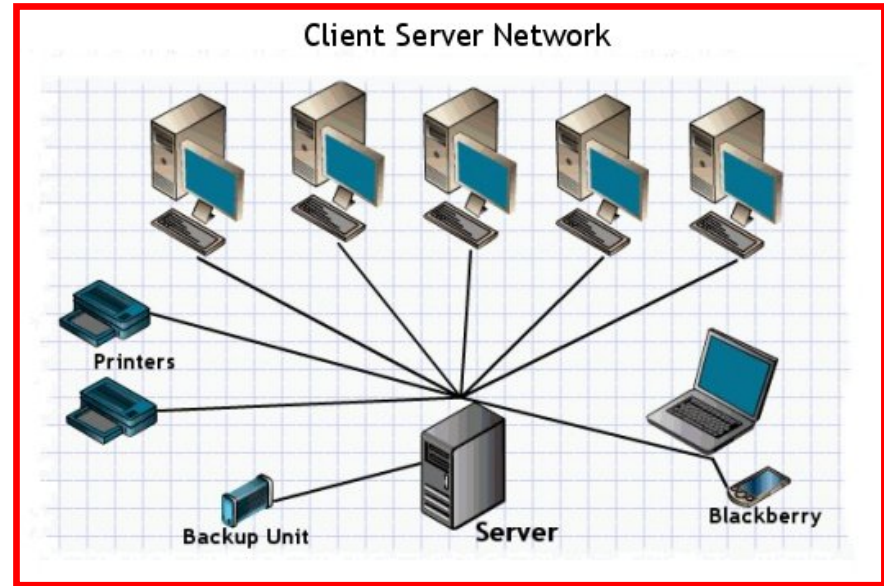
Capacity	Speed	Cost	Typical Users
Equivalent to multiple PCs (gigabytes/ terabytes).	Similar to PCs (gigahertz)	High cost. Dependent upon the size of the network.	Medium to large organisations. Schools, hotels, office suites, etc.

5- Mainframe Computers

* Large computer systems that store and process data centrally for entire organisations and are usually accessed via large numbers of data input terminals.

* The main units take up a lot of space (maybe a room or two), and can process huge quantities of data simultaneously.
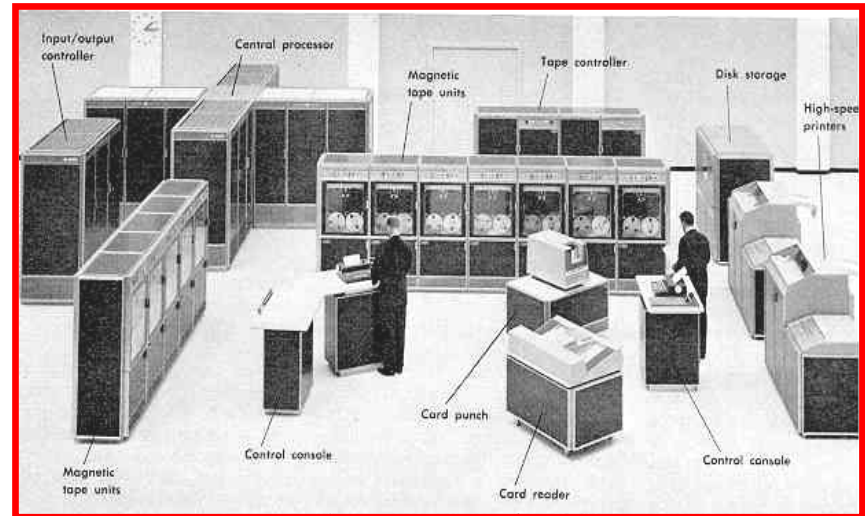
Capacity	Speed	Cost	Typical Users
Huge (terabytes)	Huge. Equivalent to multiple PCs, each with multiple processors	Huge	Large organisations. Banks, building societies, etc

Main Parts of a PC

① Monitor   ③ System unit   ⑤ Speaker   ⑦ Keyboard

② Modem   ④ Mouse   ⑥ Printer
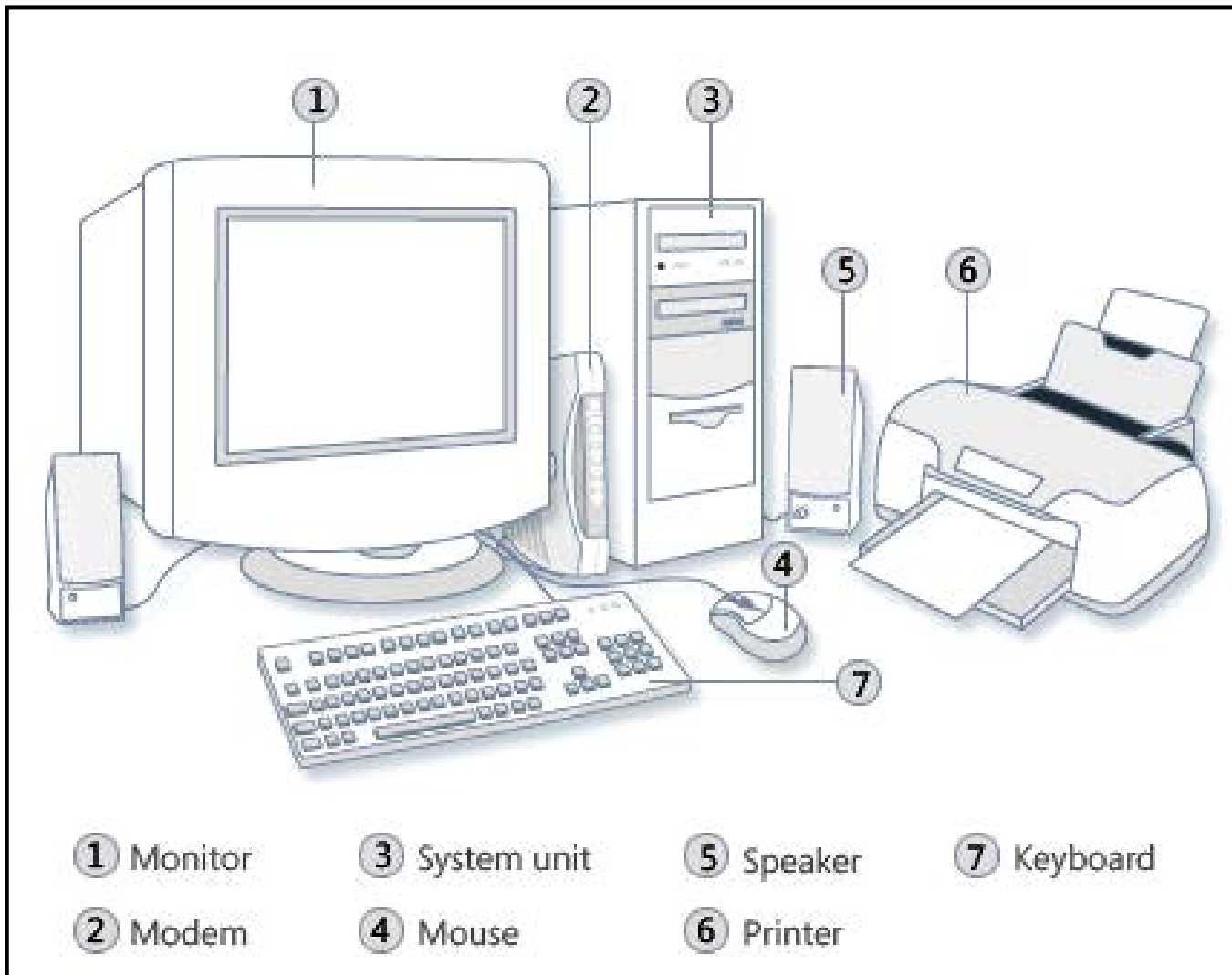
Monitor

Monitor or **Visual Display Unit** (**VDU**)

- is used to view information entered into the computer.

- A monitor's picture quality or resolution varies depending on the number of pixels (dots of light on the screen). The higher the resolution the better the picture.

① Monitor   ③ System unit   ⑤ Speaker   ⑦ Keyboard
② Modem   ④ Mouse   ⑥ Printer

- Size of screen also affects the apparent quality of the picture, but price increases steeply with larger screen sizes.
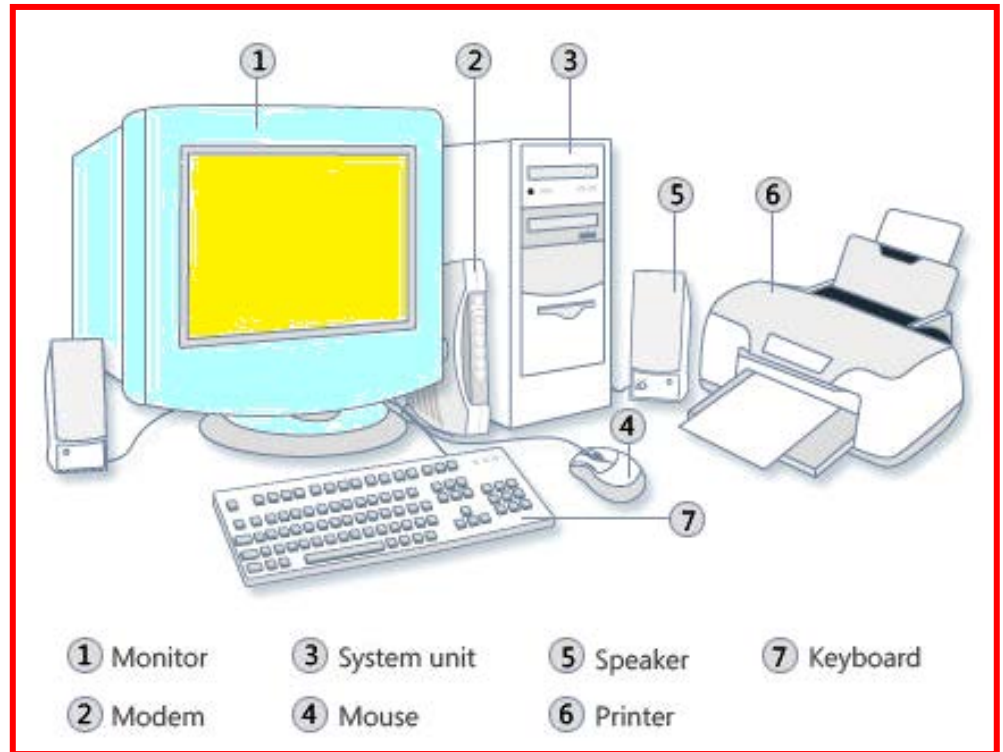
Mouse

- The Mouse controls a moveable cursor on the screen, allowing data input by selecting options.

① Monitor   ③ System unit   ⑤ Speaker   ⑦ Keyboard
② Modem   ④ Mouse   ⑥ Printer
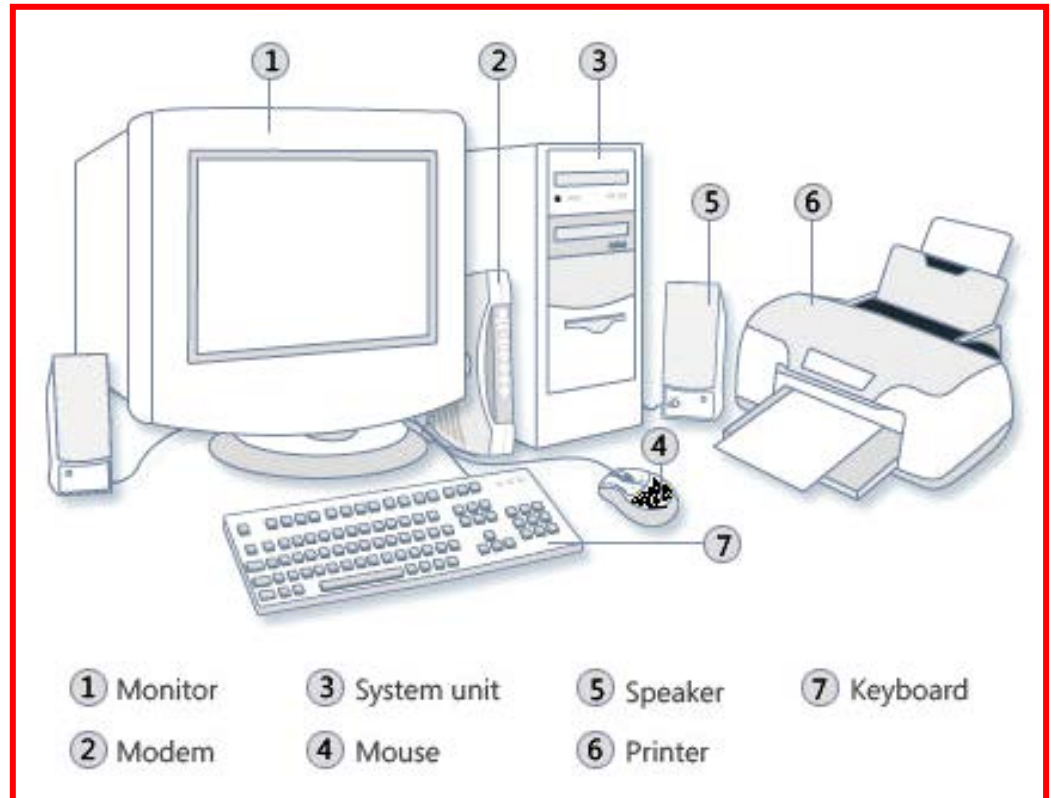
Keyboard

- The **Keyboard**, this is used to type (input) information.

Speaker

- Most computers have speakers attached, usually externally, to play music or listen to communications.


① Monitor   ③ System unit   ⑤ Speaker   ⑦ Keyboard
② Modem   ④ Mouse   ⑥ Printer
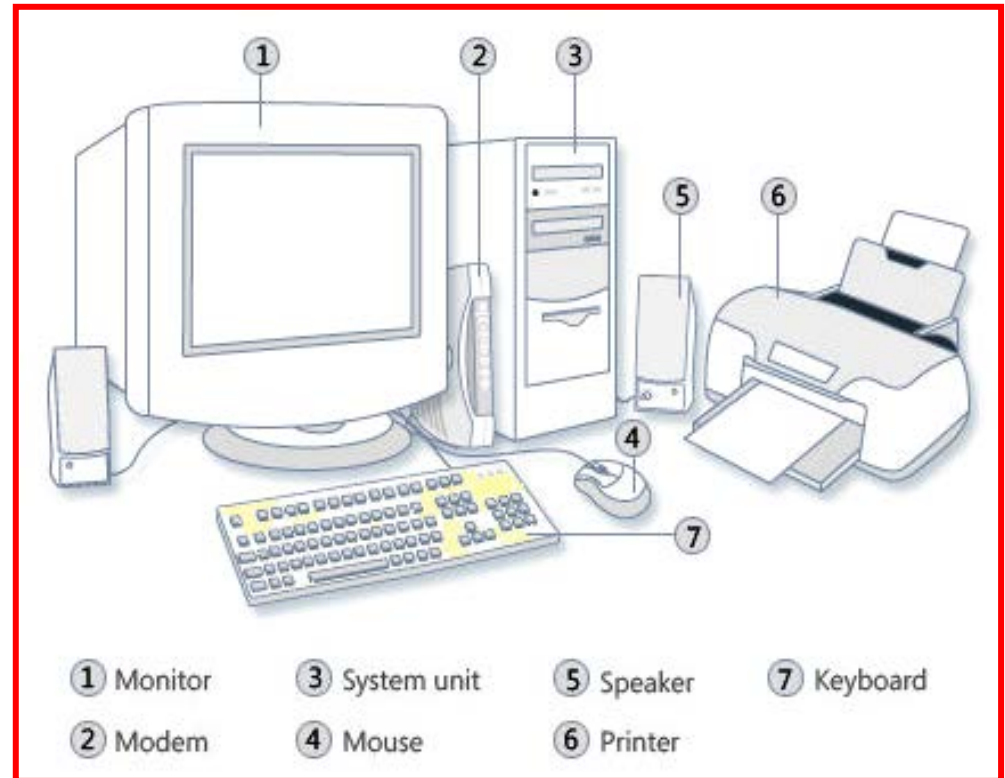
Modem

- A modem can be attached externally or internally. This allows the user to connect to the telephone system and use e-mail or the Internet.

Case or System Unit: contains

1- **C**entral **P**rocessing **U**nit (**CPU**).

2- **H**ard **D**isk **D**rive (**HDD**) is used to store programs and data.

3- The **F**loppy **D**isk **D**rive (**FDD**) allows the user to insert a floppy disk (3½" diskette) to transfer files to and from the computer.

① Monitor ③ System unit ⑤ Speaker ⑦ Keyboard
② Modem ④ Mouse ⑥ Printer
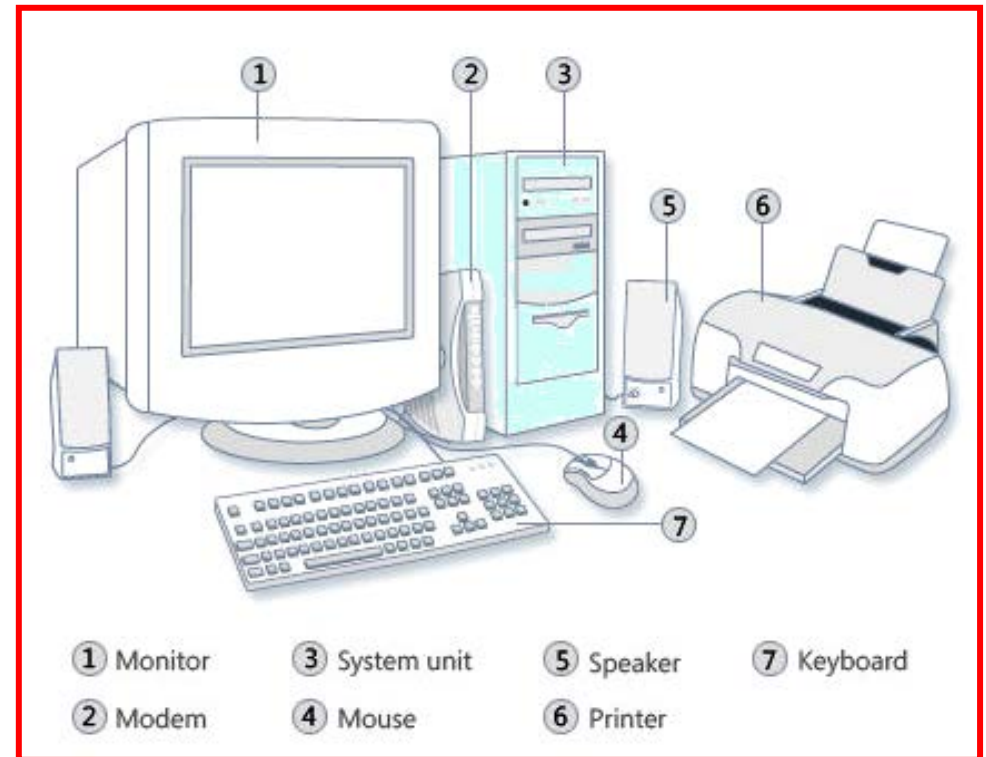
4- **CD-ROM** Drive reads information from a standard Compact Disk (CD) which can contain application software, data or music.

5- **Motherboard** is a printed circuit board. It holds and allows communication between all computer components.

6- **R**andom-**a**ccess **m**emory (**RAM**) is a form of computer data storage. It is a device allows data items to be accessed (read or written) in almost the same amount of time.

CPU	HDD	FDD	CD-ROM	Motherboard	RAM

Hardware/Software

- **<u>Hardware</u>** is any physical part of the computer such as the monitor, keyboard, mouse, CD-ROM drive, printer, etc.

- **<u>Software</u>** consists of the programs that allow you to use the computer such as the operating system, games, database management system, word processor or spreadsheet application.

You can touch ***hardware*** but **not** ***software***.

Information Technology (**IT**) is the term referring to storage, processing or transferring of information.

Information Communication Technology (**ICT**); the term can be applied not only to anything concerning computers, but also facsimile (fax) transmission, telephone and multi-media presentations.