UNIT 9

Parts of Computer

Learning Objectives

BQU5HF

After completing this chapter, the students will be able to:

- Know the Input unit, CPU and the Output unit.
- Understand the memory unit.
- Differentiate the input and output devices.
- Link the connections in Computer.

Introduction

Is it easy to connect our sprawling planet to a point? If it is easy, then how would it be possible? The answer to these questions in today's world is the Computer. In this Modern World computer eases the effort and speeds up the processes to a great extent. Now-a-days the usage of computer plays an important role in every walk of life. So, it is apt time to learn about computers. To start, it is necessary to note that there are three key units in the computer. Understanding of this three units will make us to operate a computer in ease. In this section, let us learn what are the three units? and what are the functions of each of these units?

9.1 Parts of a Computer

Three parts of the computer are :

- Input Unit
- Central Processing Unit (CPU)
- Output Unit

Input Unit

The input unit helps to send the data and commands for the processing. The devices that are used to enter data are called input devices.

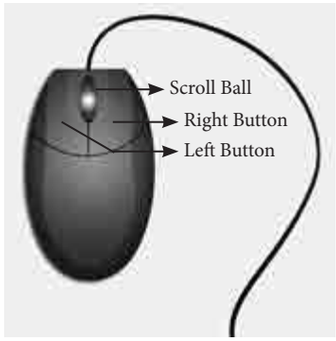
Keyboard, Mouse, Scanner, Barcode reader, Microphone-Mic., Web camera, Light Pen are some of the input devices.

Keyboard

Keyboard and mouse are the important input units. Keyboard plays an important role in a computer as an input device. Numbers and alphabet plays a role of Data in computer. Keyboard helps to enter data. Keyboard has

two types of keys, namely number keys and alphabet keys. The keys with numbers are called number keys and the keys with letters are called alphabet keys.

Mouse



Mouse is an essential part of the computer. Mouse has two buttons and a scroll ball in the middle. The mouse is used to move the pointer on a computer screen. Right button is used to select files and to open the folder. Left button is used to carryout corrections in the file. The page on the monitor can be moved up and down using the scroll ball.

CPU (Central Processing Unit)

CPU is the brain of the Computer. The data is processed in the CPU. The CPU has namely three parts.

1. Memory Unit
2. Arithmetic Logic Unit (ALU)
3. Control Unit

Memory Unit

The memory unit in the computer saves all data and information temporarily. The data is measured in units which is called as Bit. A Bit has a single binary value either 0 or 1. We can classify memory unit into two types namely primary and secondary memory. Memory can be expanded externally with the help of Compact Disk (CD), Pendrive, etc.

Arithmetic Logic Unit

Arithmetic and Logic unit performs all arithmetic computations like addition, subtraction, multiplication and division.

Control Unit

The control unit controls the functions of all parts of the computer.

Output Unit

The Output unit converts the command received by the computer in the form of binary signals into easily understandable characters. Monitor, Printer, Speaker, scanner are some of the Output devices.

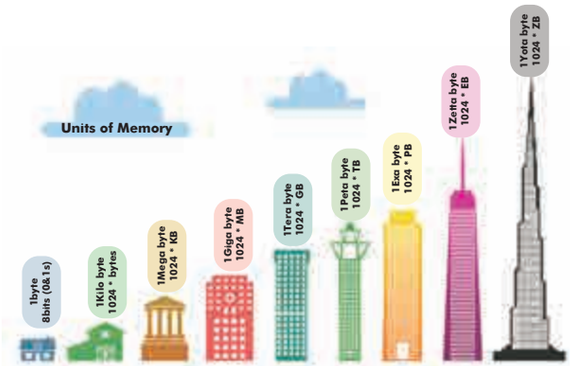
Of the various output devices, monitor is the important output device because it is the link to the computer. Monitor screen looks like TV screen. The input data in the form of Alphabets, Numbers, Pictures or Cartoons and Videos will be displayed on a monitor. There are two types of monitor namely,

1. Cathode Ray Tube monitors (CRT)
2. Thin Film Transistor Monitors (TFT)

Now a days computer system has TFT monitor as they occupy less space and emit less heat than CRT monitors.

9.2 classification of Computer

The computers can be classified as follows based on their design, shape, speed, efficiency, working of the memory unit and their applications.



- Mainframe Computer
- Mini Computer
- Micro or personal computer
- Super computer

9.2.1 Personal computer and its types

Personal computer comes under the microcomputer. Based on the memory and efficiency in PC they can be classified as

1. Desktop, 2. Laptop, 3. Tablet

Mainframe computer

Mini computer

Micro personal computer

Super computer

A DVD is capable of storing 6 times more data than a CD.

VDU stands for VISUAL DISPLAY UNIT.

9.3 Connecting the computer

You must have seen tube light and fan working by connection through electric wire. Likewise various parts of the computer are linked through connecting cables. We call computer as system as it is connected with one another. Do you know how these parts are connected? There are many cables used to connect these parts. These cables are called as connecting cables. These cables are found in different sizes. Each cable has its own specific use. Let us see the different types of cables and its uses.

Desktop

Laptop

Tablet

9.3.1 Types of Cables

Video Graphics Array (VGA), High Definition Multimedia Interface (HDMI), Universal Serial Bus (USB), Data cable, Power Cord, Mic cable, Ethernet cable

1. VGA Cable:

It is used to connect the computer monitor with the CPU.

2. USB cable /cord:

Devices like Printer, Pendrive, Scanner, Mouse, Keyboard, web camera, and Mobile phone devices are connected with the computer using USB cord or cable.

3. HDMI Cable:

HDMI cable transmits high quality and high bandwidth streams of audio and video. It connects monitor, projector with the computer.

4. Data Cable:

Data cable transmits data and it is used to connect tablet, mobile phones to the CPU for data transfer.

5. Audio jack:

The audio jack is used to connect the speaker to the computer.

6. Power cord:

Power cord temporarily connects an appliance to the main electricity supply.

7. Mic cable:

To connect the Mic to the CPU, Mic wire/cord is used.

8. Ethernet:

Ethernet cable helps to establish internet connectivity.

9.3.2 Wireless Connections

Bluetooth, Wi-Fi are used to connect to internet without using any connecting cables / devices.

1. Bluetooth

Mouse, Keyboard can be connected to the computer using the Bluetooth. Using Bluetooth the data can be shared with nearby devices

2. Wi-Fi

Net connectivity can be obtained using the Wi-Fi without any connecting cables. Any data from anywhere can be shared using Wi-Fi.

TEXT BOOK EXERCISES

BQZDV6

I. Choose the correct answer:

1. Which one of the following is an output device?
   a) Mouse b) Keyboard
   c) Speaker d) Pendrive

2. Name the cable that connects CPU to the Monitor
   a) Ethernet b) VGA
   c) HDMI d) USB

3. Which one of the following is an input device?
   a) Speaker b) Mouse
   c) Monitor d) Printer

4. Which one of the following is an example for wireless connections?
   a) Wi-Fi b) Electric wires
   c) VGA d) USB

5. Pen drive is _____ device.

a) Output b) Input

c) Storage d) Connecting cable

II. Match the following:

VGA	-	Input device
Bluetooth	-	Connecting cable
Printer	-	LDMI
Keyboard	-	Wireless connection
HDMI	-	Output device

III. Short answer:

1. Name the parts of a computer.
2. Bring out any two differences between input and output devices.

Activity

Look at the magic of connecting cables to desktop computer with 4,3,2,1 formula, start from 4 proceed till 1. Now your computer is ready to use.

By connecting the various parts of a computer we can assemble a computer. For the construction activity, students have to use 4-3-2-1 formula.

A system consist of mouse, key board, monitor, CPU, power cables, and connecting cables Students have to connect the four parts of a computer in row 4, using the cables in row 3, through the power cables in row 2 to construct a system

Using the 4-3-2-1 formula we can connect the parts of the computer

4				
	Mouse	Keyboard	Monitor	CPU
3				
		VGA	USB (connecting cable)for Keyboaard	USB (connecting cable)for Mouse
2				
			USB (connecting cable)for CPU	USB (connecting cable)for Monotor
1				
				A complete computer

PRACTICAL - TABLE OF CONTENTS

I. MELTING POINT OF WAX

BR41J3

Aim:

To determine the melting point of wax using cooling curve.

Principle:

The determination of melting point is based on latent heat which is the amount of heat required to change a unit mass (1gm) of a substance from one state to another state without changing its temperature.

Materials Required:

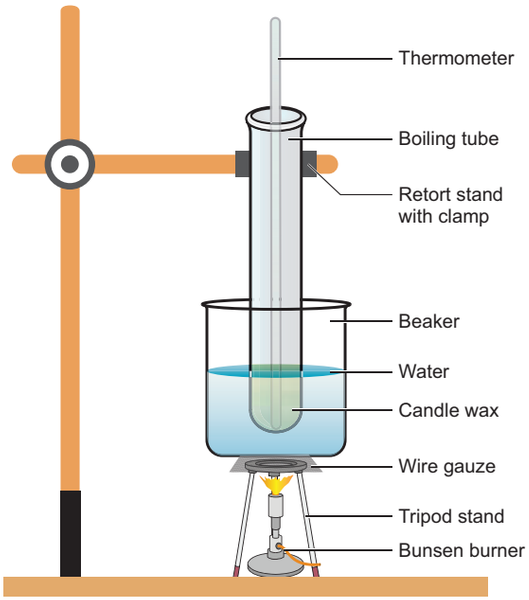
Beaker, burner, thermometer, boiling tube, retort stand and clamp,wire gauze, tripod stand, candle wax, stop watch, bowl of sand.

Procedure:

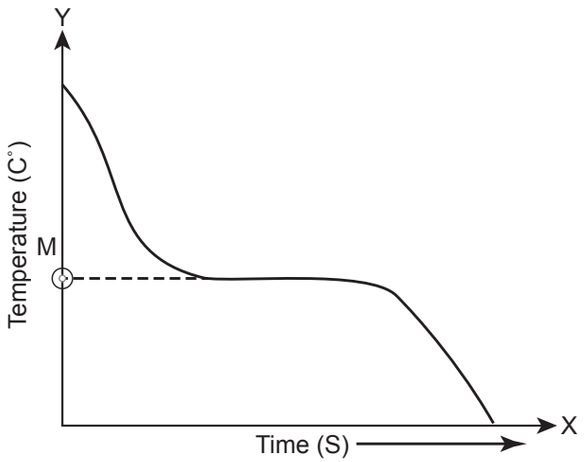
- Melt the wax in a warm water bath.
- When the wax is melted entirely, remove it from the bath, dry it and then bury it in sand.
- Record the temperature each 30 seconds while the liquid is being converted to solid.
- At the same time watch for constant temperature at which liquid and solid are present.

Melting point of wax= Constant Temperature over a period of time

Diagram



Graph



Observation and Tabulation:

S.No	Time (Second)	Temparature

The temperature at the point M denotes the melting point of wax

Suggestion:

With the help of ICT corner, the teacher can show the live video of the experiment of melting point of wax using the link www.kau.edu.sa

II. VERIFICATION OF OHM'S LAW

BR99HT

Aim:

To verify Ohm's law.

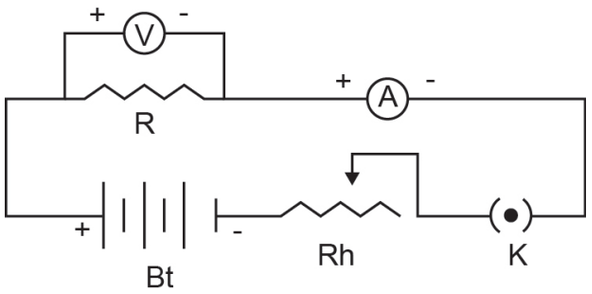
Apparatus required:

A resistor of 5 ohm, voltmeter (0 to 5 volt), an ammeter (0 to 2A), battery of 5 Volt, a plug key, a rheostat.

Formula:

V=IR where V is the voltage, I is the current and R is the resistance.

Circuit diagram:



R - Resistor Bt - Battery
V - Voltmeter Rh - Rheostat
A - Ammeter K - Key

Procedure:

Connect the circuit as above. Connect the resistor, ammeter, battery, rheostat & key in series. Connect the voltmeter parallel to the resistor as shown in figure.

Now by using a Rheostat fix the voltages from 0 in steps of 1 Volt and note down the corresponding value of current I from the ammeter. Make a table.

S.No	Potential Difference (V) volt	Current (I) ampere

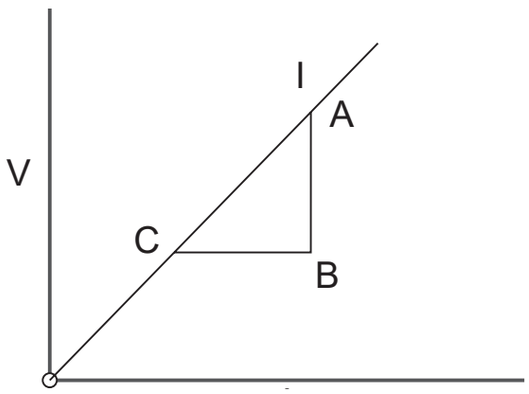
Graph

Plot a graph taking I along X- axis and V along Y-axis.

You will get a straight line

Draw a triangle ABC & find the slope.

Slope = AB /BC = R, the resistance of the resistor which will be 5 ohms.



Result:

Ohm's law is verified by the above experiment.

III. MAPPING OF MAGNETIC FIELD

Aim

To map the magnetic field of a Bar Magnet when it is placed in Magnetic Meridian with its North- pole pointing towards North.

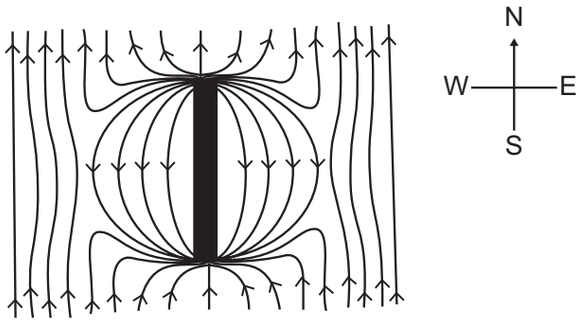
BRCWKQ

Apparatus required:

Drawing Board, board pin, compass needle, white paper and bar magnet.

Procedure:

Diagram



1. A white sheet of paper is fastened to the drawing board using board pins or sellotape. (When doing this all magnetic and magnetic materials are moved far away from the drawing board)

2. A small plotting compass needle is placed near the edge of the paper and the board is rotated until the edge of the paper is parallel to the magnetic needle. This position should not be disturbed throughout the experiment.

3. The compass needle is placed at the centre of the paper. The ends of the needle i.e the new positions of the North and South Pole are marked when the needle comes to rest. These points are joined and straight line is obtained. This is the magnetic meridian.

4. Cardinal directions NEWS is drawn near the corner of the paper. The bar magnet is placed on the line at the centre of the paper with its north pole facing the geographic north. The outline of the bar magnet is drawn.

5. The plotting compass is placed near the North Pole and the ends of the needle are marked. Move the compass to a new position such that its south end occupies the positions previously occupied by its north pole. In this way proceed step by step till the South Pole of the magnet is reached.

6. The lines of the magnetic forces are drawn by joining the plotted points around the magnet. In the same way several magnetic lines of force are drawn around the magnet as shown in the figure.

7. The Curved lines represent the magnetic field of the magnet. The direction of the lines is shown by arrows heads.

Result:

The magnetic lines of force are mapped when the bar magnet is placed. Direction of the lines is shown by arrows heads.

IV. IDENTIFYING AN ACID OR A BASE

Aim:

To identify the presence of an acid or a base in a given sample.

Materials Required:

Test tubes, glass rod, phenolphthalein, methyl orange, litmus paper, sodium carbonate salt and Dilute HCl(sample1), Aqueous NaOH(Sample 2)

TEST FOR ACID (use sample 1)

S.No.	Experiment	Observation (Colour change)	Inference (Acid/ Base)
1.	Add a few drops of phenolphthalein with the 5 ml of sample solution	No change in colour	Presence of acid
2.	Add a few drops of methyl orange with the 5 ml of sample solution	Turns pink in colour	Presence of acid
3.	Add a pinch of sodium carbonate salt with the 5 ml of sample solution	Brisk effervescence occurs	Presence of acid
4.	Dip blue litmus paper in the given sample solution	Turns to red in colour	Presence of acid

TEST FOR BASE (use sample 2)

S.No.	Experiment	Observation (Colour change)	Inference (Acid/ Base)
1.	Add a few drops of phenolphthalein with the 5 ml of sample solution	Turns pink in colour	Presence of base
2.	Add a few drops of methyl orange with the 5 ml of sample solution	Turns yellow in colour	Presence of base
3.	Add a pinch of sodium carbonate salt with the 5 ml of sample solution	No brisk effervescence	Presence of base
4.	Dip red litmus paper in the given sample solution	Turns to blue in colour	Presence of base

Result:

The given solution contains …….

V. IDENTIFICATION OF PLANT AND ANIMAL TISSUES

Aim:

To identify the structural features of plant and animal tissues from permanent prepared slides.

Observation:

Identify the given plant and animal tissues.

A) Simple tissues- parenchyma, collenchyma, sclerenchyma

B) Complex tissues-xylem and phloem

C) Epithelial tissue- columnar epithelium, ciliated epithelium

D) Connective tissue- section of bone

E) Muscle tissue- skeletal muscle, smooth and cardiac muscle

F) Nerve tissue

Draw a labelled sketch and write the location and function of the tissues observed.