COMPUTER SCIENCE

FOR CLASS – VI

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ਸਮੱਗਰ ਸਿੱਖਿਆ ਅਭਿਆਨ

ਪੜ੍ਹੋ ਸਾਰੇ ਵਧੋ ਸਾਰੇ

ਸਿੱਖਿਆ ਅਤੇ ਭਲਾਈ ਵਿਭਾਗ, ਪੰਜਾਬ ਦਾ ਸਾਂਝਾ ਉਪਰਾਲਾ

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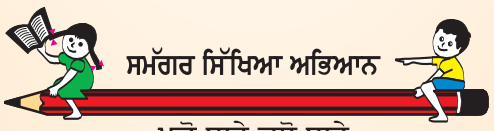

ਇਹ ਪੁਸਤਕ ਵਿਕਰੀ ਲਈ ਨਹੀਂ ਹੈ।

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FOREWORD

The Punjab Curriculum Framework (PCF 2013) which is based on National Curriculum Framework (NCF) 2005 recommends that the child's knowledge must be connected to their life outside the school. It indicates a departure from the legacy of bookish learning and ensures that learning is shifted from rote methods to activity based learning and also provides an opportunity for the holistic development of the students.

Over the years, Computer Science as a discipline has evolved and emerged as a driving force for socio-economic activities. Computer technologies are widely used in diverse areas of modern life such as education, business, health, transport and all other sectors also. With the advent of computer and communication technologies, there has been a paradigm shift in teaching at the school level. The role and relevance of this discipline is in focus because the expectations from the school pass-outs have grown to meet the challenges of the contemporary world. Today, we are living in an interconnected world where computer-based applications influence the way we learn, communicate, commute or even socialise in day to day life.

Keeping in view these requirements, Punjab School Education Board has introduced Computer Science as a compulsory subject from class 6th to 12th as per guidelines of Punjab Government. Every effort has been made to include each requisite information according to level of class 6th in this book. I hope it will be useful for students and teachers.

This book focuses on the fundamental concepts and problem-solving skills while opening a window to the emerging and advanced areas of computer science. The newly developed syllabus has dealt with the dual challenge of reducing curricular load as well as introducing this ever evolving discipline.

Punjab School Education Board welcomes and look forward to feedback and suggestions for the improvement of its subsequent editions.

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INTRODUCTION TO COMPUTER

CHAPTER - 1

OBJECTIVES OF THIS CHAPTER

1.1 INTRODUCTION TO COMPUTERS

We see computers everywhere we go. There is no office or workplace where computer is not used. Have you ever think the reason behind this? Why computers are so common now-a-days? In this chapter, we are going to learn all these points. First of all, let's understand "What is a computer?".

Computer is an electronic machine which makes our work easy and efficient. It accepts data and instructions from the user and work on it as per instructions given. Working on data according to instructions is called "Processing". After the processing, the result is given to the user as an output. So, we can define computer as:

"Computer is an electronic machine that accepts data as input from the user and processes this data under the control of set of instructions (program) and gives the result as an Output."

Computer name was derived from the Latin term 'computare', which means "to calculate". In the beginning, it was used for calculations only. As per the development in electronics field, it became such an all-round machine.

1.1.1 Uses of Computers

We can use computer for these purposes:-

i. We can do mathematical calculations on computer.
ii. We can play games on computer.
iii. We can draw pictures on computer.
iv. We can listen songs and watch films on computer.
v. We can use computer to print books and newspaper.

vi. We can use computer to book our tickets to travel in Trains, Buses and Airplanes.

vii. We can check arrival and departure time of Trains, Buses and Airplanes with the help of computer.

viii. We can check the weather conditions of any place before travelling.

ix. We can print reports, results of our school or time table.

x. We can store our data into computer for future use.

1.2 APPLICATIONS OF COMPUTER

Applications of computer mean use of computer in different fields. Some of the fields are as follows:

1.2.1 Education

1.2.2 Entertainment

1.2.3 Sports

1.2.4 Communication

1.2.5 Shops

1.2.6 Hospital

1.2.7 Banks

1.2.8 Government Offices

1.2.9 Travel

1.2.1 Education

Computers are used by students and teachers in education field. Students use computer to prepare notes, drawings, making projects etc. They use internet for study material and use of E-Contents. Teachers use computer to prepare results, Time table and reports. Computer is also used for keeping student records, online data processing on web portals, like www.epunjab school.gov.in,www.pseb.ac.in etc.

Fig: 1.1 Use of Computer in Education

1.2.2 Entertainment

Computer is a good source of entertainment. We can watch movies, listen songs and play games on computer. We can enjoy virtual 3D effects with the help of computer. New stories and funny acts can also be represented in the form of cartoons. This kind of computer generated multimedia presentations are a good source of entertainment. This field plays an important role in play-way method of studies.

Fig: 1.2 Use of Computer in Entertainment

1.2.3 Sports

Computer is being used in sports field to improve the performance of players. Record of player's daily data is stored in computer to maintain good performance. Some outdoor games are played in virtual 3D station for practice. Players can have their movements recorded to improve running, start-up and jumping related games. Digital scoreboards are also a part of every game today.

Fig: 1.3 Use of Computer in Sports

1.2.4 Communication

Communication means to contact or contacting someone or a computer which is away from us. We can use computer for this purpose for more advanced type of communication. With the help of computer, we can have interactive Video calls. We can control one device or computer from any remote location. We can also create a personal network for any personal communication. Digital devices like Smart Phones, Tablets, Laptops and Computers can share any type of data through these networks.

Fig: 1.4 Use of Computer in Communication

1.2.5 Shops

Shop is a common workplace where we see the computer. Shop keeper has to manage the stock of each item available in shop all the time. It is required to generate purchase orders for the items which are sold out. This work was very difficult before the use of computer. Now, each sold item is being recorded in the computer. The present stock in the shop and daily sale of the items can easily be managed.

Fig: 1.5 Use of Computer at Shops

1.2.6 Hospital

In hospital, patient record is stored in computer. It is easy to monitor the health of each patient. The medicine history of patient and effect of medicine on patient's health can be monitored. This data about each record can easily be shared among different hospitals. This data can also be used by researchers to create effect list of each medicine on patient's health. Computer can also be used in laboratories to do complex test analysis.

Fig: 1.6 Use of Computer in Hospital

1.2.7 Banks

Bank is a place where each work is related with data manipulation. Most of the entries are related to withdrawal of money from the account or deposit of money into the bank account. Each of such an entry requires a lot of data processing work. Computer is a best option for such calculations and processing of data. All the accounts can easily be managed using computers. The use of ATMs also became possible only with the help of computer.

Fig: 1.7 Use of Computer in Banks

1.2.8 Government Offices

Government offices do work related to the services for citizens. All these services are mainly related with E-Governance, Bill Payment, Income tax, Application processing etc. With the help of computer and internet, most of the services are now online. We can apply for any application by sitting in our house. We can also pay bills with the help of internet-banking using computer or smart phones. This use of computer changed the working of Government Offices. Most of the Government services are available 24 X 7 with the help of Internet.

Fig: 1.8 Use of Computer in Government Office

1.2.9 Travel

Travelling is part of every business and office work. We often travel for the purpose of research work, sale or purchase, personal meetings, site-seeing etc. Travelling requires knowledge of the geographical areas, availability of means of transport, cost estimation and regional culture etc. With the help of computer, all these tasks become very easy. We can get relevant information through Internet by sitting in our room. We can also book our means of transport and staying places. This kind of travel related facilities made travelling very easy and safe. It could be possible with the help of computer only.

Fig: 1.9 Use of Computer in Traveling

1.3 CHARACTERISTICS OF COMPUTER

Computer is very popular because of its characteristics. Each of these characteristic encourage the use of Computer over manual working. These characteristics are as follows:

1.3.1 Speed

1.3.2 Accuracy

1.3.3 Reliability

1.3.4 Diligence

1.3.5 Automation

1.3.6 Storage

1.3.1 Speed

This is the most important reason behind use of computer in every field. "Speed" means how quickly, a work is done. Computer performs each of its work very fast. It completes a complex calculation in fraction of a second. It is several times faster than human. Time taken by computer to do a work can be measured in 1000th part of a second. This very short time is known as "Millisecond".

1.3.2 Accuracy

Computer's Speed is not only an advantage of it. Its accuracy is also very important characteristic. By the term "Accuracy", we refer to the correctness of result produced by computer. Human can perform fast calculations too, but when it happens then mistakes increases. Computer do fast calculations with 100% correctness of result. This feature of computer is known as "Accuracy".

1.3.3 Reliability

Reliability refers to "ability of being trusted". Computer is very fast in calculations or other data manipulations. We can trust on its result for 100% accuracy too. This makes the computer reliable. We need no re-checking of the result produced by the computer. However, the program we are using must be tested and error free.

1.3.4 Diligence

As per the nature of human, the correctness and working speed get down with regular working for a long time. This is not same in computer. Each computer performs first and last task with same speed and accuracy. Computer never get stired as human does. Computer can work correctly for years.

1.3.5 Automation

Computer performs the whole task as it is programmed to do. It needs no interaction during the processing. It requires a set of instructions before beginning of any task. When it got a complete and accurate program of doing any work, it can automatically perform the operations till the end and gives the result to the user by its-self.

1.3.6 Storage

Computer's storage capacity is very large. Each computer is having Hard Disk Drive attached within it. This device stores huge amount of data of any type. It can store text, audio, video, programs, animations etc. as a data within it. We can easily find and retrieve the stored data from the computer whenever required. Data remains separate and safe for a long time.

1.4 PORTABLE COMPUTING DEVICES

All devices which are used to process data and can easily be carried with us are called Portable Computing Devices. We can use several devices for this purpose. Let's discuss some of these devices:

1.4.1 Mobile (Smart Phones)

This is a common Portable Computing Device widely being used. Mobile is a hand holding device which is able to make calls and process data digitally. Smart Phones are available with camera, large storage capacity and very fast processing speed. We can use mobile phone for different purposes in education, business, trading, entertainment and gaming.This device is small enough to be carried in our pocket and easily be operated in hands. There is a variety of mobile phones available now a days.

Fig: 1.10

1.4.2 Tablet Computer

It is a very thin portable computer. It is usually battery-powered. It has a touch screen as a primary interface and input device. It doesn't have a physical keyboard and lid. It can be used for several purposes, where less character data is to input. We can see this computing device at shopping malls, restaurants etc.

Fig: 1.11

1.4.3 Palmtop Computer

As per its name, palmtop computer is small enough to place at our palm during its use. It is a computer that has a small screen and compressed keyboard. It is often used as a personal organizer. This device is not so popularly being used because it has limited applications.

Fig: 1.12

1.4.4 Laptop Computer

This computer is a part of almost every field of computing. This small and light weight computer is available with wide screen and full size desktop. It is also having touch pad on it to fulfil the need of mouse. We can work on this computer by placing it on our laps. This is why such type of computer is called "Laptop". All the programs and applications are able to be executed on this type of computer.

Fig: 1.13

1.5 LIMITATIONS OF COMPUTER

Computer is capable of doing a lot of works. But, after all this is a machine and unable to do some tasks. These kinds of tasks are considered as limitations of computer. Some of the main limitations of computer are as under:

- A computer cannot take decisions by itself.
- A computer cannot correct wrong instruction.
- Computer cannot do any work without instruction from the user.
- It does not have feelings or IQ (Intelligence Quotient)
- It does not have knowledge and experience like a human being.

Points To Remember

1. Computer is an electronic machine that accepts data as an input from the user and processes this data under the control of set of instructions (program) and gives the result as an Output.
2. Computer is used in the fields of Education, Entertainment, Sports, Banks, Hospitals, Communications and Health.
3. Computer is very fast, accurate, reliable and automatic machine.
4. Computer cannot take decisions.
5. Computer needs instructions for every work. It cannot do anything by its own.

1. Fill in the Blanks:

I. Computer is a/an _____.

A. Electronic Machine B. Mechanical Machine

C. Magnetic Machine D. All of above

II. Computers can do_____.

A. Calculations B. Accept data and instructions

C. Storage D. All of above

III. Computer performs its operations with high _____.

A. Speed B. Accuracy

C. Efficiency D. All of above

IV. In banks, computer is used for:

A. Keeping the bank safe B. Keeping Account records.

C. Keeping bank clean D. None of these

V. Time taken by computer to do a work can be measured in:

A. Minutes B. Hours

C. Milliseconds D. Days

VI. In Education, A computer is used for:

A. Preparing Notes B. Preparing Result

C. Preparing Reports D. All of these

VII. Which one of these is a limitation of Computer:

A. Speed B. Accuracy

C. No IQ D. Diligence

2. Short Answer Type Questions

I. Define Computer.

II. Explain the uses of computer in Education Field?

III. Write the name of any three Portable Computing Devices.

3. Long Answer Type Questions

I. What are the Characteristics of Computer?

II. Define any 5 applications of Computer.

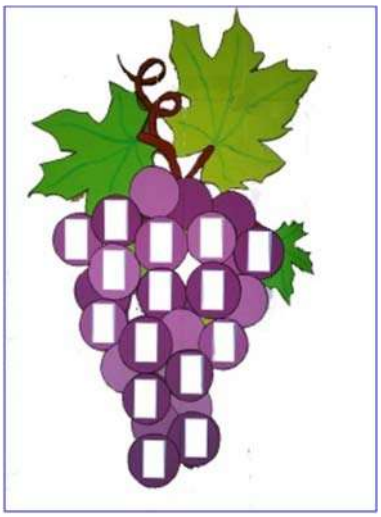
III. What are the limitations of Computer?

IV. What do you mean by Portable Computing Devices? Explain any three of them.

V. Explain the uses of computer.

Activity

- Create a chart or craft on applications of Computer. Create this Activity as a project. Visit the different places and create activity as you see the use of computer at different fields. Some of the craft examples are given here:



CHAPTER - 2

COMPUTER COMPONENTS

OBJECTIVES OF THIS CHAPTER

2.1 INTRODUCTION TO BASIC / STANDARD COMPONENTS OF A COMPUTER SYSTEM

We have learnt that "what is a computer and what are its uses". We have also studied about some popular fields where computers are used. All the characteristics of computer have also been studied, which clarifies why computer is used in almost every work we do.

In this chapter we are going to learn about the components of computer. First of all let's have an introduction to standard Input/ Output devices. Here you must be thinking about "What are standard Input/ Output devices!"

Standard Input/ Output devices are those devices which must be attached with CPU to operate a Computer System. We can have a look of standard Input/ output devices as follows.

Fig: 2.1

As shown in Fig 2.1, standard input devices are Key-Board and Mouse. Both these devices are essentially required to operate a computer system. If keyboard is not attached to computer then computer displays an error message for the same. Keyboard is a character input device and Mouse is a pointing device. Monitor /LCD are known as standard output device. Any one of them is also required essentially. Without this device, we cannot see, what is going on a computer system. These standard input /output devices are very important components of a computer system.

2.1.1. How computer works:

The way of processing within a computer system is called "Processing Cycle of a Computer". We can represent processing cycle of a computer as given bellow:

Fig 2.2

As we can see in above Fig 2.2, processing of a computer system can be presented in three terms. Let's firstly understand the parts of IPO (Input Processing Output):-

I. Input : This part of computer's processing cycle is related with input of data and instructions into the computer. As we know, computer is an electronic machine and each instruction is processed electronically within a computer system. This type of data processing is different than human understanding. To work on computer, human understanding form of data must be changed into electronic form. This type of conversion is done by Input components. For each different type of data, we use different type of Input devices. For example, keyboard is used to input character data, Mouse is for pointing on screen or free hand drawing, microphone for sound input etc.

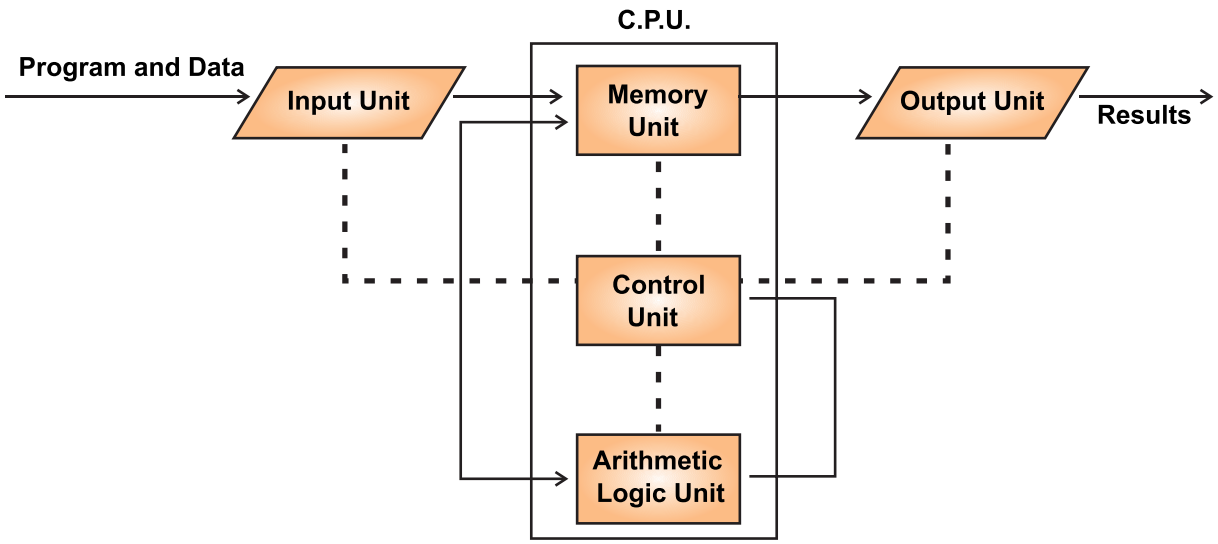
II. Processing : Implementation of the given instructions on input data is called "Processing". This is a main function of computer. During processing, several arithmetic and logical operations take place. This role is performed by micro-processor installed within a computer system. This central part of processing cycle of a computer is being performed by Central Processing Unit (CPU). We will learn this part of computer system in detail in next section of this chapter.

III. Output : After the completion of processing, the produced result is given to user through Output unit. This unit of a computer system does exactly opposite of input unit. Devices used for output purpose converts electronic data to human understandable form. Some examples of output devices are Monitor/LCD (Liquid Crystal Display), speaker, printer etc.

All these terms collectively made a computer system complete for processing our instructions.

2.2 BLOCK DIAGRAM OF COMPUTER

Block diagram of Computer refers to the layout of attachment of all components within a computer system. We can have graphical representation of this layout in the form of block diagram. Block diagram of computer is given below:



Block Diagram of Computer

We have already studied Input Unit, CPU and Output Unit of computer system. Let's understand the part of Central Processing Unit (CPU) in detail.

2.2.1 Parts of Central Processing Unit

Central Processing Unit of a computer system can be divided into three parts:-

I. Memory Unit (MU)

II. Control Unit (CU)

III. Arithmetic Logical Unit (ALU)

I. Memory Unit : Memory Unit of a computer system is also known as "Storage Unit". It holds data and instructions in computer system. There are several types of memories. Each of them is having its different role to perform. Their size, storage capacity, nature of operation and speed make them different from each other.

II Control Unit : The control unit is the brain of computer. It performs all the operations given in the form of input instructions or programs. It also controls the functioning of all other components of computer. It accepts all the instruction from input unit and generates series of control signals according to the input instructions given. These Control Signals then operate the other parts of the computer. This is the main function of Control unit.

III. Arithmetic Logical Unit (ALU) : This is a core component of computer CPU. As per its name, it performs all the arithmetic and logic related tasks during processing. In digital computer, all the operations are performed logically and contain a lot of calculations to be processed. Processing of arithmetic operations and all logical operations like AND, OR, NOT etc. are done by this part of CPU. This part of computer system is integrated within the "Micro-processor".

2.3 TYPES OF COMPUTER MEMORIES

We have already discussed the Memory unit of Computer System. Computer memories can be classified in following two types:

- Primary Memory
- Secondary Memory

2.3.1 Primary Memory

Primary memory is also known as main memory of Computer System. It is directly accessible memory by Microprocessor which is a control unit of CPU. All the instructions and data must be present in primary memory before processing. This memory is also known as main memory of computer. There are two types of primary memories used within the computer.

RAM (Random Access Memory) : This primary memory is the main memory of computer. It is very fast memory of computer. All instructions and data are stored here during processing. This memory is volatile in nature i.e. all contents stored in this memory are lost when power goes off. This device cannot hold data permanently.

ROM (Read Only Memory) : This memory is a permanent memory attached on the motherboard of computer system. Content stored in it cannot be changed as it is read only memory. This memory hold instructions and data required for computer system to start. No write operation is allowed on this memory.

2.3.2 Secondary Memory

Secondary storage is called auxiliary storage. It is a permanent memory of computer system. As we studied earlier, primary memory RAM is not permanent and ROM do not allow user to store any data on it. So, to provide permanent storage in computer, we use secondary storage devices. This memory is not directly accessible by the processor. It is for storing data not in active use. So it is called non-volatile memory. In a personal computer, secondary storage typically consists of hard disk drive and many removable media like CD, DVD or USB Pen Drive etc.

2.4 CATEGORIES OF COMPUTER

We can categorise computer according to their Speed, Memory, Processing Capabilities and Storage Capacity. We have following main categories of computer.

2.4.1 Micro Computer (Personal Computer)
2.4.2 Mini Computer
2.4.3 Mainframe Computer
2.4.4 Super Computer

Fig. 2.4

2.4.1 Micro Computer (Personal Computer)

Micro Computer (Personal Computer) is the most common type of computers used nowadays. This type of computers are having common storage capacity and processing speed. The cost of this type of computer is

very less. These computers are affordably used in small business, small offices, schools or other workplaces.

2.4.2 Mini Computer

This type of computers has greater features and processing capabilities than of Micro Computers. These computers are used in the field where multiple users are required to work together. Storage capacity, sharing of resources and processing speed of this type of computer is higher than micro computer. Minicomputers are mainly used as small or midrange servers. This type of computer is used in large business, large team based companies, scientific applications etc.

Fig. 2.5

2.4.3 Mainframe Computer

These computers are capable of handling and processing very large amounts of data quickly. These Computers are capable of performing operation on large amount of data with high processing speed. Mainframe computers are used in large institutions such as government Offices, banks and large corporations.

Fig. 2.6

2.4.4 Super Computer

A super computer is most powerful computer. It has fastest speed and very high processing capabilities. It has large data storage. Super computer is specifically used for complex applications in big organization. Super computers are the most powerful and very expensive. The application areas of this type of computer are weather forecasting, climate research, oil and gas exploration etc.

Fig. 2.7

Points To Remember

1. Keyboard and Mouse are the standard Input Devices of computer.
2. Monitor/LCD is the standard Output Device of Computer.
3. Computer's processing Cycle is Input-Process-Output.
4. Memory unit, Control unit and ALU are the components of CPU.
5. Computer accepts data and instructions through Input Unit.
6. Computer gives the result through Output Unit.
7. Computer process the given instructions through CPU and produce the result.

8. CPU can be divided into three separate units. They are:
   a. Memory unit
   b. Control unit.
   c. Arithmetic logical unit
9. The control unit is a brain of computer which performs the processing of instructions.
10. Memory directly accessible by CPU is also called primary storage.
11. Permanent storage of computer is called Secondary storage or auxiliary storage.
12. Computer used at home or small business is called Micro-Computer.
13. Super Computer is the most powerful computers.

1. Fill in the Blanks:

I. Which part of computer system accepts input from the user?

A. Input Unit B. Output Unit
C. Control Unit D. None of these

II. Which is a part of CPU?

A. Control Unit B. Memory Unit
C. ALU D. All of above

III. Which memory stores permanent data in computer system

A. Primary Memory B. RAM
C. Secondary Memory D. All of above

IV. Which is a most powerful type of computer.

A. Mainframe Computer B. Mini Computer
C. Micro Computer D. Super Computer

V. Which part of computer system gives result as an output to the user:

A. Memory B. Input Unit
C. Control Unit D. Output Unit

2. Write the full forms:

I. ALU II. CPU
III. LCD IV. RAM
V. ROM VI. CU
VII. MU. VIII. IPO

3. Short Answer Type Questions

I. Write the name of parts of CPU.

II. What are the types of memories?

III. What are Secondary Storage Devices?

IV. What is the function of ALU?

V. What is Micro-Computer?

VI. What are different categories of Computers?

4. Long Answer Type Questions

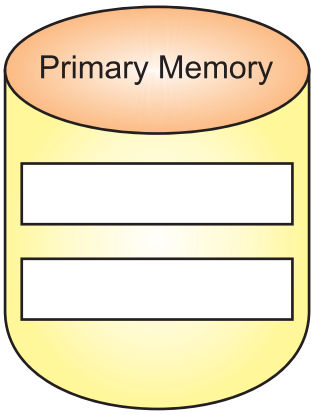
I. What do you mean by Block Diagram of Computer? Define its Components

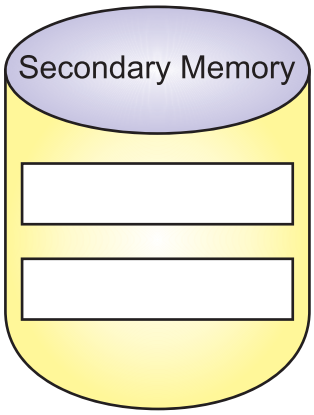
II. How Computer Works? Explain each term in details.

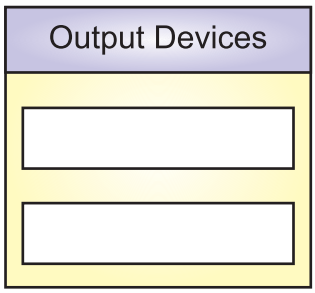
Activity

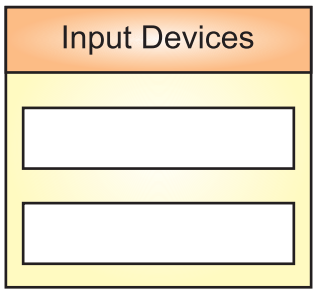
Write the given Items in their respective Category:

1. RAM
2. Keyboard
3. Mouse
4. ROM
5. Hard Disk Drive
6. Printer
7. Microphone
8. Speaker
9. USB Pen Drive
10. Monitor/LCD









CHAPTER - 3

BASIC OF WORKING WITH COMPUTERS

OBJECTIVES OF THIS CHAPTER

INTRODUCTION

We have learnt the components of a Computer System in previous chapter. A Computer System is a combination of hardware and software. All the components learnt so far are the hardware components. These hardware components can do nothing without software. We will learn the categories of software later in this class. In this chapter, we are going to understand the importance of most important software of a Computer System. This software is called "Operating System". Let's understand the importance of this essential part of a computer system.

3.1 OPERATING SYSTEM

System software which helps in operating a device or hardware is called "Operating System" It's main function is to provide an interface to work on a machine. Not only in computers, all the digital devices like Mobile Phones, Tablets, I-Pads are having operating system installed in it. This software creates an interface between machine and user so that operations can be performed. For example, our mobile is having home screen, menu, dialog boxes, icons and widgets to create an interface. Similarly, each computer is having desktop, icons, Menus and other control for the working on it. All such kind of controls are created and managed by "Operating System-OS". Let's define OS.

"An Operating System is an interface between a Computer user and Computer hardware. It makes a computer hardware working by controlling all the internal processes of a computer"

Operating Systems are of several types. Each different digital computing device is having different operations to perform. So, as per the requirements of a device, operating system can be

designed differently. For example, an operating system of a Computer is different than of Mobile's OS. There are several examples of Operating Systems. Windows, Macintosh, Linux, DOS, Android, Symbian, etc. are some of them. Let's discuss about some of these.

3.1.1 Windows

Windows is an Operating System (OS) designed by Microsoft. It provides Graphical User Interface (GUI) and user can easily operate computer with the help of a mouse. When we click on a program in window, it opens in a frame like a window. That is why it is named as WINDOW.This operating system is most popular due to its easy to operate and have good graphical controls.

We will study working on Microsoft Windows 7 ultimate edition in next section of this chapter.

3.1.2 DOS

Disk Operating System (DOS) is also designed by Microsoft. It is a traditional Operating System. It provides Character User Interface (CUI) for working on a computer system. This Operating System was used when computer was not so powerful. This operating System was able to run on a computer with small memory and slow speed hardware. This Operating System was difficult to operate.

3.1.3 Android

The Android operating system is used in hand holding devices as an operating system. This was developed by Google (GOOGLE). This OS is primarily used for touchscreen devices like cell phones and tablets. This interface can be used with finger's common motions such as pinching, swiping, and tapping. Now-a-days, Android OS is also being used in televisions, cars, and wrist watches. Each of these devices is having different user interface.

3.2 STARTING COMPUTER SYSTEM

We have studied the role of Operating System. When we switch-on the computer, OS installed into a computer get loaded and makes a computer ready to operate. In this section we will study the steps to start a Computer System.

Fig. 3.1

3.2.1 Powering On

When computer is already powered-off then we firstly SWITCH-ON it. For this purpose, we can press Power-Button of CPU. Monitor/LCD is automatically controlled by CPU it-self. When Power-Button is on then Monitor/LCD is activated and display appears. But, if Monitor/LCD is Powered-OFF then it requires to being Powered-On explicitly. We will press the power Buttons accordingly. The process of Booting begins, which starts the computer. After booting the following screen will be displayed.

Fig. 3.2

3.2.2 Logging In

After the booting process, Login Screen of Windows 7 is displayed. Window provides security of data stored within it. This screen is to validate the authenticity of user starting the computer. Window offers the partitioning of data among different users. From this screen, we can enter into our authorized logins. It shows the different usernames and each of them can be differently password protected.

The number of users, User Names and Password of each user can be different from computer to computer. When we want to access computer in our Computer lab for first time, we can ask the username and its password from our teacher. When username and password is given, we will click on the username and new screen will appear.

Fig. 3.3

On this screen, we will enter the password given by our teacher. The password is never shown when typed. Only Dots or Stars displayed to show the count of characters entered. Just enter your password carefully and press the Arrow Button or hit Enter key.

If password entered by you is correct then login process is completed and desktop of computer start displaying. This very first screen of computer is consists of several items on it. Let's discuss these items displaying on desktop.

3.3 DESKTOP AND ITS COMPONENTS

When computer is started,the very first screen displayed on computer is called "DESKTOP". This screen is a dashboard of Computer System. We can start any program and perform other basic operations from this screen of computer. Desktop of a computer and its parts are as per given bellow:

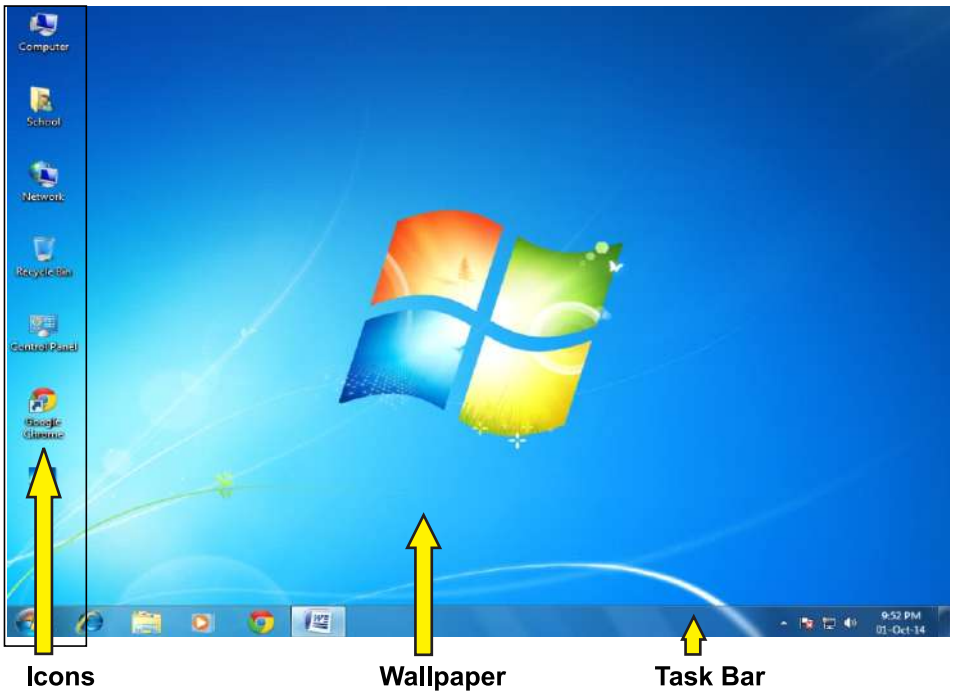


Fig. 3.4 Desktop of Microsoft Windows 7 and its parts

3.3.1 Icons

Icons are small pictures on desktop. Icons act like a button to access a program, folder or file. To open a folder or file,we have to click on its icon twice. This operation is called "double click". Some examples of icons showing on Desktop are as under:

i. **My Computer :** This icon is used to access all the HDD drives, removable media or other places present in a computer system. When we click on this icon, a new window opens and all items can be accessed by double clicking on them.

ii. **Network :** This icon is used to access a Network Location. This icon is used when a Local Area Network (LAN) is designed and our computer is connected to it. We can share our data and other resources through this icon. All the connected computers can be accessed from this icon too.

iii. **Recycle Bin :** This icon looks like a dust-bin. It works like a dust-bin also as it contains all the deleted files, folder, icons, etc.When we delete any item than it is moved to recycle-bin by default. If we delete any item accidentally then we can restore the deleted item from recycle-bin any time.

iv. **User's Files :** This icon is used to access the current user data. It holds all the default locations for different types of files. For example My Documents, My Pictures, My videos, Desktop etc. This icon is named as user name of currently running user. In the icon showing here, "School" user name is currently login.

3.3.2 Shortcuts

A shortcut is an icon that represents a link to a program, file, folder or other item. If we want easy access from desktop to our favourite files or programs, we can create shortcuts of them. We can run a program or open a file/folder by double clicking on its shortcut. If we delete a shortcut, only the shortcut is removed, not the original item. When a new shortcut is created then its icon automatically start showing the original item's icon, but a small arrow on it. We can identify shortcuts by this arrow on their icon.

3.3.3 Wallpaper

Wallpaper is an image displaying behind the graphical user interface on user's desktop. It is also called a desktop background. It can be a picture, colour or pattern. We can choose the picture, colour or pattern for wallpaper according to our choice. There are some pre-loaded wallpapers available in the desktop background gallery of our Windows 7. We can change wallpaper of our computer using following steps:

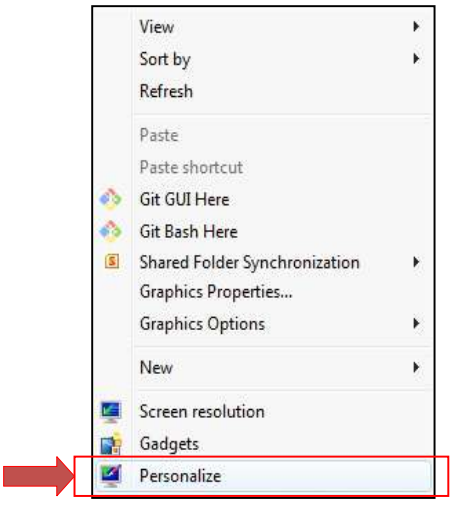
Changing Wallpaper:

i. Right-click on wallpaper displaying on Desktop.

ii. Choose "Personalize" option from popup menu appeared.

iii. A new window will appear.

iv. Select required theme from the window. We can alternatively click on "Desktop wallpaper" option from the bottom and choose the wallpaper.



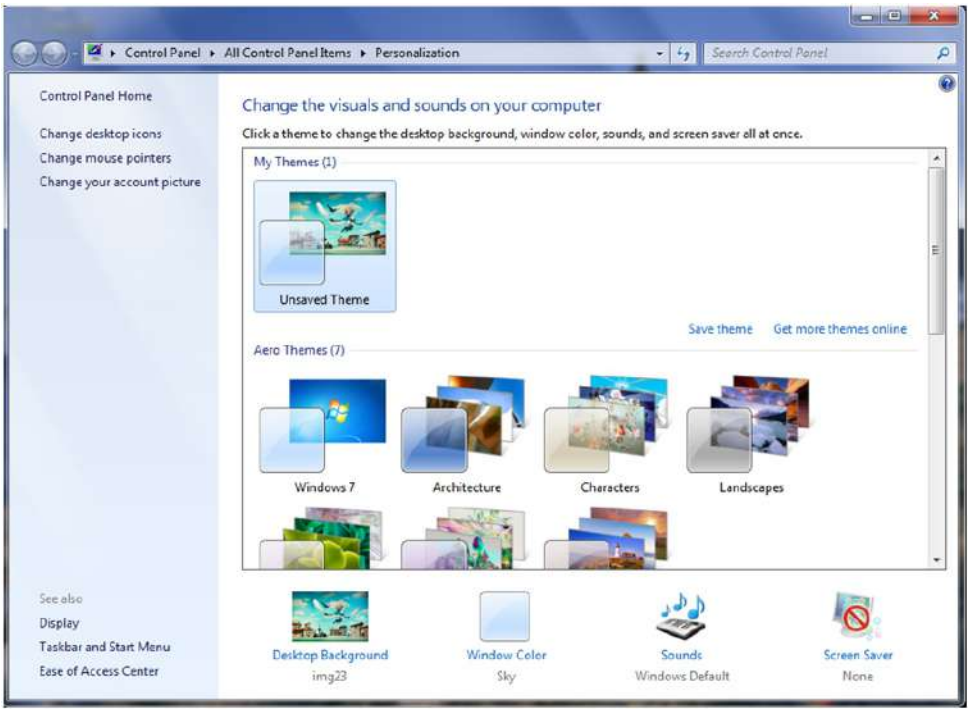


Fig. 3.6 Desktop Personalize Window

3.3.4 Taskbar

Taskbar is located at the bottom of the screen. This bar is a part of Operating System. It allows us to start a program using Start menu. This bar always remains visible during working in any application. We can navigate thorough Active programs using taskbar. The area on the right side of the taskbar is called "Notification Area". This area allows us to check date and time, items running in the background etc. The taskbar first introduced with Microsoft Windows 95 and is found in all subsequent versions of Windows. We can have a look of taskbar and it's all parts as under:

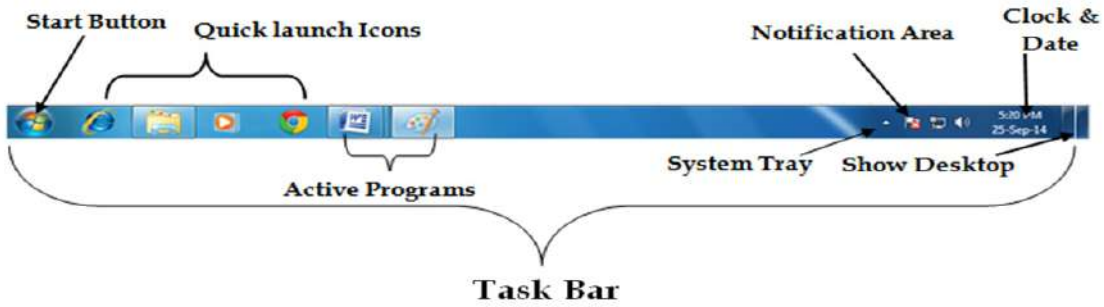


Fig. 3.7

All these parts of taskbar are having their own function. Let's discuss the use of each one of them.

i. **Start Button :** We can start any application and program with the help of Start button. It is the first item on Taskbar. It's icon is  . It is having logo of windows on it.

ii. **Quick launch Bar :** This section of the taskbar enables us to launch programs without locating them from Start menu. It is located next to the Start button.

iii. **System Tray :** It is located at right side of Taskbar. It contains miniature icons for easy access to system functions such as fax, printer, modem, volume etc.

iv. **Notification Area :** This area is a part of the taskbar that provides notifications and status of devices. It can also be used to display icons for system and program features that are not on the desktop.

v. **Clock :** At the end of taskbar, Clock is displayed where Current time and Date can be seen. We can change Time and Date by clicking on it. It requires Administration access to change the Time or Date.

vi. **Active Programs :** This area of taskbar is between quick access bar and System Tray area. In this area of taskbar, all the active programs appeared as an icon and we can easily navigate among them.

3.4 WORKING WITH WINDOWS APPLICATIONS

Microsoft Windows 7 provides some of the inbuilt applications which are used for different purposes. These applications are most basic applications and each one is of different type. Let's discuss some of these applications.

3.4.1 Notepad

This is a basic text editor of Microsoft Windows. This is mainly used to type character data. It is the most simple applications for creating files with text data only. This application is mainly used for writing codes (Source Files) of programming languages like HTML, Java etc.

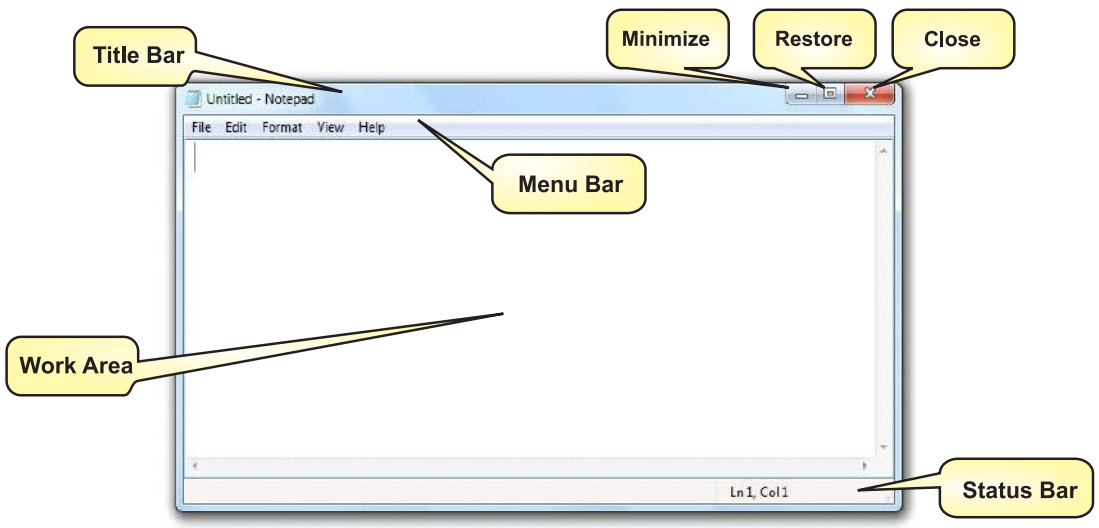


Fig. 3.8 Parts of Notepad Window

Running Notepad:

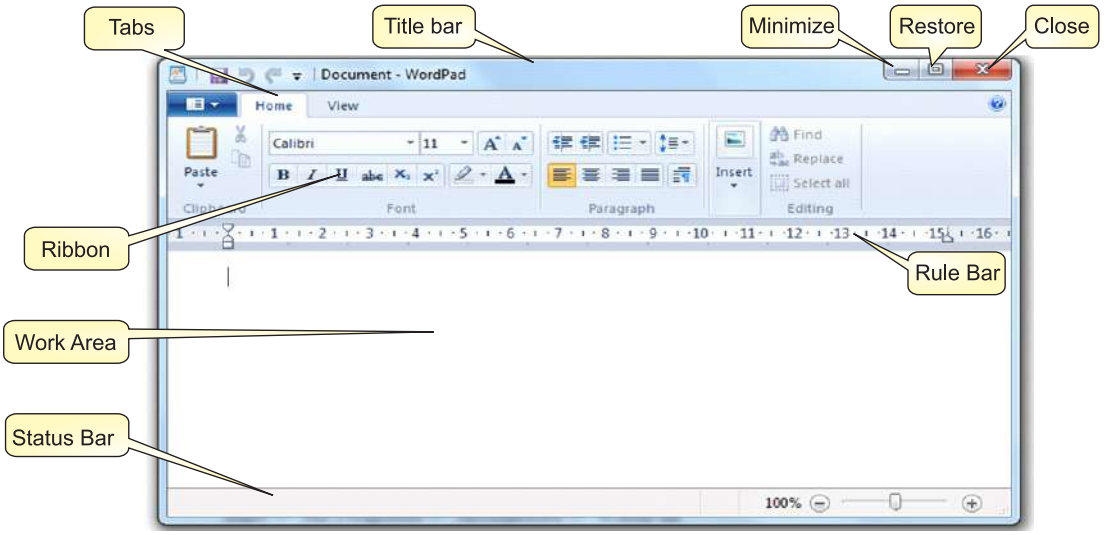
Start → All Programs → Accessories → Notepad

OR

Click on start button and type "Notepad" in search bar. Click the Icon form the list and press enter key.

3.4.2 WordPad

This is a Rich Text Format word processor. We can create a document with formatting using this application. This application can be used to write letters or to create documents with texts data only. Graphics like chart, pictures, clip-art etc. cannot be inserted in it.



3.9 Parts of WordPad Window

Running WordPad:

Start → All Programs → Accessories → WordPad

OR

Click on start button and type "WordPad" in search bar. Click the Icon from the list and press enter key.

3.4.3 Paint

This is in-built graphical applications of Microsoft Window 7. We can create drawing or other basic graphical objects using this application. It is also known as MS Paint. Ms Paint has several tools for drawing and colouring. We can edit an existing picture also using this application.

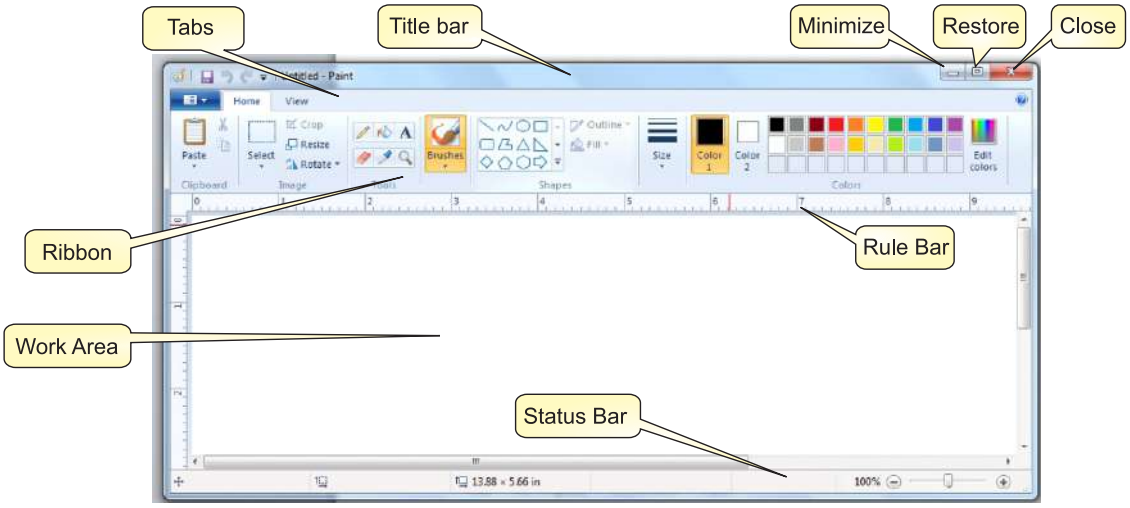


Fig 3.10: Parts of Paint Window

Running Paint:

Start → All Programs → Accessories → Paint

OR

Click on start button and type "Paint" in search bar. Click the Icon from the list and press enter key.

3.4.4 Calculator

This application of Microsoft Windows 7 is used to do calculation related work. We can use this application as we use real calculator. Its layout and buttons are also similar to real calculator. We can perform calculations up to 16 digits using this application.

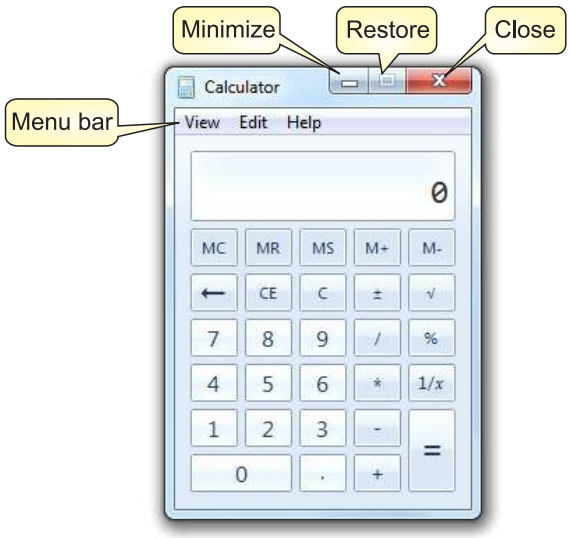


Fig. 3.11 Parts of Calculator

Running Calculator:

Start → All Programs → Accessories → Calculator

OR

Click on start button and type "Calculator" in search bar. Click the Icon from the list and press enter key.

3.4.5 Using Run Box

Run box allows the user to open a program by name. This option of windows is very useful for fast opening of programs. Instead of navigating though menus, we can directly type the name of program to run. Each program exists in computer as an executable file. For example, MS Paint is named as "pbrush", Notepad as "notepad", WordPad as "Wordpad" and Calculator as "Calc". We must write correct name of that program which is to start. We can also start any file by typing it's full path. The picture below shows how the Run box looks like in Microsoft Windows 7.

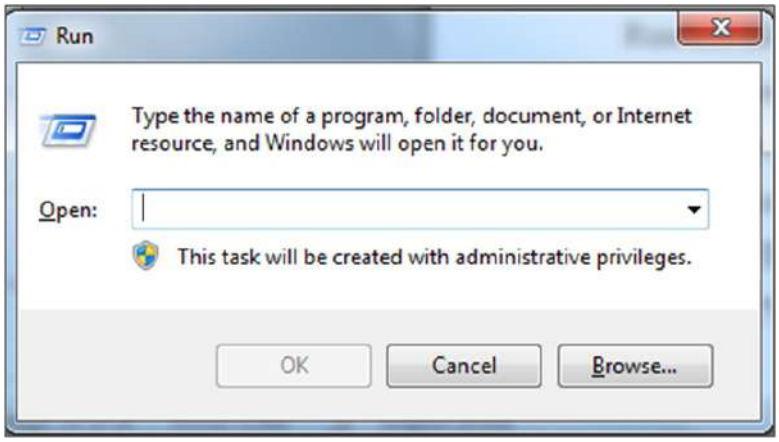


Fig. 13.12 Microsoft Windows 7 Run Box

Using "Run-Box" in Microsoft Windows 7:

To open Run Box in Microsoft Windows 7, we can use following steps.

Press Window  button + R together.

OR

Click on start button and search for "Run". Click the Icon from the list and press enter key.

3.4.6 Search Box of Start Menu

We can use Search Box of Microsoft Windows 7 to search file or programm our Computer. It can find given file from hard drive. It is located at the bottom of Start Menu of Windows 7. If this bar is missing from the start menu then we can re-enable it from Control Panel. The Search Box of start menu look as given in the picture bellow.

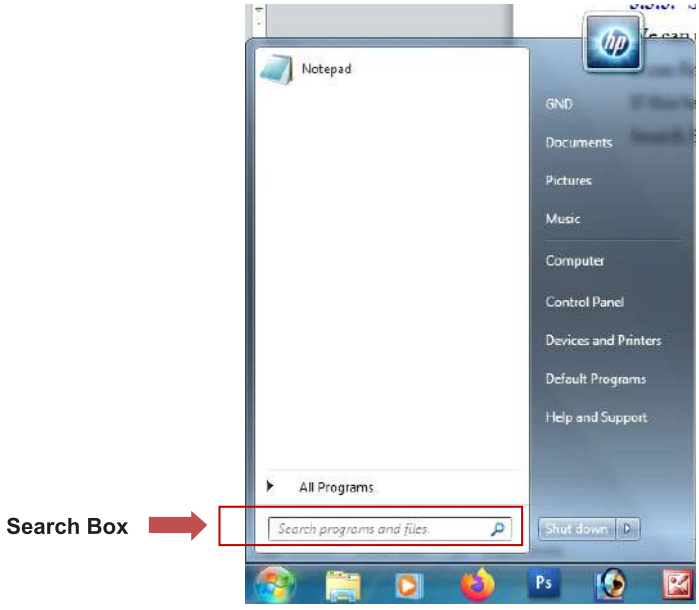


Fig. 3.13

If this this part of start menu is missing then we can use following steps to show Search Box.

Steps to show "Search Box":

i. Open the Start menu and click "Control Panel."

ii. Click "Uninstall A Program" under Programs.

iii. Click "Turn Windows features on or off."

iv. Click on checkbox named "Window Search".

v. Click "OK" to save your changes.

Search Box will start showing in Start Menu after restarting our computer.

3.5 SHUTTING DOWN COMPUTER SYSTEM

Shutting Down a computer is process of turning off the computer system when all our work is over. This process is very important because if shutting down is not properly done, our data can get lost. Improper Shut-down can also cause corruption of Operating System.

When our work is completed and we want to leave the computer then following are the options that are available in the Shut Down menu. We can choose any of them as per our requirement. These Options are as under:

3.14

3.5.1 Sleep

This option of Power Off menu can be used when we want to leave a computer for some time. During this mode, The power of Monitor/LCD get OFF and all your data is kept safe. When we put a computer into sleep mode then its power remains ON and its power light start blinking. This blinking Red-Colour LED on CPU shows that computer is in sleep Mode. We can press power button to resume computer from this mode.

3.5.2 Shut Down

This option of Power menu can be used when we have finished all our work. When we shut-down a computer, all parts of computer systems are turned off and no power remains active in the Computer System. We can switch off the main power-supply of computer when it is shut-down. This process can take some time and we must wait till it is over. This process may take time according to the size of data being used and number of programs currently running.

3.5.3 Log Off

As we have studied in this chapter that Windows 7 allows us to access a computer differently among users. We can keep our data secure from other users with the help of user accounts in it. If we have finished our work and want to leave a computer but another user is there to access the same computer for own work in different user account then we can use Log-off option of power Menu.

3.5.4 Restart

This option of power menu can be used when any new program is installed or any updation in the system is done. Some time when new device or hardware is attached with computer and it is required to restart our computer. In such case, we can use restart option of Power menu to shut down our computer and start it again. When restart button is pressed then computer automatically get started after being shut-down.

Points To Remember

1. Screen appeared after login is called Desktop.
2. Small pictures representing programs, files and folder on the desktop are called Icons.
3. My computer icon is used to access local Drives and other places.
4. All the Deleted files are stored in Recycle Bin.
5. Task bar is displayed at the bottom of desktop and shows all active programs.
6. We should shut down the computer properly instead of direct Power Off.
7. We can use Network Icon to share data among computers on LAN.
8. Shortcuts are the links to file or programs used for fast access.
9. Wallpaper is a picture or colour displaying on the desktop background.
10. Each user can secure valuable data with the help of username/Password.

1. Fill in the Blanks:

I. Screen appeared after login of Computer is called:

A. Start Menu B. Desktop

C. Taskbar D. None of these

II. All the Deleted files go to?

A. My Computer B. Network

C. Recycle bin D. All of above

III. Which part of window remains visible all the time when we use other applications?

A. Recycle bin B. Desktop

C. Taskbar D. None of these

IV. Which one is an example of Operating System:

A. Windows B. Android.

C. DOS D. All of above

V. To open a file we can double click on:

A. File itself B. Shortcut of file

C. Both A and B D. None of these

2. Short Answer Type Questions

I. Write the name of any three window applications.

II. Write the name of any three Icons.

III. Write the names of components of a Desktop.

IV. What is Desktop?

3. Long Answer Type Questions:

I. What is Operating System? Explain different types of Operating Systems.

II. What is a Taskbar? Explain the functions of its parts.

III. What do you mean by Icon? Explain any three Desktop Icons.

IV. Explain the different options of shutting down a Computer System.

Activity

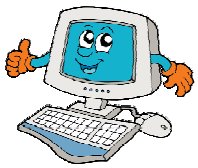
- Name the Following Icons:

_____

_____

_____

_____



INTRODUCTION TO MS PAINT

CHAPTER - 4

OBJECTIVES OF THIS CHAPTER

INTRODUCTION

Paint is a drawing program used for drawing objects and shapes. We can draw colourful picture with paint. These pictures can be saved and printed. These pictures can be copied in another document and can also be taken to desktop as background.

4.1 WHAT IS PAINT?

Paint is a drawing tool which helps us to create drawings. It is a useful program for new users and children. There are many different tools in paint used for making colourful pictures. Drawings in paint can be either black-and-white or coloured.We can save these drawings as bitmap files. We can print these drawings and can use these drawings for our desktop background. We can also paste these drawings into another document. We can save our pictures of drawing in several types, such as .jpg, .gif or .bmp files.

4.2 HOW TO START THE MS-PAINT?

Start  → All Programs → Accessories → Paint 

1. Click on the start button on taskbar/ super bar. Start menu will appear.
2. Click on All Programs, another menu will appear.
3. Click on Accessories option in this menu. Another menu will appear. This menu has a Paint option.
4. Click on Paint option.

OR

Click on start button and type "Paint" in search bar. Click the Icon form the list and press enter key.

Paint window will appear like picture given below.

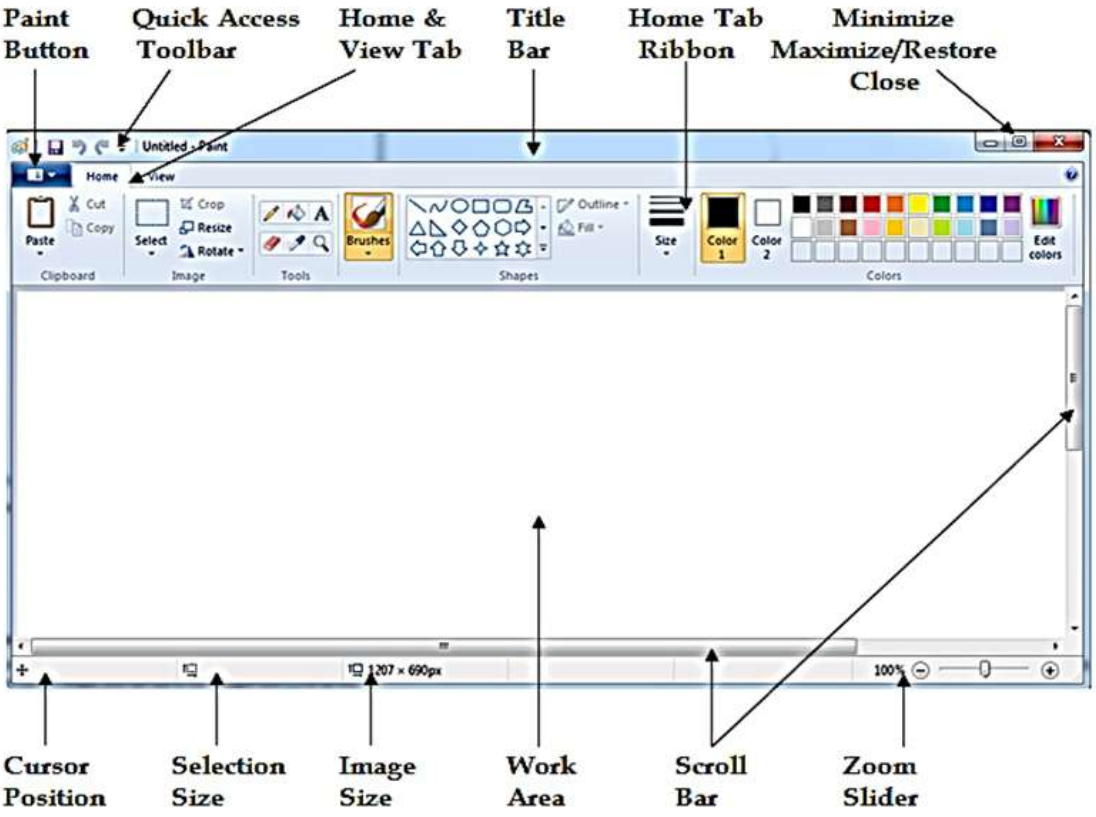


Fig. 4.1: Parts of Paint Windows

4.3 PARTS OF A PAINT WINDOW

Paint window is shown in above figure 4.1. It has following main parts:

4.3.1 Title Bar
4.3.2 Quick Access Toolbar
4.3.3 Menu Bar
4.3.4 Vertical and Horizontal Scroll Bar
4.3.5 Status bar
4.3.6 Zoom in zoom out
4.3.7 Work Area

4.3.1 Title Bar

The title bar is present at the top of the paint window. At the left end of the title bar the first item shown is little paint palette. If we click this button, a standard window menu opens, having options Restore, Move, Size, Minimize, Maximize and Close. Another thing we will see the title of our picture followed by the name of the program—Paint. If we haven't saved our picture, the name will be shown as "Untitled".

Fig. 4.2: Title Bar

- **Quick Access Toolbar :** The next four items make up the **Quick Access Bar,** offering buttons for **Save, Undo, Redo** and **Customize**.
- **Minimize, Maximize/Restore, Close :** Title bar has three buttons on its right corner. They are:
  - **Minimize button :** Used for minimizing the paint window onto the task bar.
  - **Maximize / Restore button :** Used for maximizing or restoring the paint window.
  - **Close Button :** used for closing the paint window.

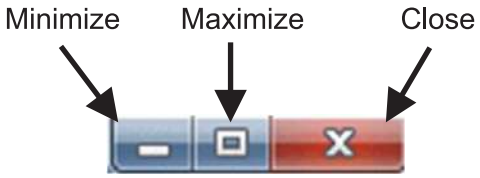


Fig. 4.3

4.3.2 Quick Access Toolbar

It is a toolbar present in title bar by default. This bar provides us frequently used commands. Its position can be changed both to below or above the ribbon and icons can be added and removed as per the user's requirement.

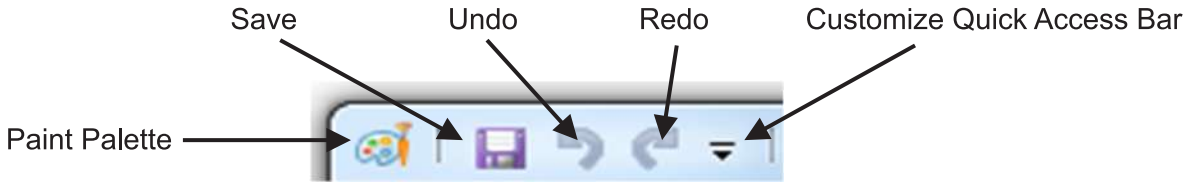
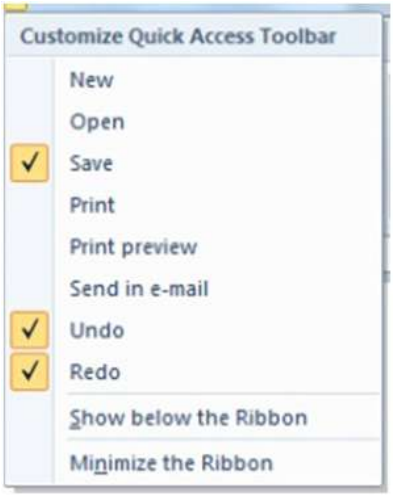


Fig. 4.4: Quick Access Toolbar

To Move Quick Access Toolbar below the Ribbon : If we prefer to show **Save, Undo** and **Redo** buttons below the ribbon, Click on **"customize Quick access bar"** button and a menu will appear.



Near the bottom of the menu that appears, we will see **Show below the Ribbon**. Click **Show below the Ribbon**. The Quick Access Toolbar will move below the Ribbon.

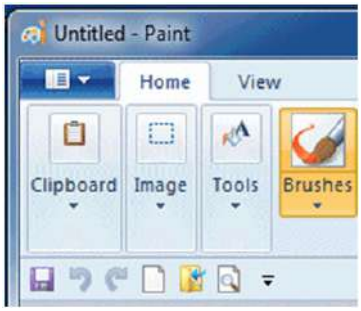


Fig. 4.5: Moving Quick Access Toolbar below the Ribbon

- We can add more options such as **New, Open, and Print Preview** etc. to the Quick Access Toolbar with the help of **Customize** icon.

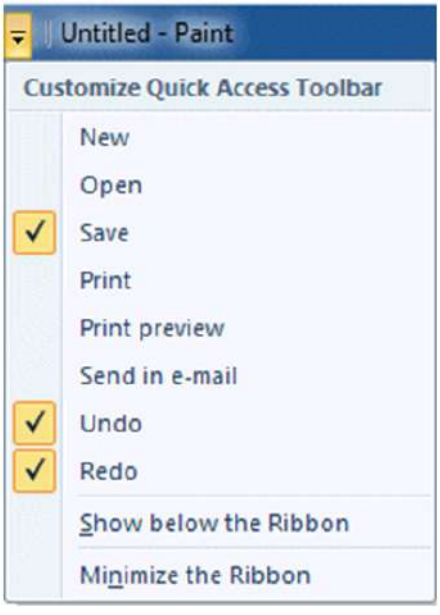


Fig. 4.6: CustomizeQuick Access Toolbar

Here are commands and their functions discussed below:

Name of Command	Function	Shortcut Key
New	Creates a new, blank image file.	Ctrl + N
Open	Opens a dialog box to open an existing image file.	Ctrl + O
Save	Saves changes to the current file.	Ctrl + S
Print	Print the current picture.	Ctrl + P
Print Preview	Displays the image on screen as it will appear after printing on paper.	
Send in e mail	Send a copy of the picture in an email as an attachment.	
Undo	Repeat or Reverse the last action.	Ctrl + Z
Redo	Restores previous undo action.	Ctrl + Y
Show below/ above the ribbon	Shows Quick Access Toolbar below or above the ribbon.	
Minimize the ribbon	Toggle the ribbon On/Off.	

Adding Ribbon items to the Quick Access Toolbar : Many other items from the ribbon can also be added to the Quick Access Toolbar. On the Ribbon, right click on anything we like to add. A menu will appear which includes the option "Add to Quick Access Toolbar". Click on this option.

Fig. 4.7: Adding Ribbon items to the Quick Access Toolbar

Here the Magnifier, Pencil, Color2 (background colour) and Transparent selection tools have been added to Quick Access Toolbar. To remove these items we have added from the Ribbon, right click on the unwanted icon and then click the Remove from Quick Access Toolbar option.

4.3.3 Menu Bar

The Menu bar has three tabs named as Paint Button, Home tab ribbon and View tab ribbon. On the right side of menu bar, Help button appears as shown in the figure below.

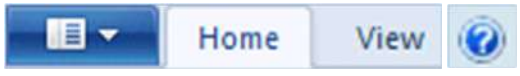


Fig. 4.8: Menu Bar

Paint Button : This Button appeared at the beginning of Menu bar. When we click on this button and following Menu Appears.

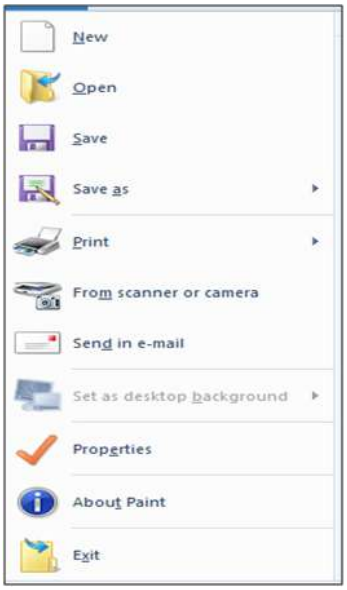


Fig.4.9

Here we can see some new commands which are discussed in table shown below:

Name of Command	Functions
Save As	Save changes to the new file with different file name. It every time ask for new name. We can change Format of new file too. such as PNG, JPEG, BMP, GIF etc.
From scanner and camera	Import picture from scanner or camera.
Set as desktop background	Set the current picture as our desktop background.
Properties	Change the properties of the picture. The Properties dialogue will give us information about the picture .
Exit	To close paint window.

Home tab Ribbon : All tools, shapes, colour palette and most of the commands are grouped together in the ribbon except Save, Undo and Redo commands which are shown at title bar or in the Quick Access Toolbar. Drop-down arrows below each item in the ribbon will give us other option of the tool. Most of the tools used for drawing or other tasks are present in Home Tab Ribbon.

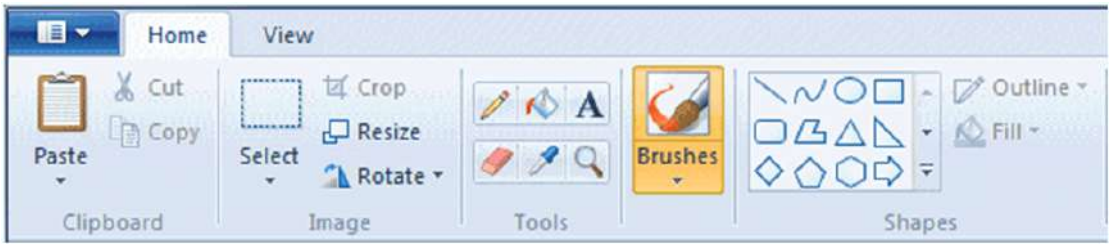


Fig. 4.10: Home tab Ribbon

There is also an option to minimize the ribbon. If we choose this, the ribbon disappears entirely, but pops into view if you click on the **Home** tab.

View tab Ribbon : We can use the View tab by clicking on it. The options such as Zoom in, zoom out, show or hide and display are there in View tab. Zoom in or out can be used alone or in conjunction with the Zoom Tool. We can also use status bar for Zoom in or Zoom out purpose.

Fig. 4.11: View tab Ribbon

4.3.4 Scroll Bar

Scroll bars are used to move the screen. These are of two types:

- **Horizontal Scroll bar :** It is present at the bottom of the Paint window. It moves the screen left and right.
- **Vertical Scroll bar:** It is present at the right side of the Paint window. It moves the screen up and down.

4.3.5 Status Bar

The Status Bar is present at the bottom of the Paint Window. It gives information and current status of our drawing. We'll look at its features from left to right.

Fig. 4.12: Status Bar

- **Cursor Position :** It gives the Cursor Position, which is helpful when we want to position any picture precisely.

Fig. 4.13: Cursor Position

- **Selection Size :** It shows the size of a selection we are making or size of an object we are drawing.

Fig. 4.14: Selection Size

- **Image Size :** It shows the size of our entire picture, even if the picture is very large and is not visible completely in the window. If we have not changed the units in the

Properties dialogue box, the measurement will be displayed in pixels. We can change the measurement to inches or centimetres.

Fig. 4.15: Image Size

- **Disk Size :** Once we have saved our picture, this option will show the size or drawingon Disk. If paint window is very small, this figure might not be shown.

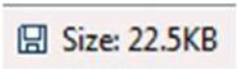


Fig. 4.16: Disk Size

- **Zoom Slider :** The Zoom Slider is convenient if we are working in a zoomed-in view and want to zoom out. However, we cannot zoom in on a particular spot, as we can do with the Magnifier.

Fig. 4.17: Zoom Slider

4.3.6 Work Area

Free space of Paint window is called work area. It is used for making drawing. This area is usually between Ribbon and status bar.

4.4 SAVING OUR DRAWING

It is good to save our picture as soon as we begin to work. We must click on the **Save** button on the **Quick Access Toolbar** every few minutes. This prevents loss of work if the program closes unexpectedly, as in a power failure.

When we click the **Save** for the first time, we will find a dialogue box where we have to type a name for the picture. Type a desired name in the file name text box and click the **Save** button.

Save as:

With the help of Save as option we can **Save a Copy** of picture with another file name. Go to the Paint button and open the menu.

Fig. 4.18: Paint button

Click **Save as** 

In the dialogue box, just change existing name then click the Save button.

Points To Remember

1. Quick Access Toolbar is present in title bar by default.
2. New Command creates a new, blank image file
3. The first on the left of the Menu Bar is the Paint Button
4. Maximize, Minimize and close button are parts of title bare.
5. The Status Bar is present at the very bottom of the Paint Window.

1. Fill in the Blanks:

I. The _____ bar is present at the top of the paint window.

a) Title Bar b) Status Bar

c) Scroll Bar d) Task Bar

II. _____toolbar is present in title bar by default. Its position can be changed either to below or above the ribbon.

a) Quick access bar b) Status Bar

c) Scroll Bar d) All of these

III. The first on the left of the Menu Bar is the _____ Button.

a) Paint b) Help

c) Close d) Minimize

IV. Scroll Bar is used to move the screen. It is of _____ types

a) 2 b) 3

c) 4 d) 5

V. With the help of _____ option we can Save a Copy of picture with another file name.

a) Save as b) Open

c) New d) Exit

2. Write the Shortcut Keys for following:

I. To create a NEW file _____

II. To OPEN an existing file _____

III. To SAVE a file _____

IV. To PRINT a file _____

V. UNDO _____

VI. REDO or REPEAT _____

3. Short Answer type Questions:

I. What is paint?

II. How to start the MS Paint.

III. Write the names of parts of windows of paint.

IV. What is work area?

V. Explain the use of Save command.

VI. What are the types of scroll bars?

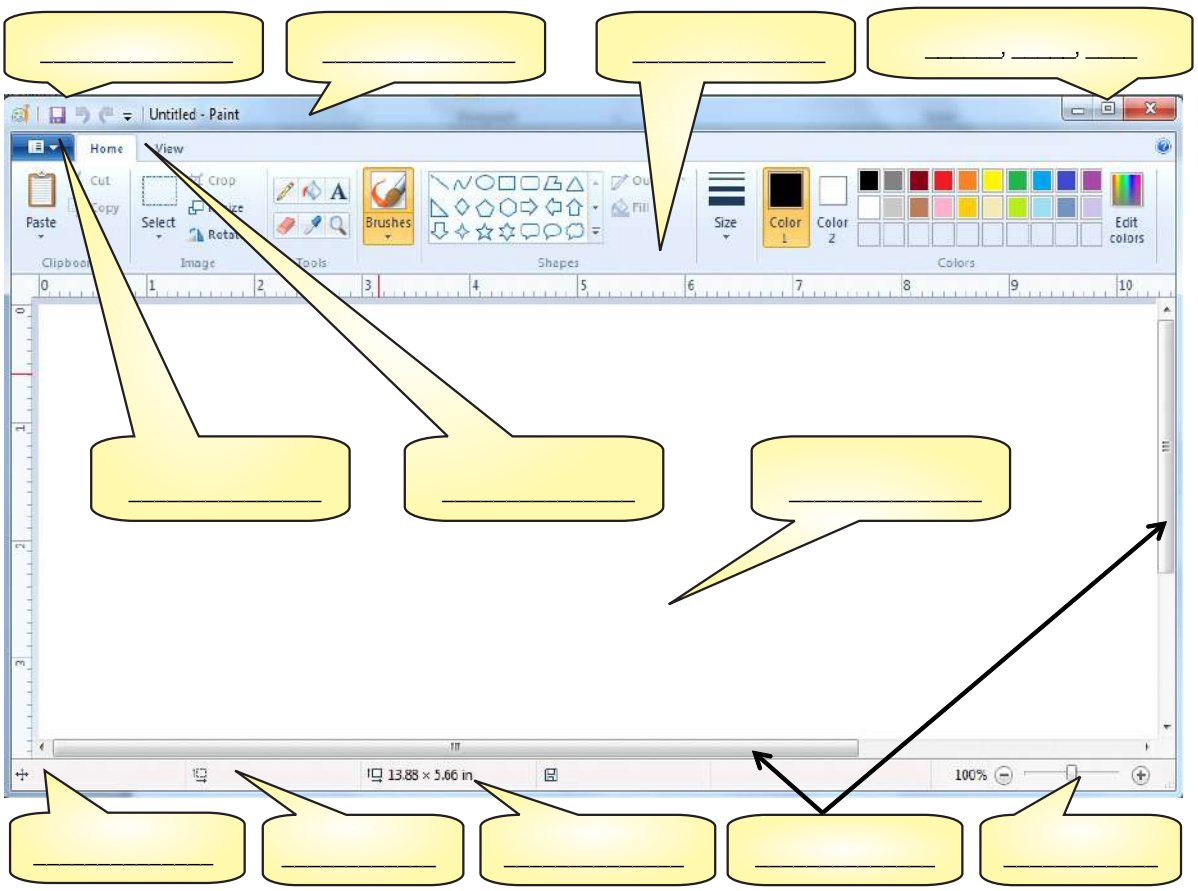
4. Long Answer type Questions

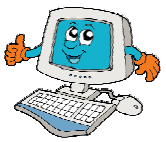
I. What is Quick Access Toolbar? Explain its parts.

II. Define Home Tab Ribbon.

Activity

- Let's revise what we have studied. Write the name of Parts of Microsoft Paint Window.





MS PAINT (PART-2)

CHAPTER - 5

OBJECTIVES OF THIS CHAPTER

5.1 HOME TAB RIBBON

Home Tab Ribbon of MS Paint contains the most useable tools. This Ribbon appears below the menu bar of MS Paint. The following figure shows the Ribbon and main parts of Home Tab Ribbon.

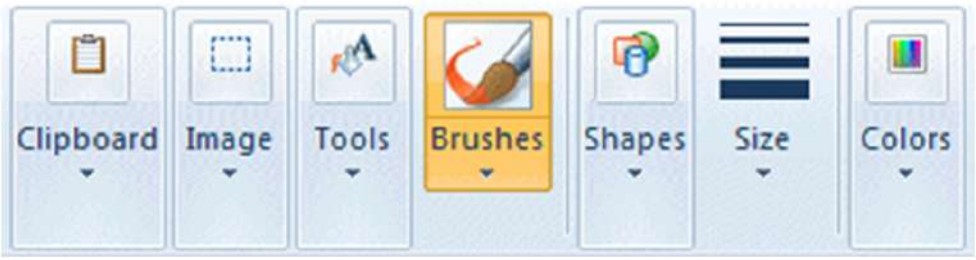


Fig. 5.1: Home Tab Ribbon

5.1.1 The Clipboard Menu

The clipboard menu has three options—**Cut, Copy** and **Paste**. Cut and Copy icons are shown only when a selection is active. This menu can be shown as under:

Fig. 5.2: The Clipboard Menu

Paste is always active, because we may wish to **Paste from** a picture on our computer. For example if previously, we have drawn and saved a small flower and wish to add it to our new drawing. We can click the down arrow under Paste, click **Paste from** and select your saved picture. Click **Open** to bring the existing picture in your current drawing.

5.1.2 The Image Menu

Select Option : Depending on the size of our window, the Image Menu will look like one of figures shown below. When we click the down arrow just below the dotted rectangle or just below the word Image, a menu offers us further choices.

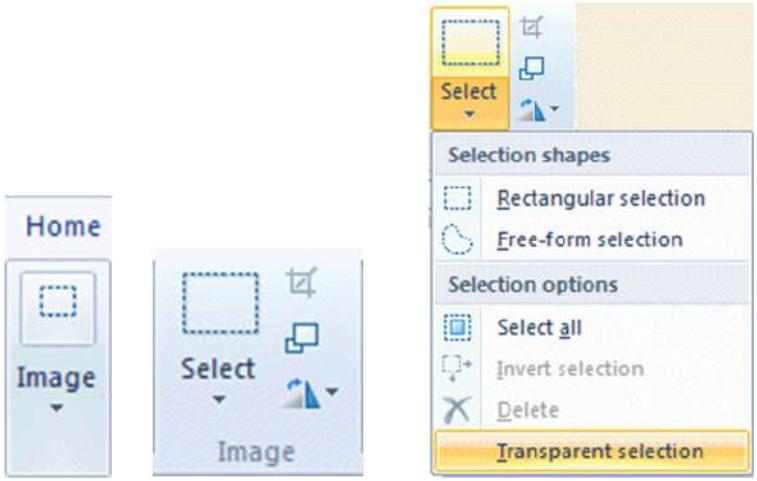


Fig. 5.3: The Image Menu—Select

Before we can use the buttons on the right of this menu, we must select the part of our drawing that we want to work with.

- **Transparent selection :** At the bottom of the Select menu, we can see **Transparent selection**. This option is useful enough as it removes the white background of selection. We can use our selection with only drawing objects. This option is most frequently used. We can add this option to Quick Access bar for its fast access. There will be a checkbox in front of the Transparent selection, as shown in figure below.

Fig. 5.4: Transparent selection

While that box has a tick in it, selections will be transparent. To make our selections opaque, just click the checkbox to remove the tick.

- **Rectangular selection :** Usually we can make a rectangular selection. After clicking the rectangular selection tool, position the cursor at the top left of the part we want to select, press your mouse button and drag down to its bottom right. A dashed rectangle will appear around our selection. With the move cursor  we can move our selection or drag while holding the Ctrl key to make a copy of it.
- **Freeform selection :** We may need to make a freeform selection if the part of our drawing that we want to work with is crowded up closely with parts we don't want to include.

Copying a selection : There is a Copy button on the ribbon for copying, but we can make multiple copies of a selection in a faster way also. For this purpose draw a selection around the part we want to copy, using either the rectangular or the freeform selection tool. Whenever Move Cursor  appears. Hold the Ctrl key and drag your selection to its new location. A new copy of the selection will be moved to the new location. If we want to continue copying, press the Ctrl key again as we begin to drag the second time. Repeat as many times as we needed.

Painting with a selection : Select a small piece from a picture, for example, with more than one color. Hold down the Shift key while dragging it around to make an abstract pattern. We can even write with a small selection.

Selection option : To the right of the selection icon we can see three options, **Crop, Resize** and **Rotate flip.**

- **Crop :** Diamond shape with a line atthe top is a crop button. It helps us to crop our picture to the selected area only. If we click the Save icon after cropping to a selection, our large drawing page will be replaced with the new selection area.

  Saving a selected area as a drawing:

  1. Save the picture we are working on.
  2. Select the part we want to save as a drawing .
  3. Click the Crop button.
  4. Go to the Paint button  and open the menu.
  5. Click Save as  .
  6. Type a name for the new Selected drawing and click Save. We will return to the Paint window with the only selected drawing and the name on the Title bar is the name we used when saving the new Selection.
- **Resize and Skew :** The second small button to the right of the large Select button will open the Resize and Skew dialogue as shown in figure below.

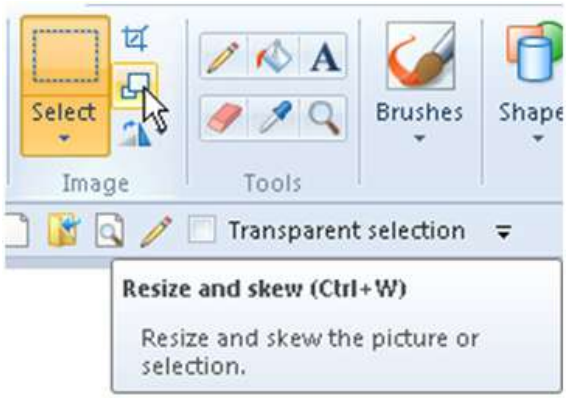


Fig. 5.5: Resize and Skew

- **Resize :** We can quickly resize a selection by dragging any of the little blocks—or handles—on the selection rectangle. However, if we want the size adjustment to be precise, we must use the Resize and Skew dialogue box. When we click the Resize icon, the dialog box appears as shown in figure below.

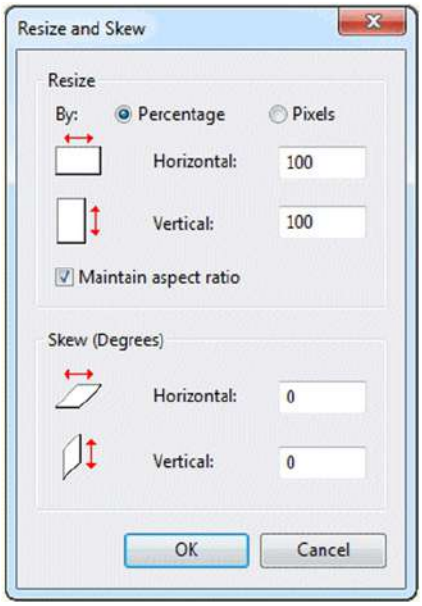


Fig. 5.6: Resize

Only the top half of this dialogue is concerned with resizing.

Note : While the option **Maintain aspect ratio** is checked, whatever we type into the Horizontal slot will be repeated in Vertical and our selection will stay exactly in proportion. We can remove the check if we want the selection to be fatter or thinner.

Fig. 5.7

- **Skew :** The bottom part of the Resize and Skew dialogue box allow us to skew our selection. When we use this option, it makes our selection include a lot of border area to avoid having part of the picture cut off. If this does happen, click **Undo** and make a wider selection before trying again.

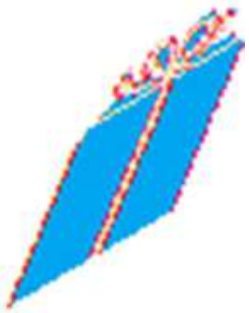


Fig. 5.8: Skew

This blue box is skewed 20 degrees horizontally. We can skew a selection both horizontally and vertically.

- **Rotate or Flip :** This menu helps us in rotating our drawing item to 90 degreesor 180 degrees. We can also make mirror images of selections using this option. We can mirror the drawing either vertically or horizontally.

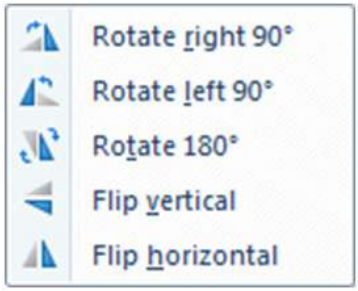


Fig. 5.9: Rotate or flip

We can use this option for making some systematic designs in MS Paint.

- **Invert Color :** Another set of options are available if we **right** click on a selection. It includes **Cut, Copy, Paste, Crop, Select all, Invert selection, Delete, Rotate and Resize,** the only one option that is available on this menu and nowhere else is **Invert color.** This option make the light colours darken and vice-versa to create invert colour pattern.

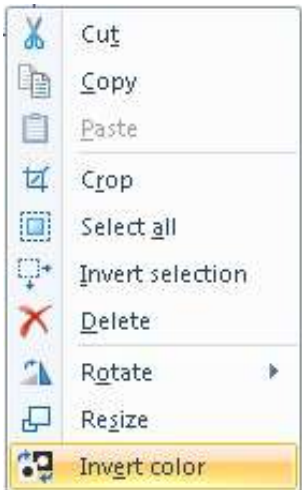


Fig. 5.10: Invert Color

5.1.3 The Tools Menu

Tool Menu of the MS Paint contains some basic tools for drawing.

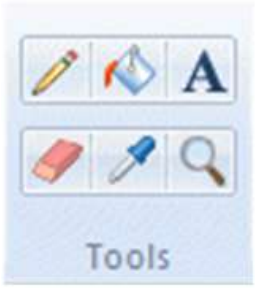


Fig. 5.11: Tools Menu

- **Pencil :** The pencil tool is used for free-hand drawing. We can work with pixel editing when using this tool in zoom-in view.

Fig. 5.12: Pencil

When we work with the pencil tool, we must press the left mouse button to draw with Color 1 and with the right mouse button to draw with Color 2.

Note : Color 1 in Paint is referred to as the Foreground color and Color 2 is the Background color of the picture. We can also change the pencil's thickness in the Size tab to 1, 2, 3 or 4 pixels.

- **Fill with Color :** The Fill with color tool, is used to fill an area with a **single color.** Color 1 is used if we press the left mouse button on the area to be filled. Color 2 is used if we press with the right mouse button.

Fig. 5.13: Fill with Color

This tool does not work successfully if we are trying to color different shades of one color. The Fill with Color tool always fills with a solid color.

- **The Text Tool :** Like earlier versions of Paint, The Text tool is used to insert any text.

Fig. 5.14: Text Tool

To begin inserting text, click on the text tool. Our cursor will change to an insertion bar. With this cursor we can draw required size of area for texts. We must not click anywhere outside that area until our text is final from all aspects. When we are using Text Tool then **Text Toolbar** start appearing.

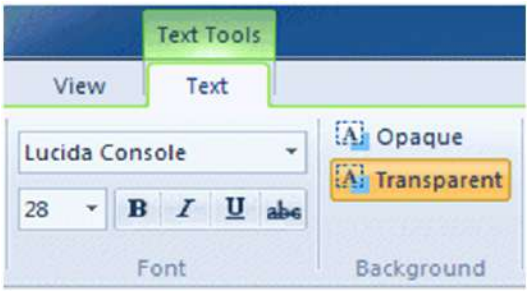


Fig. 5.15: Text Toolbar

Formatting the Text:

1. Select the text we have typed.
2. Click the down arrow at the end of the **Font Name** box, so that a list of fonts drops down.
3. Run your cursor—without pressing any mouse buttons—up and down in the font list. As we do this, the appearance of the text we have typed will change accordingly. When we like what we see, click on the name of that font.
4. The font list will close.
5. We can repeat this process with the **Font Size** list also.
6. We can also click the **Background** from **Transparent** to **Opaque** or vice versa.
7. We can change both Color 1 and Color 2.

Note : If we hit the enter key at the end of our text, the box will expand downwards. We can also use the handles to move the text box across the page, pulling it wider on one side and pulling it in on the other. There is no way to align our text automatically to the centre, we can put our cursor to the left of the text and press the space bar as many times as necessary to center align the text.

Fig. 5.16: Formatting the text

We can also type text in different colors, fonts and size, in the same text box. When we are making changes, only selected text will be affected. When we have completed editing of text, we can click anywhere outside of your text box. After clicking away from the text box, the Text Toolbar disappears and the text becomes part of our picture. Now, it cannot be edited in any way.

- **The Eraser :** The Eraser tool erases the part of a picture with the left button of the mouse pressed. It changes whatever is dragged across to the background color—Color 2

Fig. 5.17: Eraser

With the right button pressed, the eraser tool changes pixels of Color 1 to Color 2, but leaves everything else unaffected.

- **The Color Picker :** The Color Picker Tool is used to set the current foreground or background color and to match any color in our picture. It's especially useful when colors in the picture are different from those on the palette. By picking a color from the picture, we can make sure that we are using the same colour as already used in the drawing.

Fig. 5.18: Color Picker

For example we are zoomed in and working with the Pencil tool on an area that has many shades of red and we want to use one of those shades. Click the Color Picker and click directly on the shade of red that we want to use. The tool will immediately change back to the Pencil, loaded with the color we want.

- **The Magnifier :** The Magnifier Tool is used to zoom in on a section of our picture. Magnifier can be clicked over an area of which we want a closer view. The Left click gives a closer view and Right click zoom out.

Fig. 5.19: Magnifier

5.1.4 Brushes

We can work in various widths and textures with the help of Brushes. Widths are controlled by the brushes and the Size Tool together; textures are controlled by the brushes.

Fig. 5.20: Brushes

In the figure shown below lines are drawn with each of the offered brushes, using the same color and the same line width for each.

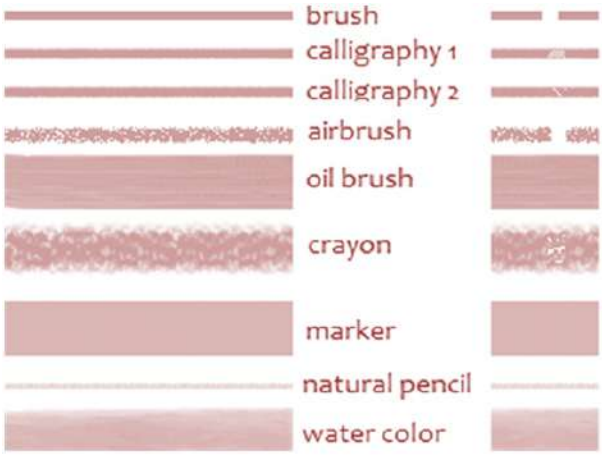


Fig. 5.21: lines are drawn with Brushes

5.1.5 Shapes

In the Shapes Gallery several tools like Rectangles, Rounded Rectangles Ellipses and Freehand Polygons, the Line Tool and the Curved Line Tool can be seen. There are number of other shapes such as arrows, speech balloons, various stars and others are also included.

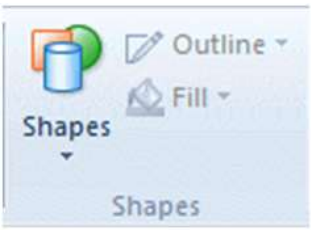


Fig. 5.22: Shapes

We can open the Shapes Gallery by clicking the down arrow under the Shapes picture and click the shape we want to draw.

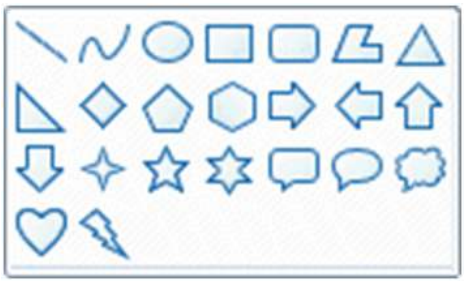


Fig. 5.23: Shapes Gallery

- **Straight Lines :** Straight lines can be drawn while the left mouse button is pressed and will use Color 1, those drawn with the right button will use Color 2. Line will be perfectly straight, If we hold down the Shift key while drawing a line.
- **Curved Lines :** Click the Curved Line button to draw a curve. Click the Outline button and choose Solid Color or a texture of your choice. Then click under the Size picture and choose a line thickness.

Fig. 5.24: Curved Lines

- **Ellipses, Rectangles, Circles and Squares :** If we want to draw an exact shape such as a square or a circle, hold the Shift key while we draw.

- **Freehand Polygons :** To draw a freehand polygon, click the Polygon button in the gallery. Hold a mouse button down and draw the first line of the polygon. Then release your mouse button and click where you want the next line to end. Keep clicking end points until you want the last line to finish the shape, then double click

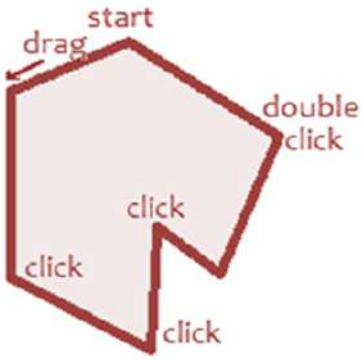


Fig. 5.25: Freehand Polygons

5.1.6 The Size Tool

This tool becomes active only after we choose either a Brush or a Shape. After selecting our Brush or Shape we will find down arrow under **Size Tool** and can choose a line thickness. The line thicknesses offered varies according to the brush we have chosen.

Fig. 5.26: Size Tool

5.1.7 Colors

The Color section of the ribbon has three parts: Boxes; showing the active colors—Color 1 and Color2, the Color Palette and the Edit Colors button.

- The Color Boxes:

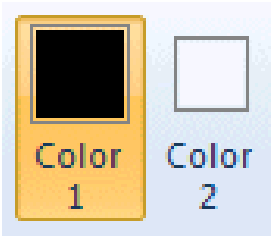


Fig. 5.27 Color 1 selected in Color Boxes

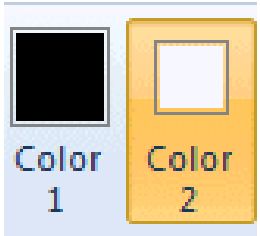


Fig. 5.28 Color 2 selected in Color Boxes

- Color 1 is the Foreground Color and is always black when we open Paint.
- Color 2 is the Background Color and is always white when we open Paint.

- **The Color Palette :** The two top lines of the Color Palette show all the colors available whenever we are making a picture. The line of blank squares at the bottom shows those colors, we have edited **during our work**. Once Paint is closed, the edited colors vanish away.

Fig. 5.29: Color Palette

- **Edit Colors :** The Edit Colors button takes us into the Edit Colors dialogue box.

Fig. 5.30: Edit Colors

The Edit Colors dialogue box is shown in figure below:

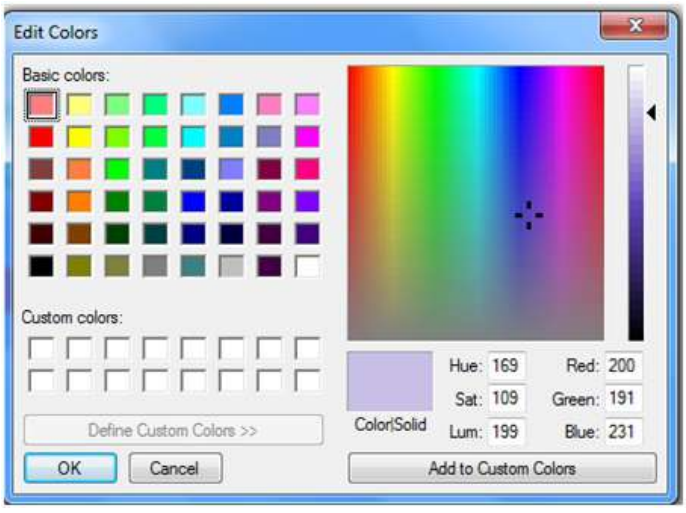


Fig. 5.31: Edit Colors

Here we can click any color on an extended palette and click the Add to Custom Colors button. Here only one color will be added to the squares under the palette. To add more colors, we must return to the dialogue box and add them one at a time.

5.2 VIEW TAB RIBBON

The following section explains the View Tab Ribbon. It has three main options: Zoom, Show or hide and Display.

5.1.1 Zoom

Zooming in and out can be used alone or in conjunction with the Zoom Tool on the Ribbon or the slider on the Status Bar. Zoom in and Zoom out tools can be clicked repeatedly to get a closer or more distant view. The 100% option brings us back to normal view of the picture.

5.1.2 Show or Hide

This portion of the View Tab Ribbon includes:

- The **Show or Hide** option for the **status bar**. The status bar is very useful while drawing pictures precisely.
- **Gridlines** are convenient if we want to align shapes accurately.
- **Rulers** can be turned on or off as per our requirement.

5.1.3 Display

On the **Display** section, we can click for **Full Screen View**. We can also get a Full Screen View by hitting F11. We can come back to a normal view by pressing the Esc key.

- **Thumbnail** is active only when we are zoomed in. It helps us seeing how changes, we have made are affecting our picture in normal view.

Points To Remember

1. Many of the tools we use in Paint are found in the Home Tab Ribbon
2. The clipboard menu has three options—Cut, Copy and Paste.
3. The top button, a diamond shape with a line through it, is crop. It helps us to crop to our picture so that only the selected area remains.
4. The Eraser tool erases the part of a picture with the left button of the mouse pressed.
5. Zooming in and out can be used alone or in conjunction with the Zoom Tool on the Ribbon or the slider on the Status Bar.

1. Fill in the Blanks:

I. The clipboard menu has three options—Cut, Copy and_____

a) Paste b) Move

c) Close d) Zoom

II. The top button, a diamond shape with a line through it is _____

a) Paste b) Cut

c) Copy d) Crop

III. The _____ tool can be used to draw pentagon.

a) Triangle b) Rectangle

c) Pentagon d) Hexagon

IV. The Eraser tool erase the part of a picture with the _____button of the mouse pressed

a) Left b) Right

c) Scroll d) None of these

V. Color 2 is used if we press with the _____ mouse button

a) Left b) Right

c) Scroll d) None of these

2. Very Short answer type Question –Answer in one word:

I. Which tool is used to draw a Square?

II. Which tool can be used to erase a part of picture?

III. Which tool allows us for zoom-in our picture?

IV. Which tool is used for free-hand writing?

V. Which tool can be used to write text in our drawing?

3. Short Answer type Questions:

I. What are the options available in the Clipboard Menu?

II. Write about Crop option.

III. Write the name of tools available in Tools Menu.

IV. What is size tool?

V. Write about brushes.

VI. Give the name of groups present there in home tab ribbon.

4. Long Answer type Questions:

I. Explain the color tool of MS Paint.

II. What is Text Tool? How to Format the text.

Activity

Name the following tools:

_____

_____

_____



_____ _____ _____

Name the following Shapes:

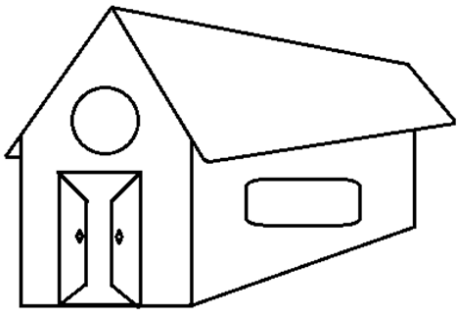
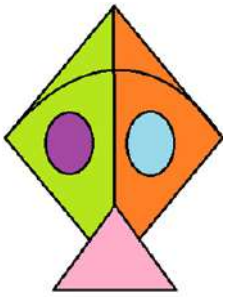


_____ _____ _____

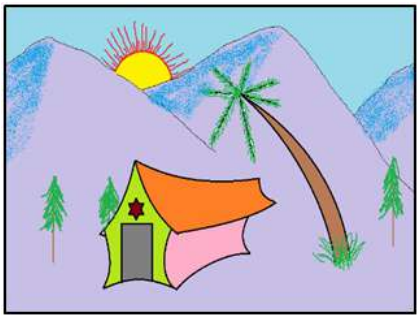


_____ _____ _____

Draw the following Drawings in paint:

_____ _____



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HARDWARE AND SOFTWARE

CHAPTER - 6

OBJECTIVES OF THIS CHAPTER

INTRODUCTION

Keyboard, Monitor, Speaker, CPU, and Printer are the components of Computer. All these are called Computer Hardware. All the instructions given in the form of Computer Program are called Software. Software programs are stored on storage devices like hard disk. Let us learn about them in detail.

6.1 WHAT IS HARDWARE?

In the Computer World Hardware refers to the physical components like keyboard, Mouse, Printer, Monitor that make up computer system. Input is feed and output is received through hardware. Data is stored on Hardware. Hardware can be touched and sensed.

6.1.1 Features of Hardware

We can touch and feel hardware. It occupies space and are having their weight. Hardwares are having their physical existence too. Hardware of computer system can be as under:

Fig. 6.1 Desktop Computer System

System Unit (CPU) : The System Unit also known as CPU of a computer system contains essential components such as mother board, processor, RAM, Hard Disk, CD ROM etc. All these parts are kept in a plastic or metal box known as Cabinet or computer case.

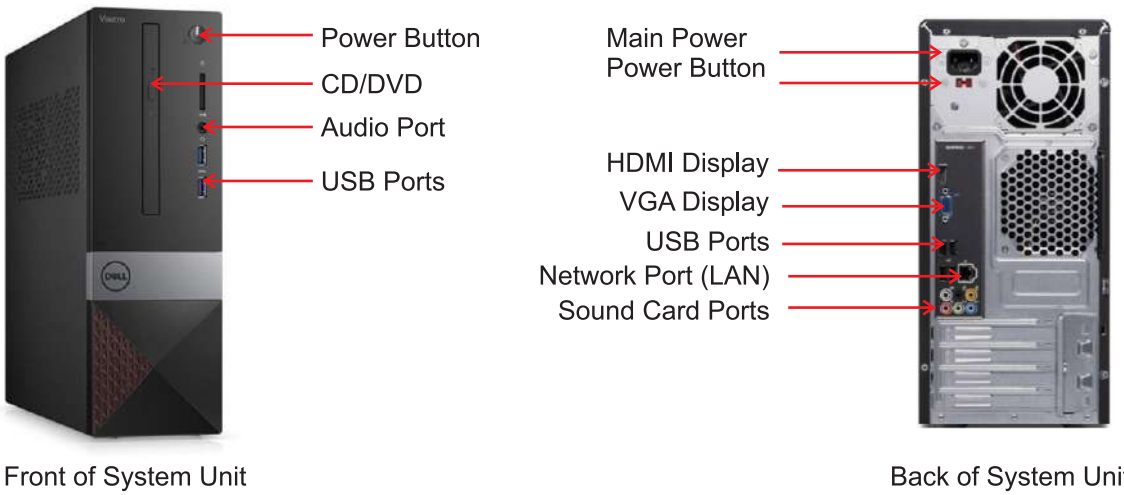


Fig 6.2 System Unit Views

Motherboard : The motherboard is a PCB (Printed Circuit Board) which is used to connect all the internal parts of computer. We can see a motherboard in the diagram shown below:

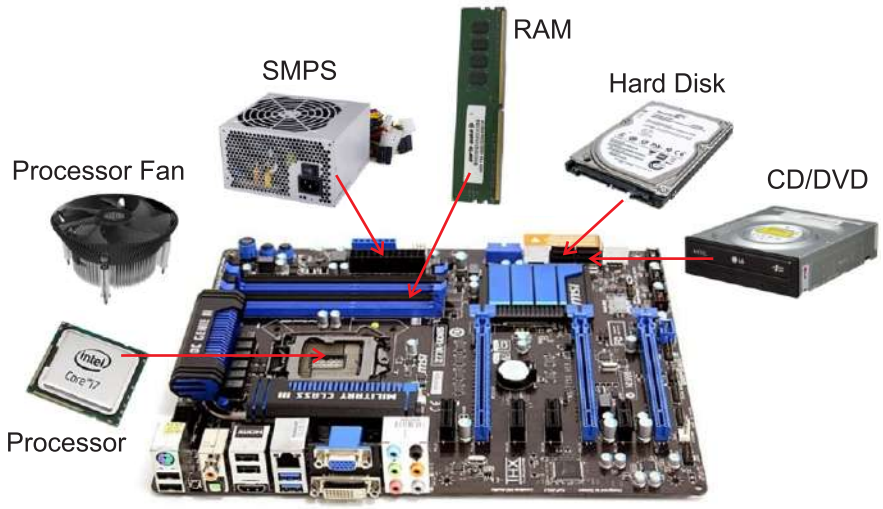


Fig 6.3 Mother Board

Some of the components that are connected with motherboard are:

- **Hard Drive :** Hard drive Or Hard Disk is the main storage media device that permanently stores all data on the computer.
- **Video Card :** The video card is a device in a computer that outputs visual information to the monitor.

- **Processor :** Processor carries out the instructions of a computer program by performing the basic arithmetical, logical, control operations of the system.
- **FAN :** Every computer has a cooling fan designed primarily to prevent the CPU from overheating.
- **RAM :** Ram is known as Random Access Memory. This is a Main Memory of Computer which is considered as Primary memory. All the data and instructions are loaded in this primary area of computer before processing. This memory is volatile and all information that was stored in this memory is lost when the computer is turned off.
- **Power Supply :** The component that supplies power to a computer.
- **CD/DVD :** A disc that store large amounts of data

6.1.2 Important points for taking care of Hardware

If different components of computer are not properly looked after, they get spoiled very soon. Following points should be kept in mind while handling Hardware:

I. Keep all the parts of computer clean.

II. Cover it after use.

III. Do not pull cables of computer Parts.

IV. Press keyboard keys gently.

V. Do not eat in the Computer Room.

VI. Keep Hardware in proper manner.

VII. Keep your shoes outside the computer Lab.

VIII. Handle different parts of computer in a proper way.

IX. Use soft cloth or brush to clean computer.

X. Do not clean the equipment while the computer is turned on.

6.2 WHAT IS SOFTWARE?

A Computer without instructions is like a car without driver. Computer requires a set of instructions given by us to work on input data. Sequence of instructions is called program.

Software is the collection of program that are stored and run on computer. Software is a program stored in a storage device. We can design our own software or we can get ready made software from market. e.g. CDs of games. Software helps the computer to perform a particular operation.

Features : Software has no weight. We cannot touch it. A software makes a hardware working. e.g. MS Word, Games etc.

Instruction + Instruction = Program

Program + Program = Software

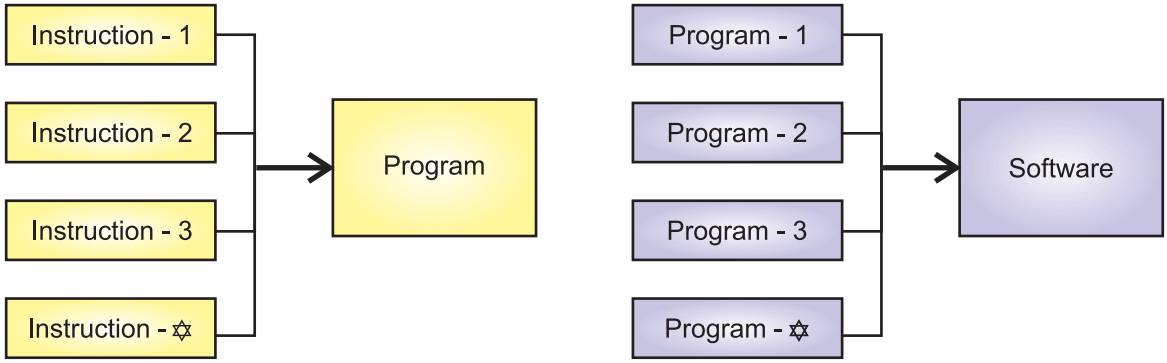


Fig 6.4

6.3 TYPES OF SOFTWARE

Softwares are of two types:-

- System software
- Application Software

6.3.1 System Software

System Software is defined as a collection of programs that controls the overall operation and internal working of the computer system. It reads data from input devices and transfers the processed information to output devices. It works like a manager. It is an important part of computer. A Computer can never be used without System Softwares. e.g. Operating System, Utility Program, Language Translator. It is difficult to design system software. System Softwares are developed by experts only.

Figure 6.5

6.3.2 Application Software

These type of software are used for some particular operations. There are several types of Application softwares available now a days. Each one of them are having their own application areas. These type of softwares can be used for beautifying the documents, making calculations, arranging data in an organized way. System software is the need of every computer but application software can be different for different computers. It is an non-essential part of computer hence it

depends upon the need of the user. These are also called general purpose software. e.g. Spread Sheet Software, Word Processor, Graphic Software.

Fig 6.6

6.4 SYSTEM SOFTWARE AND APPLICATION SOFTWARE

System software is different from Application Software in many aspects. Let us differentiate the two:-

	System Software	Application Software
1.	It is an essential part	It is non-essential part
2.	It is very complex	It is generally simple
3.	It is expensive	It is cheaper
4.	It can be made by expert only	A person with less experience can made it.
5.	Computer cannot work without it. Eg. Operating System	Computer can work without it. Eg. Paint, Word, Excel, PowerPoint, Games etc.

6.5 RELATIONSHIP BETWEEN HARDWARE AND SOFTWARE

For a Computer to produce useful output its Hardware and Software must work together. Nothing useful can be done with the Hardware on its own and Software cannot be utilized without supporting Hardware. Hardware components are controlled by software. To take an analogy, a cassette player and its cassettes purchased from the market are hardware. However, the songs recorded on the cassettes are its software. To listen a song, that song has to be recorded on one of the cassettes first, which is then mounted on the cassette player and played.

Hardware + Software = Computer

Points To Remember

1. Parts of computer are called Hardware.
2. Hardware has weight. It can be touched and sensed.

3. Printer, Monitor, Keyboard, Mouse, Hard Disk are parts of Hardware.
4. Group programs are called Software.
5. Software is of two types:- System and Application Software.
6. We cannot touch software.
7. M.S. Word, Excel, Paint are examples of Application Software.
8. To use hardware properly, we should keep it clean.

1. Fill in the Blanks:

1. Computer is a combination of hardware and _____.
   (a) Software (b) Application
   (c) Processor (d) All of these
2. Set of instructions is called_____.
   (a) Software (b) Hardware
   (c) Program (d) Application
3. Group of programs is called_____.
   (a) Hardware (b) Software
   (c) Processor (d) None of these
4. Software is of _____types.
   (a) 2 (b) 3
   (c) 4 (d) 5
5. Computer cannot work without_____
   (a) Word (b) Excel
   (c) Operating System (d) PowerPoint

2. Very short answer type questions

I. Which part of CPU connects the other parts like Processor, Hard Disk, Ram etc
II. What we call a set of instructions given to a computer?
III. Which part of computer cannot be touched but felt?
IV. What are two types of Software?
V. Which type of softwares are expensive?

3. Short answer type questions

I. What is Hardware?
II. What is Software?

III. Write the name of devices which are connected with motherboard?

IV. Give four examples of Hardware.

V. What are the qualities or features of Software?

VI. Explain the important points for taking care of hardware.

4. Long answer type questions

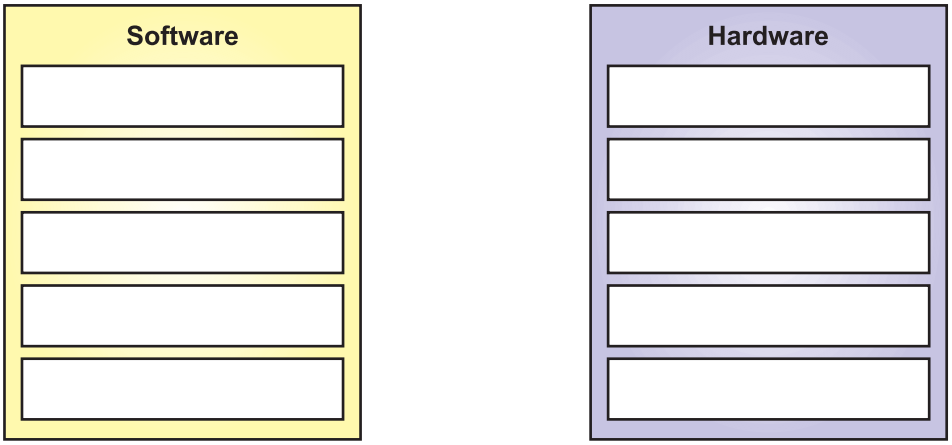
I. Write the difference between Application Software and System Software?

II. Write a note on Hardware.

Group Activity

1. Put the following terms into their relevant type:

Floppy disk	Hard Disk
MS Word	CD
MS Paint	Mouse
Monitor	MS Excel
Keyboard	Operating System



2. Take the students to computer lab in a group make a list of hardware and software parts present in the lab. Put a tick before the parts which are present in your lab given in a list below:

1. Key-board
2. Mouse
3. Monitor
4. Printer

5. Speaker

6. CPU

7. Windows

8. MS Paint

9. MS Word

10. Internet

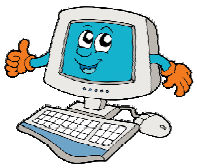
11. UPS

12. Scanner

13. Joy Stick

14. Camera

15. Microphone



CHAPTER - 7 INPUT DEVICE

OBJECTIVES OF THIS CHAPTER

INTRODUCTION

CPU alone can do nothing in a computer System. It has many helping devices. These devices are having their particular nature of operation to perform. Devices which accept input within computer are called **Input devices**. In this lesson, we will study about these devices in detail.

7.1 INPUT DEVICE

An **input device** is any hardware device that reads data into a computer System. It allow users to interact with computer and control it. Devices that accept data and Instructions from user are called Input devices. Input devices are needed to give input to the computer.

7.2 USES OF INPUT DEVICES

If CPU is the brain of computer then the Input devices of computer such as key board, mouse and microphone are its eyes, ears etc. Without input devices, a computer is a brain with

nothing to work with. We use input devices to give data and information to the computer.

Generally used Input devices are:

- Keyboard
- Microphone
- Web Camera
- Light Pen etc.
- Mouse
- Scanner
- Joy Stick

7.3 KEYBOARD

This is main Input Device. A Keyboard is a device with set of keys that enables you to enter text data in to a computer. A keyboard has many buttons which are called keys. A keyboard is used for typing letters, words, numbers and special symbols. It is a standard input device. Number of Keys on a keyboard can be vary among different types of keyboards .

Figure 7.1Keyboard

Types of Keys : Keyboard has following types of Keys. These are

- Alphabetical Keys
- Numeric Keys
- Functional Key
- Special Keys
- Arrow Keys
- Special Symbols Keys

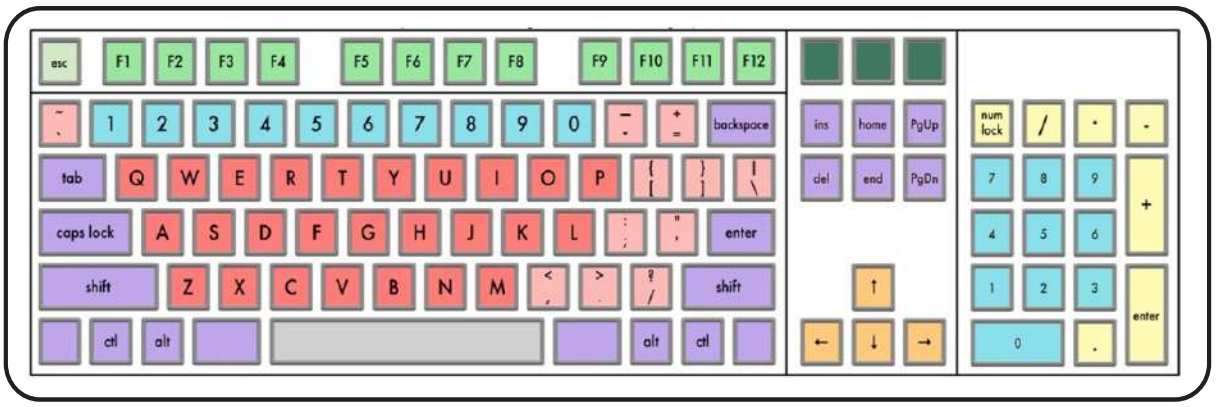


Figure 7.2 Keys of Keyboard

- **Alphabetical Keys (A to Z) :** Alphabet keys are used to type characters. These keys are present in the middle of the keyboard. All the keys A to Z are called alphabet keys.
- **Numeric Keys (0 to 9) :** The numeric keys are used to type numbers. These keys are present below the functional keys. On the right side of keyboard a special pad is present. It contains 17 keys. This key pad is called numeric key pad.This pad is similar to calculator, because along with numbers it also has mathematical signs and enter key. On the left top of the pad, a key named num lock is also provided. The Key's of this key pad works if num lock is on. The status indicated by the indicator on the keyboard.
- **Functional keys (F1 to F12) :** These are 12 keys. These are from F1 to F12. These are located at the top of the keyboard. The function of these keys can be different for different program. Eg. F1 key is generally used for help.

Figure 7.3 Functional Keys

- **Special Keys :** Each special key is used to perform a special function. Some special key with their functions are mentioned as under:

Sr. No	Special Key	Function
1	Delete	To delete characters written on right side of cursor
2	Back Space	To erase character present on left side of cursor
3	Enter	To start a new line or to execute the command
4	Spacebar	To insert space between two words or texts
5	Shift	It is used along with other key e.g. when shift and 'a' pressed together it will print A
6	Control	It is also used along with other key e.g. in paint Ctrl and S key when pressed together, they save a file
7	Alt Key	It is also used with another key e.g.- alt + F4 are pressed together to close an open program
8	Caps Lock	When we press caps lock key then an indicator appears on the key board. It means caps lock is on, it means capital letters will be written

- **Arrow Keys :** These are used to move cursor. These are four in number. These can move up, down, left, right. Arrow Keys are used to move the cursor in all directions.
- **Special Symbol Keys :** These are special symbols used in typing to represent some special meaning. These symbols are used to represent pause in sentence, full stop, arithmetic operations etc.

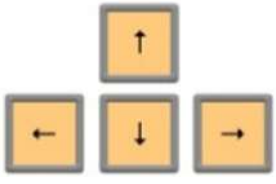


Fig 7.4 Arrow Keys of Key Board

7.4 MOUSE

Figure 7.5 Mouse and Mouse Pad

Mouse is an important Input device. It is used to control cursor movements on the screen. It is a small hand holding device. It is also called pointing device. Generally it has three buttons. It is called mouse because of its shape. Mouse is rolled over a flat surface. As you move a mouse, the cursor also moves on the screen in same direction.

Mouse pad : The pad on which we move the mouse is known as the Mouse pad. Mouse has following three buttons:

- **Left Button**
- **Right Button**
- **Scroll Button**
- **Left Button :** Generally left button is used for selecting an item or running a program. When left button on mouse is pressed then it is called "click" operation. When This button is pressed twice, it is called "Double Click". The programs are opened with double click. While things are selected with single click.
- **Right Button :** When we press right button, it is called right click. It is used to open shortcut Menu.
- **Scroll Button :** It is just like a wheel fixed in the centre of left and right button of mouse. It rotates the screen which is called scrolling. It is used to move screen up and down.

7.5 MICROPHONE

It is also called Mic and is used for sound input. We can give voice instructions to computer with the help of mic of your computer. If a computer has microphone then you can record your own voice. we can listen recorded voice with output device. Those users, who cannot type can give input to the computer with microphone. Using microphone we can also talk to our friends on the Internet.

Figure 7.6 Microphone

7.6 SCANNER

Scanner is an input device. It is used to add text and picture in computer. It works like a Photostat Machine. Scanner scans a picture or document and gives it to the computer in the form of digital signal. Scanners are available in many types and shapes in the market.

Figure 7.7 Scanner

7.7 WEB CAMERA

Web Camera is used to click photographs. It works similar to digital camera, but web camera saves photos in computer. Web camera is not an expensive device. We can use this device for video conferencing.

Figure 7.8 Web Camera

7.8 TOUCH PAD

Touch pads are used in laptop in the form of a small panel containing different touch-sensitive areas. It is used in place of mouse. The buttons of touch pad are similar to mouse i.e left right button which are at the bottom of touch pad. A touchpad is operated by finger and dragging it across a flat surface. As we move our finger on the surface, the cursor on screen will move in that same direction.

Figure 7.9 Touch Pad

7.9 BAR CODE READER

A **Barcode** reader (or Barcode scanner) is an electronic device for reading printed barcodes. Like a flatbed scanner, it consists of a light source, a lens and a light sensor translating optical impulses into electrical ones. It is used in shops, stores for different reasons. These are helpful in stores in order to maintain accurate and updated inventory monitoring. They can help to determine the price of an item. It is a fixed input gadget that is used to capture and read information enclosed in a bar code. This device consists of scanner.

Figure 7.10 Bar Code Reader

7.10 LIGHT PEN

It is a pointing device. It is just like a pen connected to a VDU. The tip of light pen contains a light sensitive element which when placed against the screen, detects the light from the screen enabling the computer to identify the location of the pen on the screen. Light pen has the advantage of drawing directly on to the screen.

Figure 7.11 Light Pen

7.11 JOY STICK

Joysticks consists of a base and a stick that can be moved in any direction. The stick can be moved slowly or quickly as required. Some joysticks have sticks that can also be rotated to the left or right. Because of the flexible movements of joystick, it can provide much greater control than the keys on a keyboard. It is often used to control video games and usually have one or more push buttons.

Figure 7.12 Joy Stick

7.12 TOUCH SCREEN

This is a type of display screen that has a touch-sensitive transparent panel covering the screen. Instead of using a pointing device such as a mouse or light pen, you can use your finger to point directly to objects on the screen. For example ATM machine, Smart Phones etc.

Fig 7.13 Touch Screen

7.13 BIOMETRIC

Biometric verification is any means by which a person can be uniquely identified by its body parts like fingerprints, hand, eye, etc. These devices are having very sensitive scanners placed in them. To use it, place the finger on this device, the scanner scans the pattern of finger-prints and send the signal to digital circuit for verification purpose. Authentication of the same allows the requested operation. On failure of verification, an error message of the same is displayed.

Fig 7.14 Biometric

7.14 ELECTRONIC SIGNATURE PAD

It is an electronic device used to capture written signatures and convert them to digital format. This device is having on hand holding pen and a digitally sensitive pad. When the pen is moved on the pad, its movements are being identified and given to computer in the form of digital signal to make the respective input.

Fig 7.15 Electronic Signature Pad

Points To Remember

1. Input devices are used to give input to computer.
2. Keyboard is an input device. It looks like a type writer.
3. Mouse is used to move cursor here and there.
4. Scanner is used to add text and pictures in the computer.
5. Web Camera sends photo graphics in the computer.
6. Mike is used to record Voice in the computer.
7. Touch pad is used in laptop.

8. Bar Code Reader is used in Big Stores.
9. Light Pen is a pointing device.
10. Joy Stick is used to play video games.

1. Fill in the Blanks:

I. _____ is used to click photos in computer.

a) Headphone b) Web camera
c) Speakers d) None of these

II. Bar Code Reader Consist of _____

a) Sensor b) Light
c) Heat d) Magnetic

III. _____is a pointing device.

a) Headphone b) Keyboard
c) Mouse d) Web Camera

IV. _____is used to add text and Picture in computer

a) Printer b) Scanner
c) Speakers d) Mouse

v. _____ keys are used to move cursor in all directions

a) Arrow b) Special
c) Function d) Numeric

2. Very Short Answer type Questions:

I. Which device is used to capture pictures in computer?
II. Give the name of any Pointing device.
III. How many function keys are there on a keyboard?
IV. Which device is used to control video games.
V. Which keys are used to move curser.

3. Short Answer type questions:

I. Define Input Devices?
II. Write the name of any six input devices?
III. Write short Note on Joy stick?

4. Long Answer type Questions:

I. Explain any two input devices.
II. Write a note on Bar Code Reader?

III. What is Mouse? Explain the functions of Mouse Buttons.

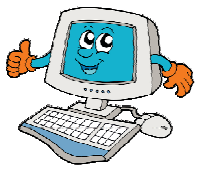
IV. What are pointing devices? Explain with Examples.

V. Explain Special Keys and their functions.

Group Activity

- Take the students to computer lab in a group to identify the keyboard's Keys. Let's count and write the no of keys of given type on your keyboard in a list below:

1	Alphabet Keys	
2	Special Keys	
3	Function Keys	
4	Numeric Keys	
5	Arrow Keys	
6	Total Keys	



CHAPTER - 8 OUTPUT DEVICES

OBJECTIVES OF THIS CHAPTER

INTRODUCTION

Computer System performs all the operations as per input given to it. The input can either be data or Instructions. All these instructions are implemented on given data to produce required result. This result is given to the user as an output. We use several types of output devices for this purpose. In this lesson we will learn about different output devices.

8.1 OUTPUT DEVICES

An **output device** is any hardware device used to give the results of data processing of a computer System. This Device converts the electronically generated information into human-readable form. Output devices are connected to computer and these are used to show data in term of sound, text and images. They are used to get result from computer. In other words these devices get output from the computer.

Uses of output device : Output devices are used to get information from computer. It can be either in soft copy or hard copy of information. Whatever the computer has done is given to user by output devices.

8.2 TYPES OF OUTPUT DEVICES

Every Output device has its own work. Commonly used Output devices are:-

- Monitor
- Speaker
- Plotter
- Printer
- Headphone
- Projector

8.3 MONITOR

It is most commonly used output device. It is a soft output device which looks like a television. It shows output on its screen. Here are two kinds of viewing screen used for monitors.

- Cathode-Ray Tube (CRT)
- Flat- Panel Display

8.3.1 Cathode-Ray Tube (CRT) Monitor

Many Types of CRT monitors are available in the market. CRT Monitor size is measured by diagonal length of the screen. Monitors are available in 15",17",19 and 21". Earlier black and white monitors were used but now we use coloured monitors. Such monitors display coloured pictures.

Figure 8.1 CRT Monitor

There are some disadvantages of CRT :

- Large in Size
- High power consumption

8.3.2 Flat-Panel Display Monitor

The flat-panel display refers to a class of video devices that have reduced volume, weight and power requirement in comparison to the CRT. You can hang them on walls. Current uses of flat-panel displays include calculators, video games, monitors, laptop computer, graphics display. Some example of Flat-Panel Display monitors are LCD, LED, Plasma etc.

Figure 8.2 Flat Panel Display Monitor

8.4 SPEAKER

Figure 8.3 Speakers

Speaker is an output device. They receive audio input from the computer's sound card and produce audio output in the form of sound waves. It is used to listen sounds produced by computer. we can listen songs with speakers. Speakers are available in different shapes. Generally there are two speakers attached with one computer.

8.5 HEAD PHONE

Sometimes referred to as earphones, headphones are hardware devices that either plugs into your computer (line out) or with your speakers and allow you to privately listen to audio without disturbing anyone else.

Figure 8.4 Headphone

8.6 PRINTER

Printer prints output on paper. It is a hard output device. The output of printer is permanent. Its output can be preserved. Printers are available with different speed resolution and size in the market. Black and white as well as coloured Printers are available now a days. Coloured printers give coloured printout. Printers are of three types:

- Dot matrix Printer
- Inkjet Printer
- Laser Printer

8.6.1 Dot Matrix Printer

This type of printers prints by joining dots. Its printing cost is very low.Its speed is slow and their printing output is very poor. It produces sound while working. The resolution of its printing is very low.

Figure 8.5 Dot Matrix Printer

8.6.2 Inkjet Printer

This type of printer is an example of coloured printer. These printers are having less cost and it does not produce sound while working. Its speed is faster than dot matrix printer. The running cost of this type of printers is very high.

Figure 8.6 Inkjet Printer

8.6.3 Laser Printer

This type of printers is both black and white as well as coloured. These printers are very costly. Their speed is very fast as compared to other printers. Their printing quality is very high. They work silently and their running cost is very low. These printers are most widely used due to their less running cost and very high printing quality.

Figure 8.7 Laser Printer

8.7 PLOTTER

Plotter is a hardcopy output device. It is used to print in the form of vector graphics. It is used in computer aided designing. These are used for some specific areas of applications like engineering design, Graphical Designs etc. They use pen for drawing pictures on paper.

Figure 8.8 Plotter

8.8 PROJECTOR

A projector is an output device that can produce a large display in the form of visual output on flat (usually lightly coloured) surface. For example, projectors are used in meetings to help ensure that all participants can view the information being presented.

Figure 8.9 Projector

There are also many devices that are used for both Input and Output. For example

1. Digital Camera
2. Pen Drive
3. CD/DVD
4. Modem
5. Fax

Fig 8.9

8.9 DIFFERENCE BETWEEN INPUT AND OUTPUT DEVICES

	Input Devices		Output Devices
1.	These are used to give data & instructions to CPU.	1.	These are used to get results from CPU.
2.	Keyboard, mouse, scanner, web camera etc. are examples of input devices	2.	Printers, monitor, speaker etc. are examples of output devices

Points To Remember

1. Output devices are used to get information from computer.
2. Monitor is a soft output device it shows text and pictures on the screen.
3. Printer is hard output device. It prints output on paper.
4. Printers are of many types like Inkjet, Dot-matrix and Laser.
5. Speaker is used to listen sounds of computer.
6. Plotter is for printing vector graphics

1. Fill in the Blanks:

I. Monitor is soft and _____is hard output device.

a) Printer b) Plotter

c) Both of these d) None of these

II. _____is used to listen sound of computer.

a) Printer b) Speaker

c) Microphone d) Mouse

III. _____prints output on paper.

a) Printer b) Keyboard

c) Mouse d) Speaker

IV. _____printer prints by joining dots.

a) Dot matrix b) Inkjet

c) Laser d) None of these

V. Monitors are of _____ types

a) 2 b) 3

c) 4 d) 5

VI. Headphones are also called_____

a) IPhone b) Earphone

c) Both of these d) None of these

2. Short answer type questions

I. What are output devices?

II. What are Speakers?

III. Where is projector used?

IV. What are the types of printers?

V. Write a note on Printer?

VI. Write the name of any three output devices.

3. Long answer type questions

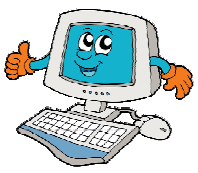
I. Write note on monitor and its types?

II. Write the difference between Input and Output Devices.

Activity

- Let's check our knowledge in the form of an activity. Count the devices in your school and fill in the boxes against their names. Also Tick (✓) in the related box for each device type:

	Device	Count the devices in your school.	Softcopy	Hardcopy
1)	Monitor/LED			
2)	Laser Printer			
3)	Speaker			
4)	Headphone			
5)	Inkjet Printer			
6)	Projector			



APPENDIX – I

COMMONLY USED SHORTCUT KEYS

(MS PAINT)

Shortcut Key	Used For
Ctrl + A	Select entire canvas
Ctrl + C	Copy selected area
Ctrl + X	Cut selected area
Ctrl + V	Paste clipboard data
Ctrl + Z	Undo last action
Ctrl + Y	Redo action
Ctrl + E	Shows image properties
Ctrl + G	Toggles grid lines
Ctrl + P	Print the picture
Ctrl + R	Show or hide the ruler
Ctrl + W	Open the Resize and Skew dialog box
Ctrl + N	Create a new picture
Ctrl + O	Open a picture
Ctrl + S	Save changes to a picture
Ctrl + Page Up	Zoom in
Ctrl + Page Down	Zoom out
Ctrl + B	Bold selected text
Ctrl + I	Make selected text italics
Ctrl + U	Underline selected text
Ctrl + Num Pad +	Scale up and tool or shape
Ctrl + Num Pad –	Scale down tool or shape
Esc	Cancel a selection
Delete	Delete a selection
F11	View a picture in full screen mode
F12	Save the picture as a new file
Alt-F	Opens the File menu
Alt-F4	Close the window

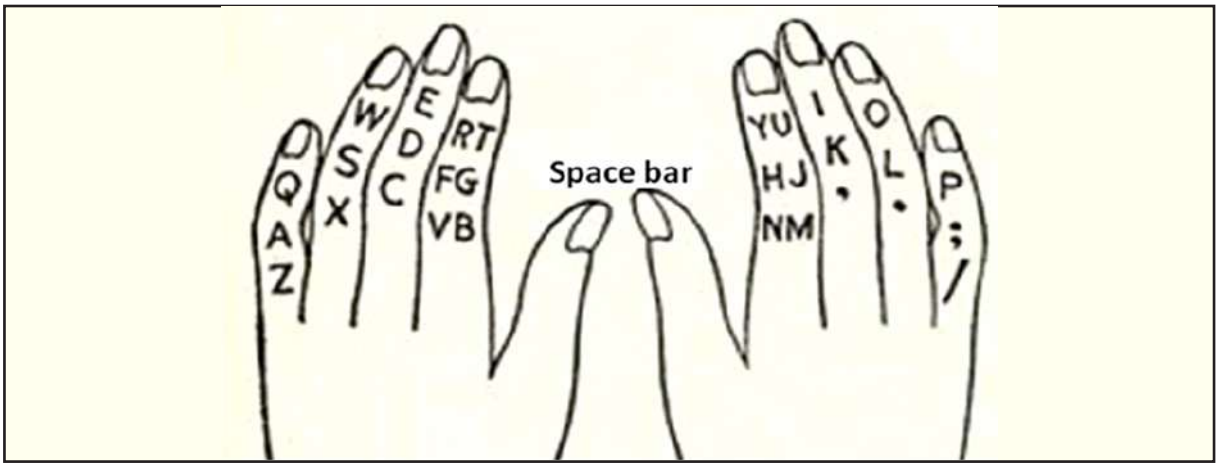
APPENDIX – II

COMMONLY USED FULL FORMS

Acronym		Full Form
BMP	:	BITMAP PICTURE
CD	:	COMPACT DISK
CPU	:	CENTRAL PROCESSING UNIT
DOS	:	DISK OPERATING SYSTEM
DVD	:	DIGITAL VIDEO DISK
E COMMERCE	:	ELECTRONIC COMMERCE
EMAIL	:	ELECTRONIC MAIL
GB	:	GIGABYTE
GIF	:	GRAPHICS INTERCHANGE FORMAT
IBM	:	INTERNATIONAL BUSINESS MACHINE
IC	:	INTEGRATED CIRCUIT
ISP	:	INTERNET SERVICE PROVIDER
IT	:	INFORMATION TECHNOLOGY
JPEG	:	JOINT PHOTOGRAPHIC EXPERT GROUP
KB	:	KILOBYTE
MB	:	MEGABYTE
MODEM	:	MODULATER DEMODULATER
MPEG	:	MOVING PICTURE EXPERT GROUP
NIC	:	NETWORK INTERFACE CARD
PB	:	PETA BYTE
PC	:	PERSONAL COMPUTER
PNG	:	PORTABLE NETWORK GRAPHICS
RAM	:	RANDOM ACCESS MEMORY
ROM	:	READ ONLY MEMORY
RTF	:	RICH TEXT FORMAT
TB	:	TERABYTE
UPS	:	UNINTERRUPTED POWER SUPPLY
URL	:	UNIFROM RESOURCE LOCATER
USB	:	UNIVERSAL SERIAL BUS
VLSI	:	VERY LARGE SCALE INTEGRATED CIRCUIT
WWW	:	WORLD WIDE WEB

APPENDIX – III

Lab Activity for Typing Practice in English



EXERCISE I

asdfg	;lkjh	asdfg	;lkjh	asdfg	;lkjh	asdfg	;lkjh	asdfg
asdfg	;lkjh	asdfg	;lkjh	asdfg	;lkjh	asdfg	;lkjh	asdfg
asdfg	;lkjh	asdfg	;lkjh	asdfg	;lkjh	asdfg	;lkjh	asdfg
asdfg	;lkjh	asdfg	;lkjh	asdfg	;lkjh	asdfg	;lkjh	asdfg
asdfg	;lkjh	asdfg	;lkjh	asdfg	;lkjh	asdfg	;lkjh	asdfg

EXERCISE II

Ask	Fad	Alsas	Shad	Lads	Flags	Flask
Jag	Fag	Fall	Hash	Glad	Galls	Salad
Jak	Had	Gaff	Dash	Gall	Flash	Slash
Sad	Lad	Adds	Lash	Hall	Lakhs	Dhalls
Dad	Asks	Alas	Dall	Fall	Glass	Shall

EXERCISE III

qwert	poiuy	qwert	poiuy	qwert	poiuy	qwert	poiuy	qwert
poiuy	qwert	poiuy	qwert	poiuy	qwert	poiuy	qwert	poiuy
qwert	poiuy	qwert	poiuy	qwert	poiuy	qwert	poiuy	qwert
poiuy	qwert	poiuy	qwert	poiuy	qwert	poiuy	qwert	poiuy
qwert	poiuy	qwert	poiuy	qwert	poiuy	qwert	poiuy	qwert
poiuy	qwert	poiuy	qwert	poiuy	qwert	poiuy	qwert	poiuy

EXERCISE IV

awerqfa	;oiupj;	awerqfa	;oiupj;	awerqfa	;oiupj;
awerqfa	;oiupj;	awerqfa	;oiupj;	awerqfa	;oiupj;
awerqfa	;oiupj;	awerqfa	;oiupj;	awerqfa	;oiupj;
awerqfa	;oiupj;	awerqfa	;oiupj;	awerqfa	;oiupj;
awerqfa	;oiupj;	awerqfa	;oiupj;	awerqfa	;oiupj;

EXERCISE V

Fish	Dirks	Oldest	Apple	Grade	Falls	Kodak
Rails	Jaded	Dead	Usual	Sales	Filed	Legal
Lease	Lakes	Agile	Isles	Ahead	Larks	Roses
Forks	Hedge	Skill	Rupee	Grass	Would	Alpine
Jaded	Liked	Equip	Quail	Jokes	Asked	Walks
Fiddle	Saddle	Dead	Filed	Lakes	Lease	Legal

EXERCISE VI

azxcvf	lkmnbj	azxcvf	lkmnbj	azxcvf	lkmnbj
azxcvf	lkmnbj	azxcvf	lkmnbj	azxcvf	lkmnbj
azxcvf	lkmnbj	azxcvf	lkmnbj	azxcvf	lkmnbj
azxcvf	lkmnbj	azxcvf	lkmnbj	azxcvf	lkmnbj
azxcvf	lkmnbj	azxcvf	lkmnbj	azxcvf	lkmnbj

EXERCISE VII

Cat	Jack	Colour	Neither	Enemy	Boat	Calcutta
Not	Have	Joints	Calling	Voted	Very	Vineyard
Met	Wind	Nerves	Enlarge	Money	Move	Material
Men	Verb	Verbal	Someone	Marry	Give	Sterling
Bent	Joint	Jackets	Examine	Thousand	Cylinder	Assessment
King	Carry	Jumbled	Examined	Struggle	Possible	Beginning
Zeal	Night	Booklet	Gracious	Grizzled	Frequent	Meanings
Zero	Tonic	Cutting	Becoming	Zodiacal	Exponent	Doubtless

EXERCISE VIII

12345	098767	12345	098767	12345	098767
12345	098767	12345	098767	12345	098767
12345	098767	12345	098767	12345	098767
12345	098767	12345	098767	12345	098767
12345	098767	12345	098767	12345	098767

EXERCISE IX

Type the following sentences 5 times:

1. Lost time is never regained
2. Get-up early and do your work
3. Today's youth and tomorrow's old
4. Age is a virtue when wisdom is with it.
5. Measure your word before it goes out of you
6. My steps are measured
7. A friend in need is a friend indeed
8. Children are innocent and should be guided rightly.
9. Our Land has great sages who knew the eternal truth.
10. Truth never fails
11. The Quick Brown Fox Jumps Over A Lazy Dog

EXERCISE X

Type the following paragraph 10 times:

Our flag is tri-colour. SAFFRON is the symbol of sacrifice and a string mind. WHITE is the symbol of purity, love and peace. GREEN is the symbol of plenty and joy. We hoist and salute our flag. We are ready to make sacrifices for our country. We want peace and progress. We want to be pure.