

## CHAPTER - 3

### WINDOWS OPERATING SYSTEM

#### OBJECTIVES OF THIS LESSON

This lesson is aimed to make you understand the basic concepts of windows. Readers will be able to understand the following:

- Windows operating system, its common features, Windows Explorer.
- Control Panel, Print Manager and other elements of Windows GUI

#### STRUCTURE OF THIS LESSON

- 3.1 Windows Operating System
  - 3.1.1 Common Features of Windows GUI
  - 3.1.2 Windows Explorer
  - 3.1.3 Print Manager and Installing Printers
  - 3.1.4 Control Panel
  - 3.1.5 Using Paint Brush
  - 3.1.6 Using Clipboard in Windows
  - 3.1.7 My Computer

Summary of the Lesson

Self Assessment Questions and Exercises

### 3.1 WINDOWS OPERATING SYSTEM

**Microsoft Windows** (or simply **Windows**) is a metafamily of graphical operating systems developed, marketed, and sold by Microsoft. It consists of several families of operating systems, each of which cater to a certain sector of the computing industry.

The Windows operating system is developed and maintained by Microsoft, the company founded by Bill Gates. The first version was released in 1985. Since then, it has grown significantly, and it now dominates the market. Windows uses a graphical user interface to make it easier for people to use their computers. The primary ways that people navigate are through icons on the desktop and the Start menu.

As of April 2014, the most recent versions of Windows for personal computers, smartphones, server computers and embedded devices are respectively Windows 8.1, Windows Phone 8.1, Windows Server 2012 R2 and Windows Embedded 8. A specialized version of Windows runs on the Xbox One game console.

The next version of Windows is Windows 10 and is currently available as a technical preview; it is set for release for phones, tablets, laptops, and PCs in late 2015.

However, versions of Windows operating system with its date of release are provided in **Table 3.1**.

#### Table 3.1: Windows Operating System Versions

**Remarks**

<b>Date</b>	<b>Version</b>
1981 Sept.	Interface Manager
1983	Windows was announced
1985 Nov.	Windows 1.0 for 8088 CPUs released
1987 Dec.	Windows 2.0 for 386 CPUs, up to 16 mbyte RAM addressable
1988/89	Windows 2.1 for 286/386
1990	Windows 3.0
1992 April	3.1 (janus) includes MS-DOS 5.0
1993 Nov.	Windows for Workgroups 3.11 (snowball) rudimentarily networkable
1995 Aug.	Windows 95 4.0 Codename "Chicago" was released
1996 Feb.	Windows 95 Version A (OSR1)
1996 Aug.	Windows 95 (detroit) Version B (OSR2) first time with FAT-32 support
1997 April	Windows 95 Version B (OSR2.1)
1997 Nov.	Windows 95 Version C (OSR2.5)
1998 June	Windows 98 (memphis) about 5,000 bugs fixed
1999 May	Windows 98 SE (Second Edition)
2000 Sept.	Windows Me (Millenium)
1980 Aug.	XENIX OS cooperation with SCO
1982 Feb.	XENIX 2.3 cooperation with SCO
1983 April	XENIX 3.0 cooperation with SCO
1987	MS OS/2 1.0 cooperation with IBM
1988	OS/2 1.1 cooperation with IBM
1991	OS/2 1.3 cooperation with IBM
1992	OS/2 2.0 cooperation with IBM
1993 July	Windows NT 3.1 & Advanced Server; 3.1 million lines of source code, supports HPFS
1994 Sept.	Windows NT 3.5 (daytona), Workstation and Server, with opengl and Netware client; 9 million lines of source code
1995 May	Windows NT 3.51, updae, transparent compression with NTFS file system, PCMCIA support, for Power-PCs available too
1996 Aug.	Windows NT 4.0 (cairo) 16 million lines of source code, no support for HPFS anymore
1996	Windows NT Terminal Server Edition (hydra)
1997	Windows NT Server 4.0 Enterprise Edition
1998	Windows NT Server 4.0 Terminal Server Edition
2000 Feb.	Windows 2000, Windows version 5.0; 30 million lines of source code, about 10,000 bugs fixed
2000 Sept.	2000 Datacenter Server
2001 Oct.	Windows XP (whistler), Windows version 5.1
2002	Windows XP Media Center Edition, Windows XP Tablet PC Edition
2003 April	Windows Server 2003 version 5.2 (whistler server)

2006	Windows Vista, Windows version 6.0, Codename Longhorn (Client)
2006 June	Windows Compute Cluster Server 2003 (Windows CCS 2003)
2008 Feb.	Windows Server 2008 (Codename Longhorn)
2007 July	Windows Home Server 1.0
2009 Oct.	Windows 7 (Codename Vienna)
2012 Oct. 26	Windows 8
2013 Oct. 18	Windows 8.1 (Codename Blue)

Remarks

### 3.1.1 Common Features of Windows GUI

Desktop view of GUI of Windows 7 Home Premium is shown in **Fig. 3.1**.



**Fig. 3.1: Desktop View of Windows 7 Home Premium**

A present day GUI has the following common features:

- a) **Pointing device(s)**: These allow users to point at different parts of the screen as well as can be used to initiate a command. Besides, these can also be used to manipulate objects on the screen by:
  - *selecting objects on the screen*
  - *moving objects around the screen, or*
  - *merging several objects into another object*

*Examples:* Mouse, light pen, joystick, touch sensitive screen, touch pad and so on.
- b) **Windows** : It graphically display the progress of the action initiated. When a screen is divided into several independent regions, each one of these is called a window. Each window can highlight results related to the action fired in the respective window.
- c) **Switching capability** : Windows system offers the switching capability from one application to another or for sharing of data among various applications.
- d) **Resizing and Movement** : Windows system also support resizing as well as moving around feature of windows.
- e) **Graphical Bit-mapped Displays** : Bit-mapped display are made up of small pixels and offer a very high resolution. Bit-mapped displays have almost replaced character-based displays. Bit-

## Remarks

mapped displays wonderful support graphic manipulation. This feature of these displays is also called WYSIWYG i.e. What You See Is What You Get.

- f) Functionality to support graphics along with height-parameters, color attributes, video-attributes, etc.
- g) **Icon** : Icons provide a symbolic representation of any system-entity or user-defined object, etc. such as file, folder, address, table, book, applications and so on. A folder icon consists a group of files or other folder icons. Double clicking on the folder icon causes a window to be opened displaying a list of icons and folder icons representing the folder's contents.
- h) **Dialog box** : Dialog box is used to capture user information or to present information to the user. Normally, a dialog box is displayed to get additional information. Dialog boxes are also used to indicate error messages in the form of alert boxes. Dialog boxes also use a wide range of screen control elements to communicate with the user.
- i) **Check box** : Such a box is used to capture the information intending confirmation pertaining to any kind of actions desired by the end-user.
- j) **Sliders** : These are used to show the relative position of the contents or to move to a different position.
- k) **Desktop Metaphors** : In desktop graphical metaphor, users are not aware of applications and they deal with files, folder, drawers, clipboard and an out-box. For example, merely clicking the mouse on an icon representing the Report cause word processor to get started and to load the report file automatically.
- l) **Menus** : The functionality on a GUI system must be arranged in the form of structured menus such as horizontal menus, pull-down menus, etc. From the menu, the end-user can select any operation of his choice such as File, Edit, Search, Tool and so on. Rather than remembering commands at each stage, a menu can be used to provide a list of items. Each menu element can be either a word or an icon representing a command or a function. Menu item can be invoked by moving the cursor on the menu item and selecting the item by clicking the mouse.

### 3.1.2 Windows Explorer

Windows Explorer displays the hierarchical structure of files, folders, and drives on your computer. It also shows any network drives that have been mapped to drive letters on your computer.

**Windows Explorer** is automatically launched any time you open a folder in **Windows XP**.

Using Windows Explorer, you can copy, move, rename, and search for files and folders. For example, you can open a folder that contains a file you want to copy or move, and then drag the file to another folder or drive.

There are other places in Windows where you can view and work with files and folders. My Documents is a convenient place to store documents, graphics, or other files you want to access quickly.

You can also view My Network Places, which lists other computers that are connected to your local area network (LAN). When you delete files or folders from your hard disk, Windows places them in the Recycle Bin, where you can retrieve them, until you empty the Recycle Bin. Files or folders deleted from a floppy disk or a network drive are permanently deleted and are not sent to the Recycle Bin.

To open Windows Explorer, click **Start**, point to **All Programs**, point to **Accessories**, and then click **Windows Explorer**.

### 3.1.3 Print Manager and Installing Printers

Both in Windows 7 and Windows 8, the *Print Management* console is part of *Administrative Tools*. However, it is not available in all editions of Windows. Only users of Windows 7 Professional, Ultimate and Enterprise will be able to use it. In Windows 8 it is available in Windows 8 Pro and Enterprise.

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While a search for the term *Print Management* in Windows 7's *Start Menu* will return the appropriate result, doing the same in Windows 8's *Start* screen will not. That's why, to make sure you find it, it is best to open the *Control Panel* and go to *System and Security* -> *Administrative Tools*.

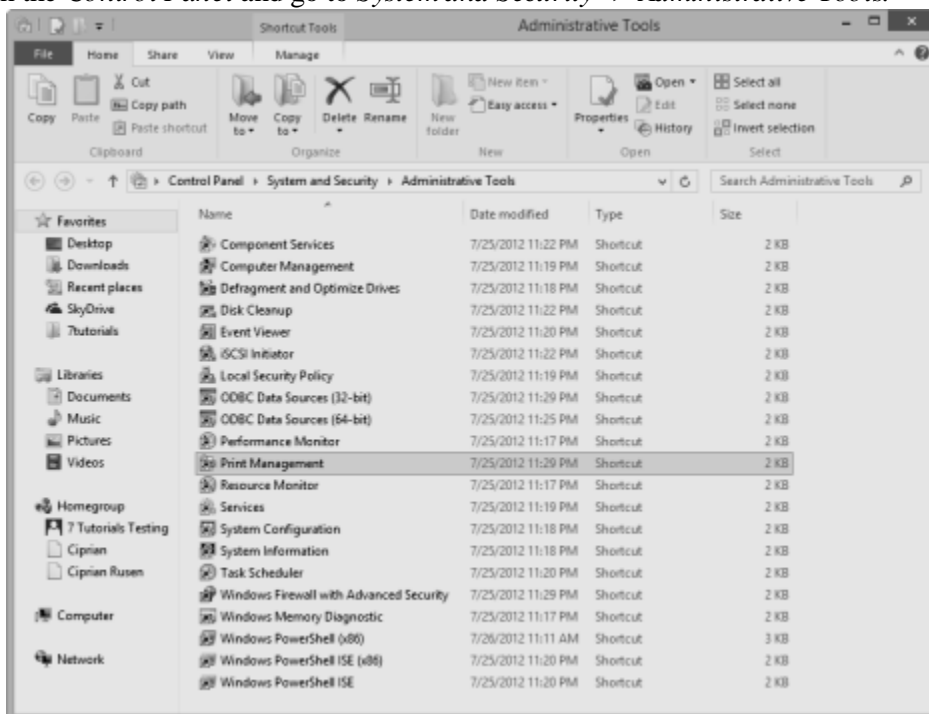


Fig. 3.2: Administrative Tools Menu

This will work both in Windows 7 and Windows 8.

When you first launch *Print Management*, its window will look similar to the screenshot below.



**Fig. 3.3: Print Management Menu**

### Installing Printer in Windows 7 - Step by Step Guide

- Click on **Start** and then click on “**Device & Printers**” – Then you get the Printers page.
- Then go top and find “**add a printer**” menu, Click on “**add a printer**”.
- Now you got a **printer setup wizard** front of you and asking to “how do you want to install your printer” with **USB cable** (Local printer) or **Wireless / Network**.
- Under Local printer you can Install printer with **LPT** port and with the **USB** cable.
- Select the USB port and select “**USB001 (Virtual port for USB printer)**” and then click on **next**.
- Now in the next windows pick your appropriate **drivers** for this particular printer.
- After that you get your printer driver successfully installed

#### 3.1.4 Control Panel

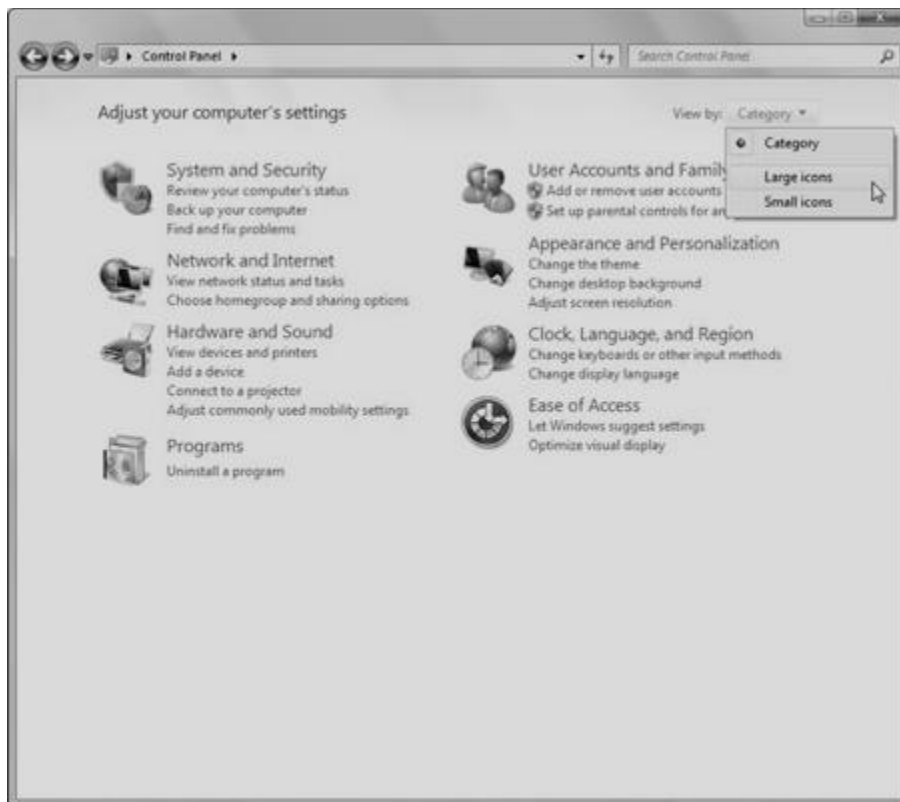
The Control Panel is a part of the Microsoft Windows graphical user interface which allows users to view and manipulate basic system **settings** and controls via applets, such as adding hardware, adding and removing software, controlling user accounts, and changing accessibility options.

To open the Control Panel, click the Start button on the taskbar and then click Control Panel on the Start menu. Windows 7 gives you three different views for looking at your computer’s Control Panel: To switch views, click the View By drop-down button (labelled Category by default) in the upper-right corner of the Control Panel and then choose one of the views from the button’s drop-down menu.



**Fig. 3.4: Control Panel Menu**

By default, the Control Panel is displayed in Category view, which is separated into eight categories, ranging from System and Security to Ease of Access. To open a window with the Control Panel options for any one of these categories, simply click the category's hyperlink.



**Fig. 3.5: Control Panel Menu**

Remarks

### 3.1.5 Using Paint Brush

Paint formerly known as Paintbrush for Windows is a simple graphics painting program that has been included with almost all versions of Microsoft Windows since its first release. It is often referred to as MS Paint or Microsoft Paint.

The program opens and saves files as Windows bitmap (24-bit, 256 color, 16 color, and monochrome, all with the .bmp extension), JPEG, GIF, PNG, and TIFF. The program can be in color mode or two-color black-and-white, but there is no gray scale mode. For its simplicity, it rapidly became one of the most used applications in the early versions of Windows—introducing many to painting on a computer for the first time—and still has strong associations with the immediate usability of the old Windows workspace.

#### Steps to Start the Paint Brush

- 1).Click on the Start Button.
- 2).Click Programs.
- 3).Click Accessories.
- 4).Click on Paint.

Then you will screen as shown below:

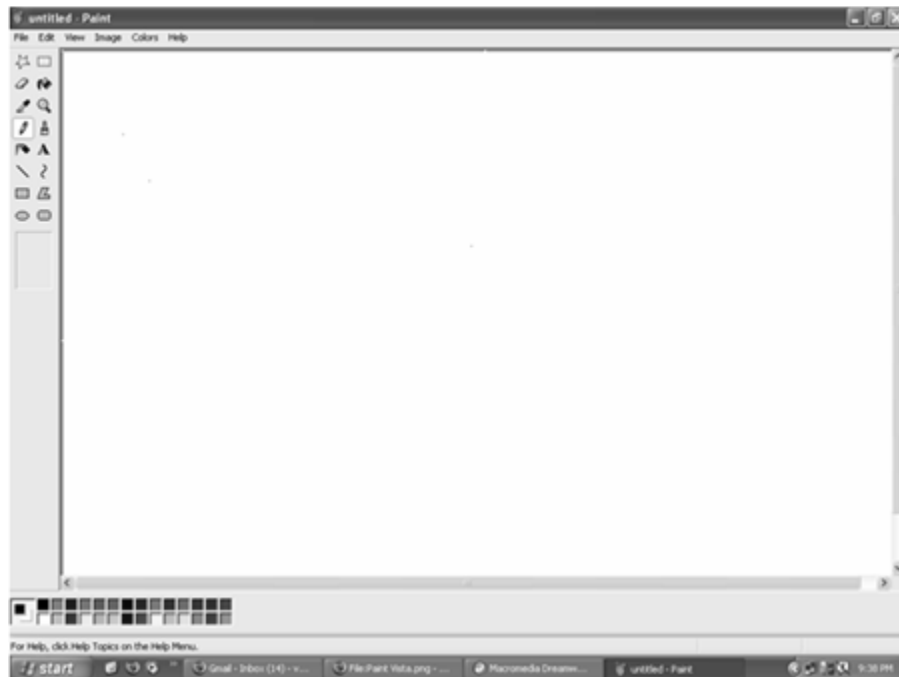


Fig. 3.6: Paint Screen

#### Menus

Four of the Paint menus—File, Edit, View and Help—are common to almost all Windows programs. Menus that are special to Windows Paint are Image and Colors. The menu of greatest interest is the Image Menu.

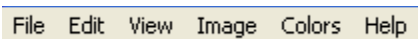


Fig. 3.7: Paint Menu

#### Toolbox



All the little grey boxes down the left are called the tools and together they make the toolbox. The individual tools will each be explained separately further down. Under the toolbox is a small area where you see different options according to which tool you're using.



**Fig. 3.8: Paint Toolbox**

### Paste Options

In this picture, with the selection tool active, you have a choice between paste opaque and paste transparent (selected, as you can tell by the dark background).



**Fig. 3.9: Paint Paste Options**

### The Colour Palette

Under the main window is the colour palette. The two squares set apart from the rest at the left end of the palette show the active colours; the colours presently in use. When you click on a colour in the palette with the left mouse button, that colour will be the primary or foreground colour, here shown as pink. The colour you click on with the right mouse button will be the secondary or background colour, here shown as white.

### 3.1.6 Using Clipboard in Windows

In Windows and other operating systems, the *Clipboard* is a short-term storage area for all kinds of information that you have copied from one place and you plan to use in another place. You can copy just about anything to the *Clipboard*: strings of text, images, video, files, folders, shortcuts, etc.

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When you copy (or cut) something, it is stored in the *Clipboard*. When you copy (or cut) something else that piece of information overwrites the previous contents. This is because Windows provides support for a single clipboard transaction.

When you paste the contents of the *Clipboard*, the contents remains available for further pasting operations. It is overwritten only when you copy or cut something else.

### *What Can You Copy to the Clipboard?*

Just about anything that can be selected in Windows: text of all kinds, graphics, files (including shortcuts) or folders.

### *What Can You Paste from the Clipboard?*

Pasting the contents of the *Clipboard* depends on where you want to perform the paste. For example, if you are working with text, you can paste text only in apps and programs that work with text. Following the same rule, you can paste graphics only in apps and programs that work with graphics, and so on.

If the contents of the *Clipboard* cannot be pasted where you want to, it will not be pasted there but the contents of the *Clipboard* will remain intact.

### *How to Manage the Clipboard in Windows?*

Windows XP had a *Clipboard Viewer* that allowed users to view the contents of the local clipboard, clear the clipboard or save copied and cut items.

Unfortunately, this program was removed from Windows Vista and subsequent versions of Windows, including Windows 8.1.

Therefore, if you want to view the contents of the clipboard and manage it, you must use third-party programs developed by companies other than Microsoft.

Windows XP had **clipbrd.exe**, referred to as the **Clipboard Viewer** or the **ClipBook Viewer**, which could be used to see what was saved on your clipboard. If you try to search for this exe file in Windows Vista, Windows 7 or Windows 8, you will be unable to find clipbrd.exe.

### *Clipboard in Windows 7 / 8*

In Windows XP this file was situated in *C:\Windows\System32\clipbrd.exe*. It is now missing as a part of the Windows 7 | 8 installation. You can try to copy it from a Windows XP installation, if you have access to it, and paste it in your System32 folder. In most cases this is known to work.

### *Clipboard Viewer*

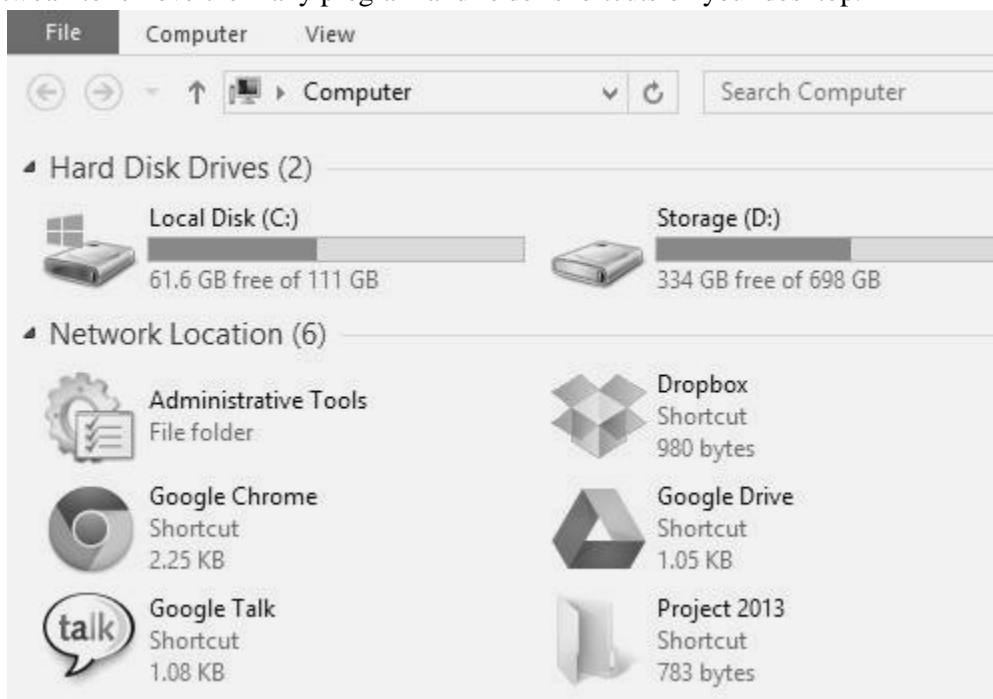
If you wish, you can download Windows Clipboard Viewer but if it does not work or if you are confronted with a message of sorts: *Entry Point Not Found*, then you may try to run it in Windows XP/SP2 compatibility mode and see if it works.

The Windows Clipboard is very basic in nature and does not offer many features. As a result, many free Clipboard alternatives like ArchiveClipboard, Enhanced Clipboard Manager, CopyCat, Clipboardic, Orange Note, Ditto, Clipboard Magic, etc, are available on the Internet.

## **3.1.7 My Computer**

The ‘My Computer’ icon gives us easy access to our hard drives, removable flash drives and other network-related locations. But if you’re one who enjoys a **clutter-free desktop**, then maybe you can use this tweak to remove the many program and folder shortcuts on your desktop.

Remarks



**Fig. 3.10: My Computer**

Here’s a way to get more usefulness out of “My Computer” by adding the shortcuts that you need to it. This also gives you **quick access** to the program or folder and works very well with Windows Explorer tabs tweak like Clover.

### SUMMARY OF THE LESSON

You learnt the following in this lesson:

- Operating System (OS) is a collection of software written to provide the fundamental instructions that a computer needs to manage resources, such as memory, the file system, and processes.
- Windows Explorer displays the hierarchical structure of files, folders, and drives on your computer. It also shows any network drives that have been mapped to drive letters on your computer.
- Both in Windows 7 and Windows 8, the *Print Management* console is part of *Administrative Tools*.
- The Control Panel is a part of the Microsoft Windows graphical user interface which allows users to view and manipulate basic system **settings** and controls via applets, such as adding hardware, adding and removing software, controlling user accounts, and changing accessibility options.
- Paint formerly known as Paintbrush for Windows is a simple graphics painting program that has been included with almost all versions of Microsoft Windows since its first release. It is often referred to as MS Paint or Microsoft Paint.

**Remarks**

- In Windows and other operating systems, the *Clipboard* is a short-term storage area for all kinds of information that you have copied from one place and you plan to use in another place.
- The 'My Computer' icon gives us easy access to our hard drives, removable flash drives and other network-related locations.

**SELF ASSESSMENT QUESTIONS AND EXERCISES**

1. What is an operating system ?
2. Discuss the important functions of an operating system.
3. What is a File Manager ? Outline its responsibilities.
4. Chart the family of operating system.
5. What is Windows operating system? List its important versions.
6. What is the purpose of a clipboard?
7. What is Print Manager?
8. What is 'My Computer'?
9. What is Paint program/Paint Brush?
10. What are main features of Windows operating system?
11. What is Control Panel? How is it useful?