7

MANAGING DATA THROUGH SPREADSHEETS

7.1 LET'S START

Many times you have to work with large tabular data in which a lot of calculations (mathematical, statistical, financial etc.) have to be performed. In addition to calculations you may have to represent this data graphically and/or analyse the same. For such kind of data and calculations, specialised packages are available and are called 'Spreadsheet packages'.

In this lesson you will learn about the spreadsheet package MS Excel 2007.

7.2 OBJECTIVES

After going through this lesson you will be able to:

- appreciate the need of a spreadsheet package

- understand workbook & worksheet

- enlist the parts of a worksheet

- distinguish between various data types

- navigate in and edit the contents of a worksheet

7.3 LEARNING COMPETENCIES

After studying this lesson you will be able to attain the following compentencies:

- Create , open, and save a file or workbook

- Use Autofill and Autosum features of a worksheet

- Use formulae

- Create charts (Bar and Pie)

- Use functions (sum, average, max, min, count)

- Use keyboard shortcuts

7.4 NEED OF SPREADSHEET

A spreadsheet is needed to handle huge tabular data. Any type of data can be entered in a spreadsheet. Formulae can also be used so that all the calculations are performed automatically and data is analysed very quickly. Some examples of such data are given below:

1. Marks list of the students of a class:

R.No.	Name	Hindi	English	Maths	S.St.
1	Bharti	89	76	88	79
2	Gagandeep	79	88	87	88
3	Payal	74	67	77	62
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

2. Representation of overtime work data for the workers of a factory:

S.No.	Name	Overtime (Hrs)	Hourly Wages	Overtime Amt
1	Rajeev	56	70	3920.00
2	Sukhvinder	30	50	1500.00
3	Chetan	60	80	4800.00
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.

3. Patients' data in a hospital:

S.No.	Name	Age	Sex	Date of Visit
1	Raghav	56	M	29/06/..........
2	Puneet	30	M	29/06/..........
3	Divya	34	F	30/06/..........
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.

There are many spreadsheet packages available in the market. Two commonly used spreadsheet packages are MS-Excel and OpenOffice Calc.

7.4.1 Creating, Saving, and Opening a Workbook

You will now learn how to work with MS-Excel with the help of following example:

S.No.	Name	Bus	Train	Auto	Total
	Monthly Transport Expenses				
1	Rajat	300	200	100	600
2	Mohit	350	100	100	550
3	Surendra	500	230	0	730
4	Rajan	200	0	50	250
5	Rajni	150	0	0	150
6	Payal	230	300	50	580
7	Ujjawal	100	50	200	350
8	Bharti	400	200	130	730
	Total	2230	1080	630	3940

Fig 7.1: A sample spreadsheet

To start excel follow the following sequence:

Start → Microsoft Office → Microsoft Office Excel 2007.
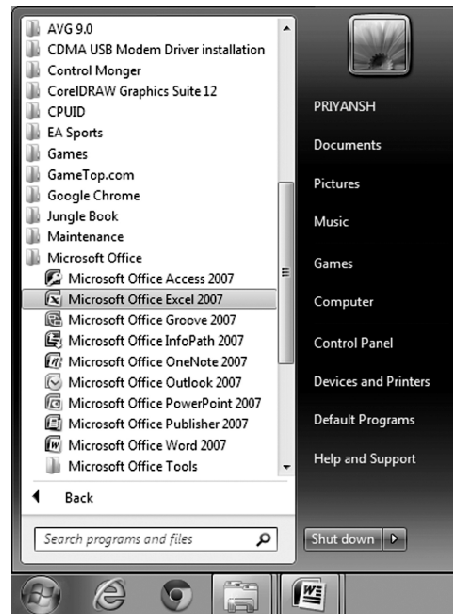

Fig 7.2: Starting Excel

Alternatively, double click the MS-Excel icon on your desktop.

When you start Excel you see the following screen:
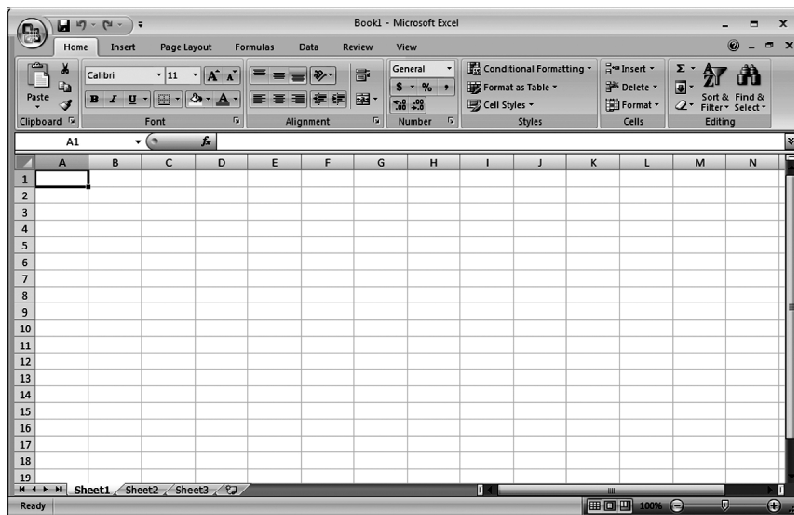

Fig 7.3: Excel Window

When you start MS Excel like this, Excel creates a workbook with the default name BOOK1. This workbook contains three empty worksheets with the names Sheet1, Sheet2, and Sheet3. Now save this workbook (procedure is similar to that used in word processor) with the name **Lesson7_Learn** in a specific location which you can easily remember. Excel will automatically give it the extension **.xlsx.** Now close Excel.

Again start Excel and go to the option **File → Open** and open the Excel file **Lesson7_Learn** which you just saved.

7.4.2 Parts of a Spreadsheet

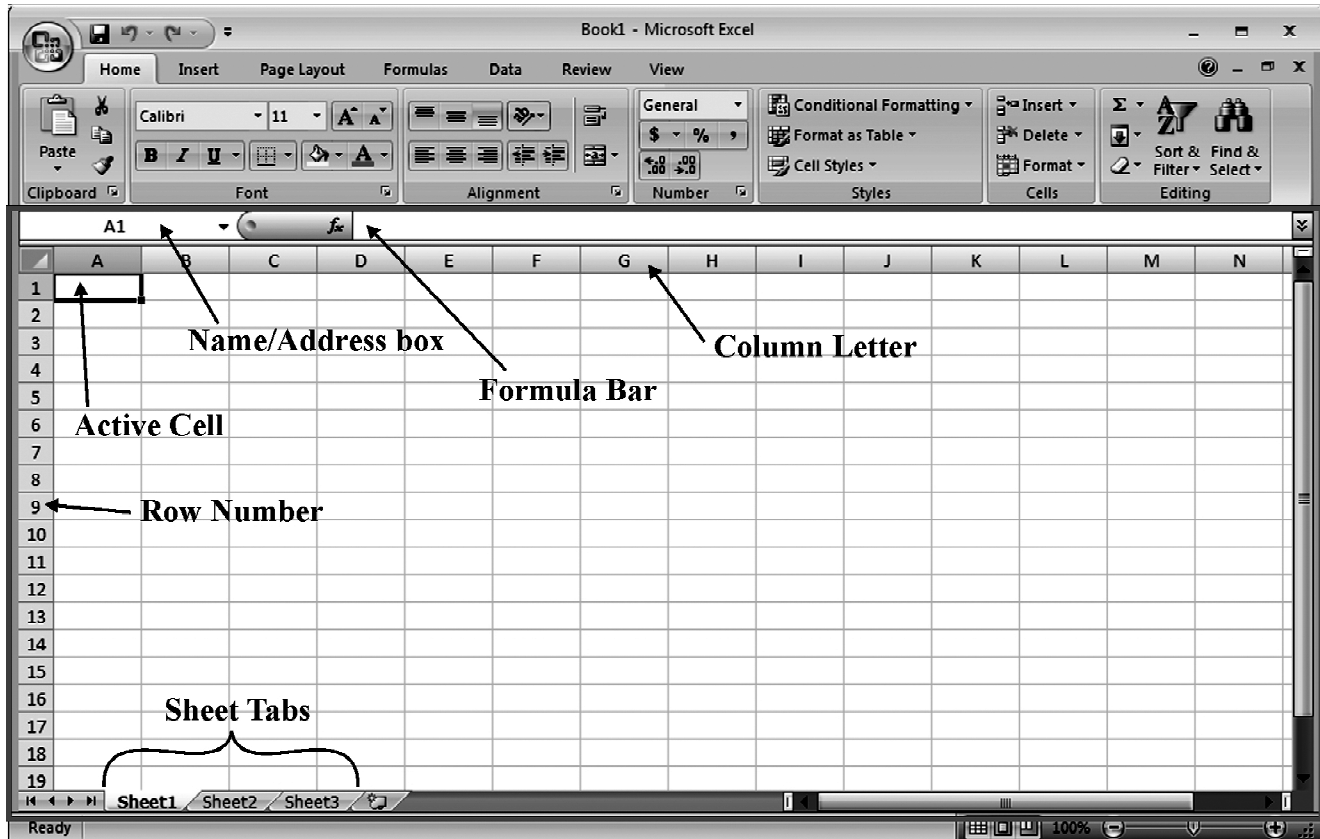Consider the area within the box in the following figure.

Fig 7.4: Parts of an Excel Window

The box shown in this diagram is not a part of Excel worksheet. This box has been put to mark the portion of the worksheet that you have to concentrate on and is also called working area in a spreadsheet. Its various parts are labelled in the figure 7.4 shown above.

In a spreadsheet package a file is known as a workbook. A workbook contains one or more spreadsheets. A spreadsheet is also called a worksheet. For example let a workbook is created to store the marks of the students of a class. This workbook may contain different worksheets to store the marks of Unit tests, Class tests, and Terminal exams etc.

Each spreadsheet is an arrangement of horizontal **rows** and vertical **columns**. There are 16384 (=2^{14}) columns and 10,48,576 (=2^{20}) rows in an Excel worksheet. Columns are named with alphabets starting from A till XFD. Rows are numbered starting from 1 till 1048576. Intersection of a row and a column is called a cell. Therefore, a spreadsheet contains 16384x1048576 (=17,17,98,69,184) cells. Isn't that huge?

Each of these cells has a **Cell Address** which is the combination of column name and row number. For example, cell address B20 refers to the cell in column B and row number 20. Data can be entered in any of these cells. To enter data in a cell, you have to click in that cell. When you do so, the cell becomes **active** and any data can be entered there. In the above figure you can see that cell A1 is the active cell. Address of the active cell appears in the **Name/Address box**. Alternately, you can enter the address of a cell in the Name/Address box and when you press Enter Key, that cell becomes the active cell.

Whatever data is present or you are typing in the cell appears in the **Formula Bar** also. Alternatively, whatever you type in the formula bar, appears in the active cell when you press Enter Key.

Names of the sheets appear in the **Sheet Tabs**. You can click on any of these sheet tabs to make it active sheet. By default, Sheet1 is the active sheet.

7.4.3 Types of Data:

Any of the following types of data can be entered in a spreadsheet:

- **Numbers** – These are the data values on which some calculations can be performed. For example, marks, prices, quantities, sale amount, purchase amount etc. By default all the numbers are right aligned.

- **Text** – These are the data values on which numerical calculations need not be performed. These may be the headings of some data values or actual data values like names of students, month etc. By default all the text is right aligned.

- **Formulae** – These are the expressions to perform calculations automatically. A formula may be applied to calculate sum, average, percentage etc. A formula always starts with an '=' symbol
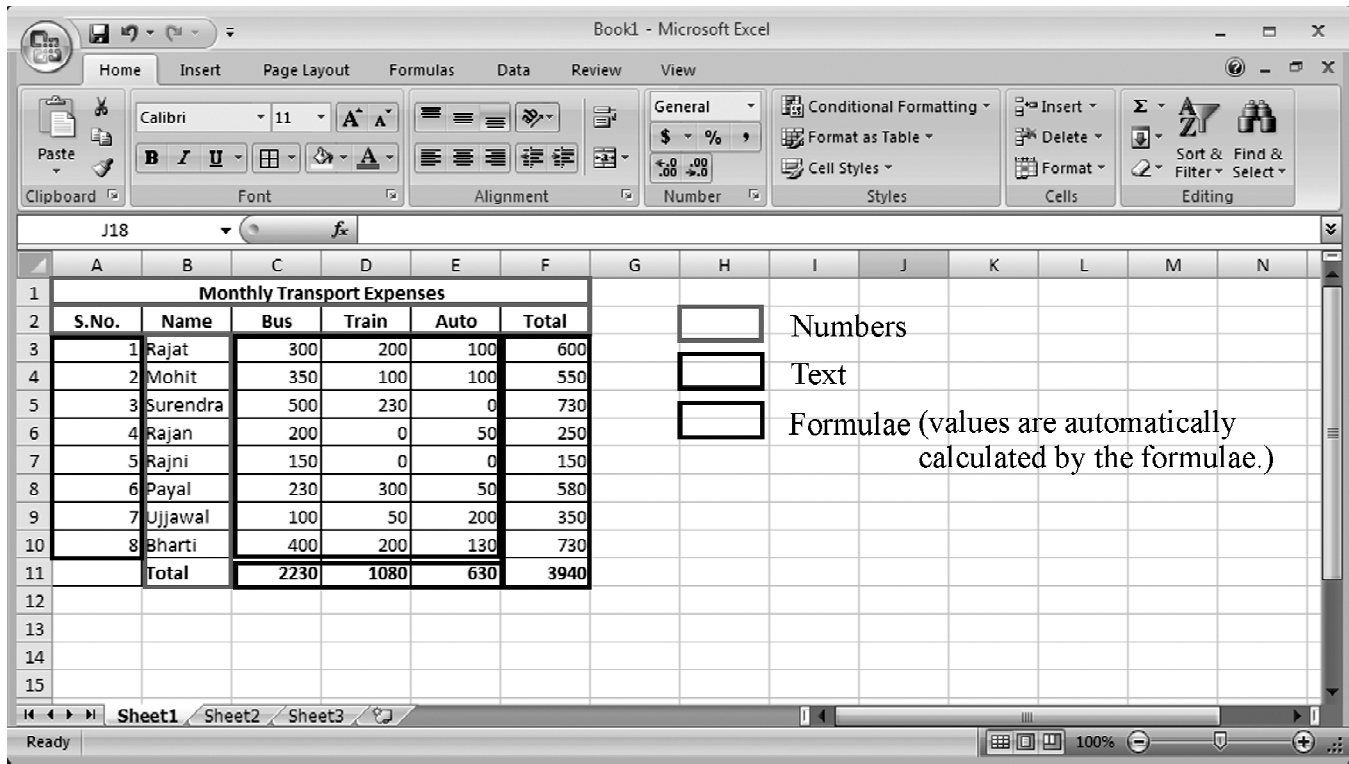
These are illustrated in the following figure:

Fig 7.5: Various types of entries in a spreadsheet

In this figure highlighted boxes represent Numeric data, above row indicates text.

INTEXT QUESTIONS 7.1

(1) Fill in the blanks (with reference to MS Excel 2007):

a. Extension of a workbook is _____.

b. A worksheet has _____ columns and _____ rows.

c. Address of a cell in column T and row 20 is _____.

d. Names of worksheets appear in _____ tabs.

e. _____, _____, and _____ type of data can be entered in a worksheet.

7.5 NAVIGATING AND EDITING CONTENTS IN A CELL/ WORKSHEET

Navigating in a spreadsheet means moving from one cell to another within the sheet. You can navigate in a sheet using mouse as well as the keyboard.
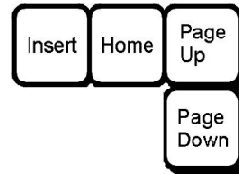
A mouse allows you to click in any cell of the sheet to make it the active cell.

With the help of a keyboard you can use cursor control keys and tab key to move from one cell into another.
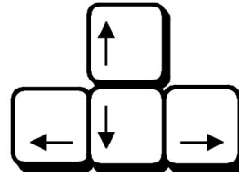
Fig 7.5 Cursor Control Keys

You can also move to any cell directly by entering its address in the Name/ Address box and pressing Enter Key.

Once a cell is active any data can be entered there. If the active cell already contains some data, it can be modified or overwritten.

To enter data in an active, cell, simply start typing the data. Whatever data you type is displayed in the active cell as well as in the formula bar. After typing the data in the active cell you can press Enter Key. When you press Enter Key the cell below the active cell becomes active. For example, if you are entering data in the cell B3 and then you press Enter, the cell B4 (below B3) will automatically become the active cell and now data can be entered in that cell. After entering the data it is not compulsory to press Enter only. You can also press any of the cursor control keys (arrow keys) or the tab key to move to the desired cell.

Editing contents in a cell

If a cell already contains some data and you want to update/modify it, you have the following three options:

i)   Double click in the [F12] cell.

ii) Click in the cell and press (function key).

iii) Click in the cell and then in the formula bar.

Performing any of the above actions brings the cell into edit mode and you can make the required modifications in the cell.

If you have practised the concepts covered till now, you are ready to create your first worksheet. Create the following worksheet. Notice that S.No. and Total entries are not filled:

	A	B	C	D	E	F	G	H
1		Monthly Transport Expenses						
2	S.No.	Name	Bus	Train	Auto	Total		
3		Rajat	300	200	100			
4		Mohit	350	100	100			
5		Surendra	500	230	0			
6		Rajan	200	0	50			
7		Rajni	150	0	0			
8		Payal	230	300	50			
9		Ujjawal	100	50	200			
10		Bharti	400	200	130			
11		Total	2230	1080	630			
12								
13								

J18

Fig 7.6: Spreadsheet practical practice

INTEXT QUESTIONS 7.2

(1) What is meant by 'navigating in a spreadsheet'?

(2) How can we navigate in a spreadsheet?

(3) Fill in the blanks:

a. To make any changes in a cell we have to get the cell in _____ mode.

b. Pressing F2 function key brings the active cell into _____ mode.

c. When we click in a cell, the cell becomes the _____ cell.

7.6 AUTOFILL

In the above worksheet, you can make the entries in S.No. column manually. It means that you enter 1 in the cell A3, 2 in the cell A4, and so on. But it is easier to make these entries by using the AutoFill feature of Excel. To use the AutoFill feature, do the following:

Enter 1 in the cell A3 and 2 in the cell A4. Now select the cells A3 and A4.

Notice the small box and the bottom right corner of the selected portion. This box is called the fill handle.

	A	B	C	D	E	F	G	H	I	J	K
	A3			fx	1						
1		Monthly Transport Expenses									
2	S.No.	Name	Bus	Train	Auto	Total					
3	1	Rajat	300	200	100	600					
4	2	Mohit	350	100	100	550					
5		Surendra	500	230	0	730					
6		Rajan	200	0	50	250					
7		Rajni	150	0	0	150					
8		Payal	230	300	50	580					
9		Ujjawal	100	50	200	350					
10		Bharti	400	200	130	730					
11		Total	2230	1080	630	3940					
12											
13											
14											

Fill Handle

**Fig 7.7: Autofill by Fill Handle**

Click at this Fill Handle. The mouse pointer changes from ☐ to +. Now drag the mouse till the cell A10 and release the mouse button. Notice that Excel has automatically filled correct serial numbers in the cells.

AutoFill is used to automatically fill entries in a number of consecutive cells. These entries must follow a pattern. For example if you want to fill adjacent cells with even numbers then fill first two cells with the numbers 2 and 4. Select these two cells and drag the Fill Handle to any length along the row or column (whichever is appropriate). When you release the mouse button, Excel fills all the cells through which you dragged the mouse pointer with consecutive numbers.

AutoFill feature can also be used to automatically fill weekday names and month names.

7.7 AUTOSUM

You can use AutoSum feature of Excel to find the sum of a range of cells. For example, in the sample spreadsheet, you can use the AutoSum to calculate the totals automatically. For this, open your Excel sheet and go to cell F3 and click at the AutoSum button in the ribbon shown in figure below:
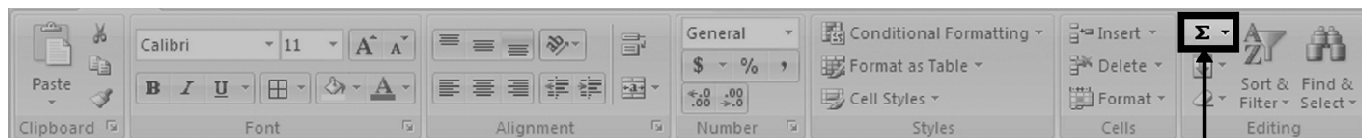
AutoSum button

Fig 7.8: AutoSum button

After you click the AutoSum button, you will see the following entry in the active cell (F3):

Fig 7.9: Using AutoSum

Here the entry is **=SUM(C3:E3)**. This is a formula as it starts with an '=' symbol. Any entry that starts with an '=' symbol is taken as a formula in Excel. In this formula SUM(C3:E3) indicates that the sum of the range of cells from C3 to E3 is to be calculated. Excel has automatically found the consecutive cells containing numeric entries adjacent to the active cell. This formula is correct in this worksheet and so you can accept it by pressing Enter Key. When you press the Enter Key, Excel will show you the desired sum (i.e., 600) in the cell F3.

You can copy this formula to the cells F4, F5,. . . F10 to calculate the remaining sums in column F. To do this click at the cell F3 and drag the Fill Handle (that you used in AutoFill feature) to the cell F10. You will see that all the sums in the column F are calculated automatically. Isn't that very easy and fast?

Similarly, click at the cell C11, click at AutoSum button to calculate the sum of column and press Enter. Copy the contents of C11 to D11, E11, and F11 by dragging the Fill Handle.

Now your first spreadsheet is complete. You can now save it.

7.8 FORMULAE IN EXCEL

Formulae are used to perform automatic calculation and re-calculation in a spreadsheet. A formula must begin with an '=' sign. For example, if you want the total of cells A1 and B1 displayed in cell C1, enter **=A1+B1** in cell C1 and press **Enter**.

	C1			f_x	=A1+B1
	A	B	C	D	E
1	7	8	15		
2					
3					

Fig 7.10: Entering formula in a cell

Now if you want to extend the same formula to C2 to calculate the sum of the cells **A2** and **B2**, just drag the bottom right square button of the highlight box of the cell C1 downward to the cell C2. The square button can be dragged down to as many cells as you want the formula to apply to. When you have completed the entry of a formula in a cell, Excel displays the result and not the formula in the cell. For example, in the Excel sheet, the formula bar displays the formula **=A1+B1** and the cell has what you want—the result of the formula.

You can enter a combination of typed numbers and cell addresses in formulae, like =**D4*2.5** (contents of cell D4 multiplied by 2.5). If you enter **75+15** in a cell, **75+15** (not 90) will be displayed in the cell, as you have not placed an '=' sign before the formula.

- Formulae are not case sensitive, i.e. =A1+B1 is the same as =a1+b1

- If there are changes in the cells to which the formula refers to , Excel recalculates and shows new results. This is called Automatic Recalculation.

7.8.1 Arithmetic Operators

Excel has several arithmetic operators. These are **%**, **^**, *****, **/**, **+** and **-**. Any combination of these operators can be used in a formula. If you combine

several operators in a single formula, the operations are performed in the order of the operators' priority. Operations with higher priority are performed first. Operator priorities are listed in the following table:

Operator	Operation	Priority	Purpose	Example Formula	Result of Example
%	Percentage	1	Divides a number by 100	=2%	0.02
^	Exponentiation	2	Raises a number to a power	=5^2	25
*	Multiplication	3	Multiplies two numbers	=5*2	10
/	Division	3	Divides a number by another	=15/3	5
+	Addition	4	Adds two numbers	=3+2	5
-	Subtraction	4	Subtracts a number from another	=8-5	3

Example 1: The formula *=5+1*3* produces the result 8 and not 18, as multiplication has a higher priority than addition.

Example 2: The formula *=79–5*3* produces the result 222 as explained below.

As multiplication has a higher priority than subtraction, 5*3 is calculated first. This being 15 is then subtracted from 79 to give 64 as the result. You can use parentheses to override the standard priorities. For example, =(79–5)*3 will result in 222.

Note that in the table above, multiplication and division have the same priority, similarly addition and subtraction also have the same priority. If a formula contains two operators with the same priority, the one appearing first, i.e. on the left side, on the formula is evaluated first. For example =(7-5*2+6)*3 will result in 9.

7.9 CELL REFERENCING

When a cell address is used or referred to in a formula, it is called cell referencing. Cell referencing can be of three different types:

(i) absolute,   (ii) relative, and   (iii) mixed.

You know that formulae can be copied to adjacent cells using the Fill Handle. The Copy and Paste method can also be used to copy formulae to other cells.

The cell references in a formula are automatically updated when the formula is copied to other cells in the spreadsheet.

7.9.1 Relative Cell Referencing

Consider the following case:

Three friends Sayna, Abhay and Rama are comparing their marks in three subjects namely English, Mathematics and Science. Consider the formula =(B3+B4+B5) used by Sanya in Cell B6 for calculating the total marks secured in English, Mathematics and Science. Now she needs a similar formula in the cells C6 and D6 for the next two columns.

B6	▼	f_x	=B3+B4+B5

	A	B	C	D
1				
2		Sayna Sarin	Abhay Kochar	Rama Swami
3	English	20	13	16
4	Science	19	11	18
5	Mathematics	20	9	15
6	Total	59		
7				
8				
9				

Fig 7.12: Relative Cell Referencing AutoSum Button

If she simply copies the original formula from B6 to cells C6 and D6, Excel makes the relevant changes in cell references automatically.

That is, formula is not copied verbatim. Excel interprets the original formula in B6 as: "Add the values present in three consecutive cells just above the current cell (i.e., the cell in which the formula is entered)". Therefore, in whichever cell this formula is copied, Excel will automatically change the cell reference to three consecutive cells just above the current cell.

It means that Excel interprets **cell references** in formulae as being **relative** to the location of formula. This is called **relative cell referencing**.

> Relative Reference: A cell reference is called a relative reference if a cell is referenced in relation to the current cell.

When the formula in cell B6 is copied to cell C6, Excel shifts all the references one cell to the right, so that the formula when copied becomes =C3+C4+C5, and when it is copied to D6, Excel shifts two cells to the right so that the formula in D6 becomes = D3+D4+D5.

C6	▼	f_x	=C3+C4+C5	
	A	B	C	D	E
1					
2		Sayna Sarin	Abhay Kochar	Rama Swami	
3	English	20	13	16	
4	Science	19	11	18	
5	Mathematics	20	9	15	
6	Total	59	33		
7					
8					
9					

Fig 7.12: Relative Cell Referencing

7.9.2 Absolute Cell Referencing

Unlike in relative cell referencing, there may be times when you do not want the automatic cell address changes to happen in the formula. For instance, if you need to multiply unit price of a Newspaper stored in one cell to the total sales over a period in other cells, the cell address of the unit price **should not** change. Take this example of a worksheet showing sales of M/s. Avon Newspaper Agency at their different branches.

F7	▼	f_x	=B3*E7							
	A	B	C	D	E	F	G	H	I	J
1		AVON NEWSPAPER AGENCY								
2										
3	Price Per Newspaper	3.00				Contents of B3 and E7 are multiplied to give Total Sales Amount in F7				
4										
5	NEWSPAPERS SOLD IN 3 BRANCHES									
6		JAN	FEB	MARCH	Total Sales	Total Sales amount				
7	Model Town Branch	2000	1500	1300	4800	14400				
8	Bawana Village Branch	1000	1200	900						
9	Patel Nagar Branch	2100	1876	2000						
10										
11										
12		Unit price stored in cell B3 should not change when formula referring to it is copied to different cells.								

Fig 7.13 : Absolute referencing is needed to refer to fixed cells

Cell B3 has the selling price per Newspaper which has to remain fixed throughout. Its reference in any formula must remain B3, not become B4, B5,C4 etc. Both its column and row references should remain fixed. Any reference to this cell is **absolute**, and to prevent Excel to change it automatically you prefix both column and row references with a $ sign. An absolute cell reference for B3 shall thus be B3. The formula in the above example to be entered in F7 shall be =E7*B3. After this, wherever you copy this formula the reference for B3 shall remain fixed.

When copied in cell F8, the formula will change to =E8*B3, and in F9 it will become =E9*B3 keeping the unit selling price figure same throughout.

Quick Fact

Read $ as "Don't Change". Read B3 as Don't change B Don't change 3

	A	B	C	D	E	F	G	H	I
1		AVON NEWSPAPER AGENCY							
2									
3	Price Per Newspaper	3.00							
4									
5	NEWSPAPERS SOLD IN 3 BRANCHES								
6		JAN	FEB	MARCH	Total Sales	Total Sales amount			
7	Model Town Branch	2000	1500	1300	4800	14400			
8	Bawana Village Branch	1000	1200	900	3100	9300			
9	Patel Nagar Branch	2100	1876	2000	5976	17928			
10									
11									

Fig 7.14 : Absolute referencing

Absolute cell reference : Absolute cell reference is a cell reference that does not change if you copy the formula elsewhere in the spreadsheet.

7.9.3 Mixed Cell Referencing

In a mixed cell reference, one of the columns or the row references is absolute while the other is relative. So, $B3 is a mixed reference, because B is absolute while 3 is relative. It will always point to the same column when the formula is moved or copied to another cell, but the row will change.

- Examples of Absolute and Mixed referencing include:

B4	Absolute referencing- The column B and the row 2 do not change when copied.
B$2	Mixed Referencing - The row 2 does not change when copied.
$A2	Mixed Referencing- The column A does not change when copied.

INTEXT QUESTIONS 7.3

(1) Fill in the blanks (with reference to MS Excel 2007):

   a) AutoFill feature is used by dragging the _____.

   b) _____ is used to fill entries in a number of consecutive cells.

   c) _____ is used to calculate the totals automatically.

   d) _____ are used to perform automatic calculation and re-calculation in a spreadsheet.

   e) A formula in Excel must begin with a/an ____ sign.

   f) B4 is an example of _____.

   g) $B4 is an example of _____.

   h) B4 is an example of _____.

   i) B$4 is an example of _____.

   j) In Excel _____ is the default cell referencing.

(2) State True/False (with reference to MS Excel 2007):

   a) If we enter 90+10 in a cell, the Excel will show the result 100 in the cell.

   b) Formulae in Excel are not case sensitive.

   c) Related formulae are automatically recalculated whenever there is some change in a cell referenced in the formulae.

   d) The formula =2+6/2 produces the result 4.

   e) MS Excel offers only Column chart and Pie chart in a spreadsheet.

7.10 CREATE CHARTS

It is said that a picture conveys a thousand words. Same is true for data representation also. Excel allows you to represent your data graphically. For this purpose Excel provides a number of charts (also called graphs) which can be used in a spreadsheet. The types of charts available in Excel are: Column Charts, Line Charts, Pie Charts, Bar Charts, Area Charts, XY(scatter) Charts, Stock Charts, Surface Charts, Bubble Charts, and Radar Charts. There are a number of subtypes of charts falling into each of these types. In this lesson you shall get an idea of Column Charts, and Pie Charts only.

To create any type of chart, you have to select the data that you want to represent graphically and then select Insert tab on the ribbon. It opens the Insert toolbar. The **Charts** group in the Insert toolbar provides the Charts options as shown in the following figure:
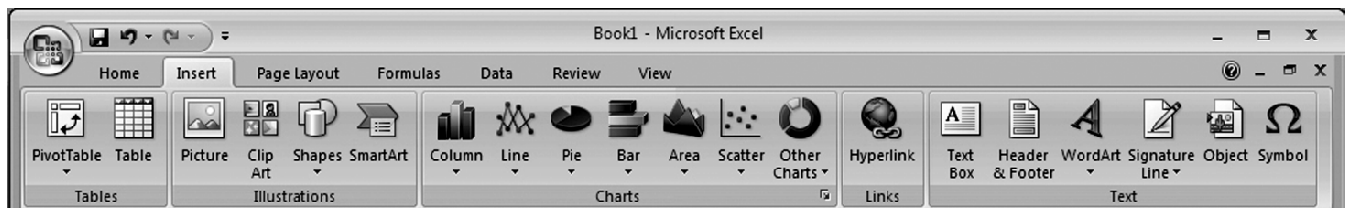

Fig 7.15 : Charts group in Insert toolbar

7.10.1 Column Charts

Column Charts are like Bar Charts that you might have studied in statistics in middle and secondary classes. As an example, let us create a column chart for the transport expenses incurred by different students.

To create this graph, select the range B2:C10 (data containing names and corresponding transport expenses). Then click the Insert tab and Columns button in the Charts group. It will show you different subtypes of column charts available as shown in the following figure:
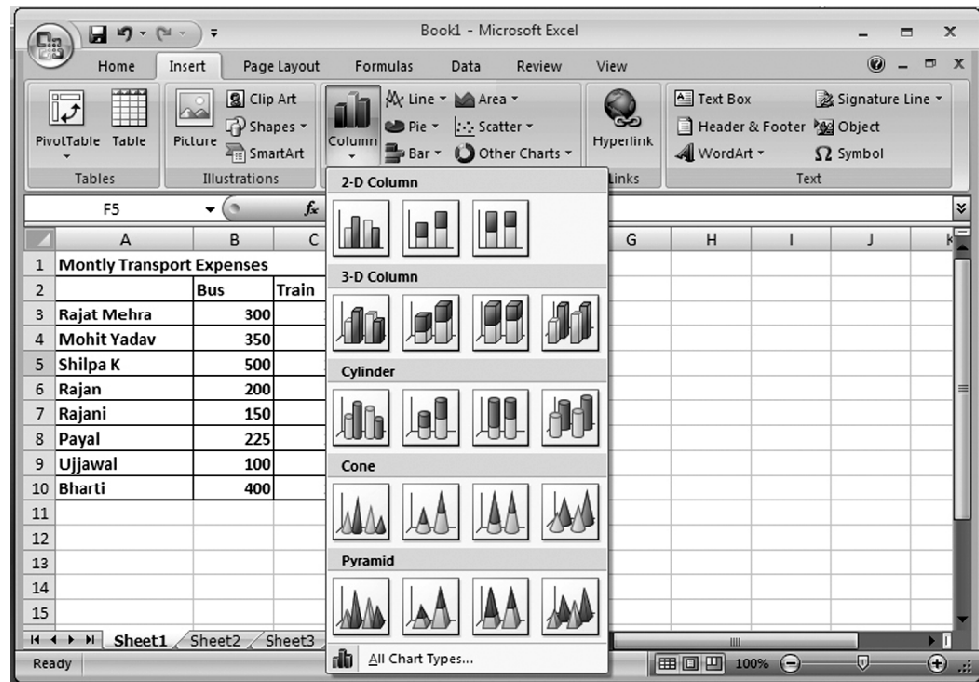
Fig 7.16 : Inserting Column Chart

Select the very first option from these subgroups and the chart will be inserted in the spreadsheet. The chart will look as follows:
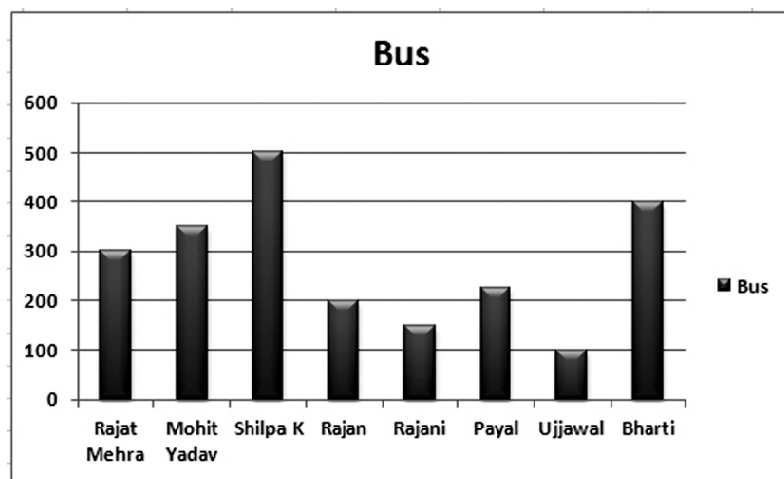

Fig 7.17 : Column Chart for Bus expenses

Each chart has some properties which can be changed to modify the chart. For example, suppose you want to give title to the vertical axis (y-axis) as shown in the following figure:
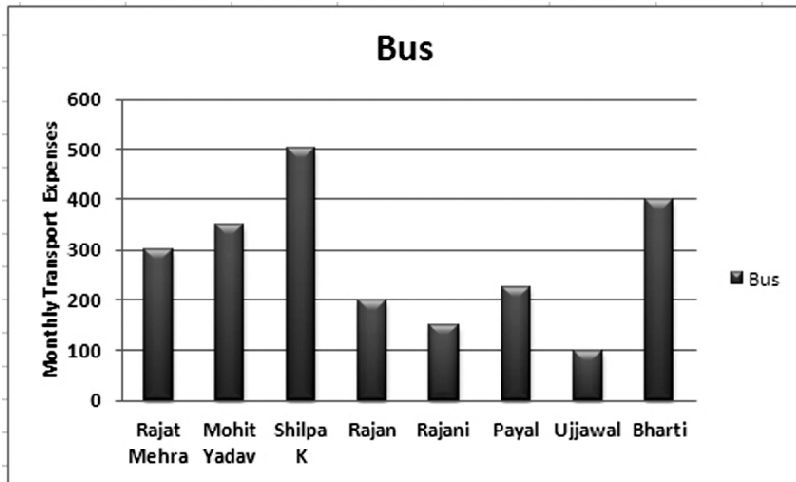
Fig 7.18 : Column Chart with title to vertical axis

To give this title, click on the graph, and select

Layout → Axis Titles → Primary Vertical Axis → Rotated title
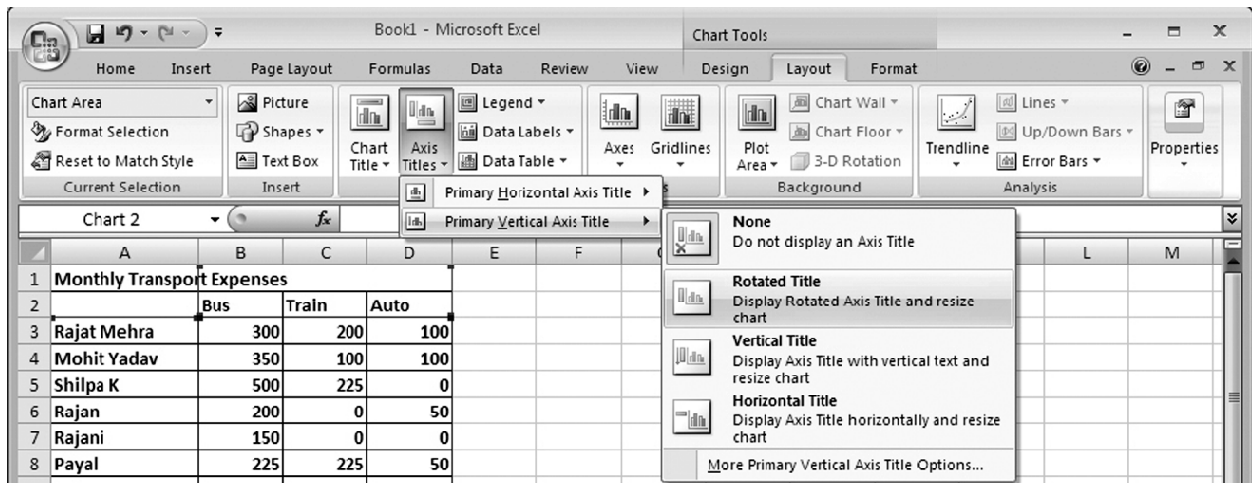
as shown in following figure:

Fig 7.19: Giving titles to charts

Now you can give suitable title to the vertical axis. Similarly, title can be given to horizontal axis also.

Sometimes there is a need to represent multiple columns' data in the same chart. This can be done for comparing data. Such charts can also be drawn in Excel. Suppose you wish to represent expenses by Bus, Train, and Auto in the same chart. You can do this by selecting the range B2:E10 (comprising all the data that you wish to represent on the chart). Then insert the column

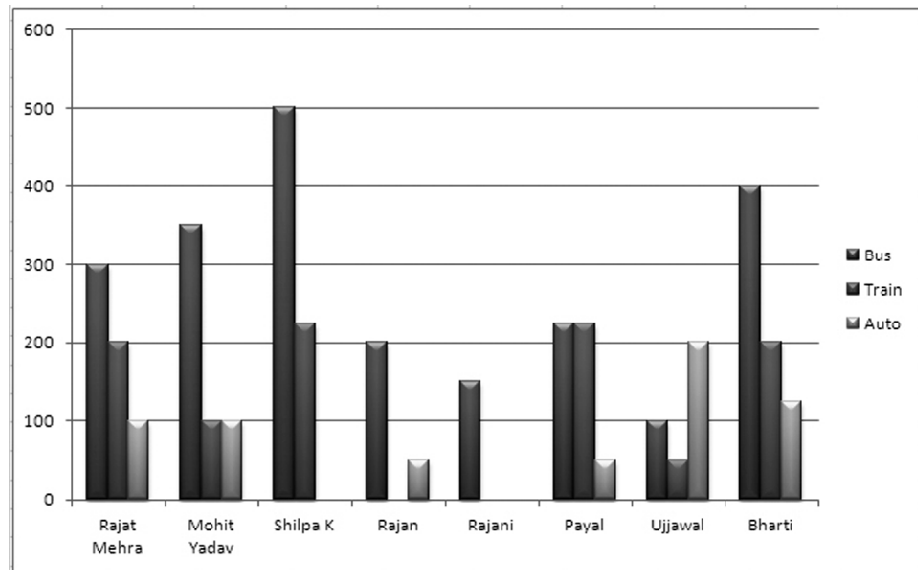graph exactly in the same way as you did for transport expenses and Excel will create the following chart:

Fig 7.20: Column chart to represent multiple data series

Now suitable titles can be given to vertical and horizontal axis.

7.10.2 Pie Charts

Pie Charts are used to represent data that is arranged in one row or one row only. As an example let us now create a Pie Chart for the expenses incurred by Rajat Mehta on Bus, Train, and Auto. To create this graph, select the range B2:E2. Then click the Insert tab and then Pie button in the Charts group. It will show you different subtypes of Pie Charts available. Select the very first subtype and Excel will create the following chart:
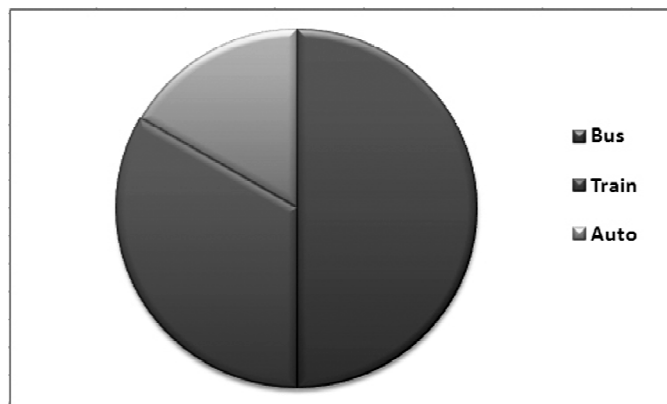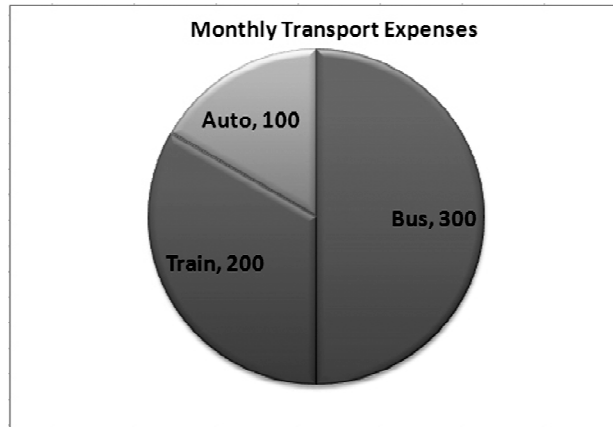

Fig 7.21: Pie Chart

Fig 7.22: Pie Chart with chart title

Changes can be made to titles etc. to get the following graph:

7.11 KEYBOARD SHORCUTS

The keyboard shortcuts for Cut, Copy, and Paste that you learnt in Word Processor are applicable to Spreadsheet also.

For quick reference they are listed below:

Operation	Shorcut
Cut	Ctrl + X
Copy	Ctrl + C
Paste	Ctrl + V

In MS Excel you also have the following shortcuts:

Operation	Shortcut
AutoSum	Alt + =
To reach the cell A1	Ctrl + Home
To copy the cell value from the above cell	Ctrl + D
To copy the cell value from left cell	Ctrl + R
To create a New blank workbook	Ctrl + N
To display the Print dialogue box	Ctrl + P
To close the selected workbook window	Ctrl + W

7.12 LET'S SUM UP

In this lesson you learnt about the concept and usage of spreadsheet. You also learnt that there are many spreadsheet packages available in the market and MS Excel is one of the most popular spreadsheet packages. You also learnt that a workbook contains worksheet(s) and in a worksheet the data is stored in cells. You also learnt creating, opening, and saving workbooks as well as navigating in a worksheet. You learnt to enter, modify data in a spreadsheet and the usage of AutoFill and AutoSum features. A formula can be a combination of values (numbers or cell references) and math operators (+, -, /, *) into an algebraic expression. If there are changes in the cells to which the formula refers to, Excel recalculates and shows new results. This is called Automatic Recalculation. You also learnt that various types of charts can be inserted in a spreadsheet for graphical representation of the data. Column Chart and Pie Chart were discussed in details. You also learnt about various shortcuts that can be used in a spreadsheet.

Employability Skills : Practical Work Task

Prepare the following spreadsheets. Use the AutoFill and AutoSum features wherever possible:

Monthly Expenses

S.No.	Head	Jan	Feb	Mar	Apr	Total
1	Education	2000	2000	1500	9000	**14500**
2	Clothes	3000	500	2500	5000	**11000**
3	Kitchen	16000	16500	16000	17000	**65500**
4	Entertainment	2000	2000	2000	2000	**8000**
5	Conveyance	4000	4000	4000	4000	**4500**
6	Unplanned	8000	9000	9000	8000	**34000**
	Total	**35000**	**34000**	**35000**	**45000**	**137500**

Time Table

	1	2	3	4		5	6	7	8
Mon	Eng	Hindi	Maths	Comp. Sc.	B	Science	Hindi	S.St.	Science
Tue	Eng	Hindi	Maths	Yoga	R	Science	Maths	S.St.	Dance
Wed	Eng	Hindi	Maths	Comp. Sc.	E	Science	Maths	S.St.	Science
Thu	Eng	Hindi	Maths	Games	A	Practical	Practical	S.St.	Dance
Fri	Eng	Maths	Hindi	Library	K	Science	Hindi	S.St.	Maths
Sat	Eng	Hindi	Maths	Library		Science	Maths	S.St.	CTP

Marks List						
R.No.	Name	Eng	Hindi	Maths	Sc.	S.Sc.
1	Aditya Chopra	65	56	62	56	61
2	Aishwarya Gandhi	84	85	83	77	80
3	Arjun Narula	48	43	52	49	66
4	Baani Sawhni	78	79	81	69	71
5	Bharti Sharma	74	92	84	70	76
6	Bhuvan Suneja	79	94	80	76	89
7	Charu Manocha	64	57	58	51	75
8	Daksh Langan	67	59	66	57	61
9	Gunjeet Kaur	72	95	83	81	93
10	Ishpreet Singh	84	98	90	88	95

7.13 TERMINAL QUESTIONS

1. Why are spreadsheet packages used? Name two most popular spread-sheet packages.

2. Name any four parts of a spreadsheet.

3. What is an Active cell in a spreadsheet?

4. How many rows, columns, and cells are there in an Excel spreadsheet?

5. What are the types of data that can be entered in a spreadsheet?

6. What is the difference between Autofill and Autosum feature in spreedsheet.

7. What happens if a formula contains two operators with the same priority?

8. Which formula will give the answer 72: =(5*2)+(3+5)*4 or =((5*2)+(3+5))*4?

9. If B2 contains 67 and C2 contains 70 and D2 contains the formula =B2+C2. What will happen to D2 if you change the contents of B2 from 67 to 70?

10. What will be the result of =A1-5+27/3*2 when A1 has 20 stored in it?

11. Write commands for the operations (i) to (iii) (to be done for all the employees) based upon the spreadsheet shown:

A	B	C	D	E	F
			Salary Record		
Empcode	EmpName	Basic Salary	House Rent Allowance	Dearness Allowance	Total Salary
101	Sudhir Sharma	23000			
102	Raj Mehra	25000			
103	Deepansh Arora	19000			
104	Faizal Ali	19500			
105	Simran Kaur	18000			

Fig 7.23 Salary Record spreadsheet

(i) Calculate House Rent Allowance amount as 10% of the basic salary.

(ii) Calculate Dearness Allowance as 22% of the basic salary.

(iii) Calculate the total salary of each employee as sum of the basic salary, HRA and DA.

7.14 ANSWERS TO INTEXT QUESTIONS

7.1

a. **.xlsx**   b.   16384, 10,48,576   c.   T20

d.   Sheet   e.   Numbers, Strings/lables, Formulae

7.2

(1) Navigating in a spreadsheet means moving from one cell to another within the sheet.

(2) We can navigate in a sheet using mouse as well as by using the keyboard.

(3) a. Edit   b. Edit   c. Active

7.3

(1)   a)   Fill Handle   b)   AutoFill   c)   AutoSum

d)   Formulae   e)   =   f)   Absolute referencing

g)   Mixed Referencing   h) Relative referencing

i) Mixed Referencing   j) Relative referencing

(2)   a. False   b. True   c. True   d. False   e. False

7.15 ACTIVITY

Visit some nearby office to find out how they use spreadsheet program for their office work. Try to find out the way to improve the use of spreadsheet program.

7.16 REFERENCES

1. Introduction to Essential Tools by Dr. Sushila Madan, Mayor Paperbacks, Sec-5, Noida

2. Computer Fundamentals by Dr. Sushila Madan.

3. Microsoft Office : Quickstart by Gordon Padwick, Sve Plomly, Debbie Walkowski; Prentice hall/Macmillan Computer Publishing reprint.