

COMPUTER-7

1.

Number System

Let Us Answer

A. Multiple Choice Questions :

1. (a), 2. (c), 3. (c), 4. (a), 5. (a).

B. Fill in the blanks by choosing the correct words from the brackets :

1. 8, 2. 12, 3. 11, 4. 0 to 9, 5. 1.

C. Write 'T' for true or 'F' for false statements :

1. T, 2. T, 3. F, 4. F, 5. F.

D. Write down the binary number for the given decimal numbers :

Decimal number	Binary number
2	10
3	11
5	101
6	110

Decimal number	Binary number
7	111
8	1000
9	1001
10	1010

E. Give the base values of the following number systems :

Number Systems	Base Value
Decimal Number System	10
Binary Number System	2
Octal Number System	8
Hexadecimal Number System	16

F. Short Answer Type Questions :

1. A number system is a system to represent or express the numbers of certain type. There are four types of number systems.

2. 1 represents ON and 0 represents OFF.

3. Different types of number system are : binary number system, decimal number system, octal number system and hexadecimal number system.
4. 0-7 are represented by Octal Number System.

G. Long Answer Type Questions :

1. To convert from octal to binary, follow these steps :
 (i) Firstly, convert from octal to decimal.
 (ii) Now, convert from decimal to binary.

2. $(E5)_{16} \longrightarrow (?)_2$

It involves two steps :

Step 1 : Convert from Hexadecimal to Decimal

$$= (E \times 16^1) + (5 \times 16^0)$$

$$= (14 \times 16) + (5 \times 1)$$

$$= 224 + 5 = (229)_{10}$$

Step 2 : Convert from Decimal to Binary

2	229	
2	114	1
2	57	0
2	28	1
2	14	0
2	7	0
2	3	1
2	1	1
	0	1

Result is :

$$(E5)_{16} = (11100101)_2$$

3. $(74)_8 \longrightarrow (?)_2$

To convert from octal to binary involves two steps :

Step 1 : Firstly, convert from Octal to Decimal.

$$= (7 \times 8^1) + (4 \times 8^0)$$

$$= 56 + 4 = (60)_{10}$$

Step 2 : Convert from Decimal to Binary

2	60	
2	35	0
2	15	0
2	7	1
2	3	1
2	1	1
	0	1

Result is :

$$(74)_8 = (111100)_2$$

4. Write down the correct output on the basis of Binary Arithmetic operations :

Operation	Output
$0 + 1$	1
$1 - 1$	0
$1 * 0$	0
$1 + 1$	11
$0 * 1$	0
$1 + 1$	11
$0 - 1$	10

Let us Do

A. Conversion

1. Binary to Decimal

$(1011)_2 = (?)_{10}$ 1011 $\rightarrow 1 \times 2^0 = 1 \times 1 = 1$ $\rightarrow 1 \times 2^1 = 1 \times 2 = 2$ $\rightarrow 0 \times 2^2 = 0 \times 4 = 0$ $\rightarrow 1 \times 2^3 = 1 \times 8 = 8$ $= 1+2+0+8$ $= 11$ $(1011)_2 = (11)_{10}$	$(100101)_2 = (?)_{10}$ 100101 $\rightarrow 1 \times 2^0 = 1 \times 1 = 1$ $\rightarrow 0 \times 2^1 = 0$ $\rightarrow 1 \times 2^2 = 1 \times 4 = 4$ $\rightarrow 0 \times 2^3 = 0$ $\rightarrow 0 \times 2^4 = 0$ $\rightarrow 1 \times 2^5 = 32$ $= 1+4+32 = 37$ $(100101)_2 = (37)_{10}$	$(100001)_2 = (?)_{10}$ 100001 $\rightarrow 1 \times 2^0 = 1 \times 1 = 1$ $\rightarrow 0 \times 2^1 = 0$ $\rightarrow 1 \times 2^2 = 0$ $\rightarrow 0 \times 2^3 = 0$ $\rightarrow 0 \times 2^4 = 0$ $\rightarrow 1 \times 2^5 = 32$ $= 1+32 = 33$ $(100001)_2 = (33)_{10}$
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2. Decimal to Binary

$(712)_{10} = (?)_2$ $\begin{array}{r l} 2 & 712 \\ \hline 2 & 356 & 0 \\ 2 & 178 & 0 \\ 2 & 89 & 0 \\ 2 & 44 & 1 \\ 2 & 22 & 0 \\ 2 & 11 & 0 \\ 2 & 5 & 1 \\ 2 & 2 & 1 \\ 2 & 1 & 0 \\ & 0 & 1 \end{array}$ $(712)_{10} = (1011001000)_2$	$(77)_{10} = (?)_2$ $\begin{array}{r ll} 2 & 77 & \\ \hline 2 & 38 & 1 \\ 2 & 19 & 0 \\ 2 & 9 & 1 \\ 2 & 4 & 1 \\ 2 & 2 & 0 \\ 2 & 1 & 0 \\ & 0 & 1 \end{array}$ $(77)_{10} = (1001101)_2$	$(1325)_{10} = (?)_2$ $\begin{array}{r ll} 2 & 1325 & \\ \hline 2 & 662 & 1 \\ 2 & 331 & 0 \\ 2 & 165 & 1 \\ 2 & 82 & 1 \\ 2 & 41 & 0 \\ 2 & 20 & 1 \\ 2 & 10 & 0 \\ 2 & 5 & 0 \\ 2 & 2 & 1 \\ 2 & 1 & 0 \\ & 0 & 1 \end{array}$ $(1325)_{10} = (10100101101)_2$
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3. Octal to Decimal

$(1024)_8 = (?)_{10}$ 1024 $\rightarrow 4 \times 8^0 = 4$ $\rightarrow 2 \times 8^1 = 16$ $\rightarrow 0 \times 8^2 = 0$ $\rightarrow 1 \times 8^3 = 512$ $= 4+16+0+512$ $= 532$ $(1024)_8 = (532)_{10}$	$(130)_8 = (?)_{10}$ 130 $\rightarrow 0 \times 8^0 = 0$ $\rightarrow 3 \times 8^1 = 24$ $\rightarrow 1 \times 8^2 = 64$ $= 0+24+64$ $= 88$ $(130)_8 = (88)_{10}$	$(512)_8 = (?)_{10}$ 512 $\rightarrow 2 \times 8^0 = 2 \times 1 = 2$ $\rightarrow 1 \times 8^1 = 1 \times 8 = 8$ $\rightarrow 5 \times 8^2 = 5 \times 64 = 320$ $= 2+8+320$ $= 330$ $(512)_8 = (330)_{10}$
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4. Hexadecimal to Decimal

$$\begin{array}{l}
 (45)_{16} = (?)_{10} \\
 45 \\
 \begin{array}{l}
 \hookrightarrow 5 \times 16^0 = 5 \times 1 = 5 \\
 \hookrightarrow 4 \times 16^1 = 4 \times 16 = 64 \\
 = 5 + 64 \\
 = 69 \\
 (45)_{16} = (69)_{10}
 \end{array}
 \end{array}$$

$$\begin{array}{l}
 (1BF)_{16} = (?)_{10} \\
 1BF \\
 \begin{array}{l}
 \hookrightarrow F \times 16^0 = 15 \times 1 = 15 \\
 \hookrightarrow B \times 16^1 = 11 \times 16 = 176 \\
 \hookrightarrow 1 \times 16^2 = 1 \times 256 = 256 \\
 = 15 + 176 + 256 \\
 = 447 \\
 (1BF)_{16} = (447)_{10}
 \end{array}
 \end{array}$$

$$\begin{array}{l}
 (77C)_{16} = (?)_{10} \\
 77C \\
 \begin{array}{l}
 \hookrightarrow C \times 16^0 = 12 \times 1 = 12 \\
 \hookrightarrow 7 \times 16^1 = 7 \times 16 = 112 \\
 \hookrightarrow 7 \times 16^2 = 7 \times 256 = 1792 \\
 = 12 + 112 + 1792 \\
 = 1916 \\
 (77C)_{16} = (1916)_{10}
 \end{array}
 \end{array}$$

5. Binary Addition

$$\begin{array}{r}
 (101110)_2 + (110010)_2 \\
 \begin{array}{r}
 101110 \\
 + 110010 \\
 \hline
 1100000
 \end{array}
 \end{array}$$

$$\begin{array}{r}
 (10000001)_2 + (100000001)_2 \\
 \begin{array}{r}
 10000001 \\
 + 100000001 \\
 \hline
 110000010
 \end{array}
 \end{array}$$

$$\begin{array}{r}
 (1100)_2 = (101)_2 \\
 \begin{array}{r}
 1100 \\
 + 101 \\
 \hline
 10001
 \end{array}
 \end{array}$$

6. Binary Subtraction

$$\begin{array}{r}
 (1001)_2 - (1001)_2 \\
 \begin{array}{r}
 1001 \\
 - 1001 \\
 \hline
 0000
 \end{array}
 \end{array}$$

$$\begin{array}{r}
 (110010)_2 - (101100)_2 \\
 \begin{array}{r}
 110010 \\
 - 101100 \\
 \hline
 000110
 \end{array}
 \end{array}$$

$$\begin{array}{r}
 (10101011)_2 - (110100)_2 \\
 \begin{array}{r}
 10101011 \\
 - 110100 \\
 \hline
 01110111
 \end{array}
 \end{array}$$

7. Binary Multiplication

$$\begin{array}{r}
 (11100)_2 \times (11)_2 \\
 \begin{array}{r}
 11100 \\
 \times 11 \\
 \hline
 11100 \\
 11100 \times \\
 \hline
 1010100
 \end{array}
 \end{array}$$

$$\begin{array}{r}
 (101010)_2 \times (111)_2 \\
 \begin{array}{r}
 101010 \\
 \times 111 \\
 \hline
 101010 \\
 101010 \times \\
 101010 \times \times \\
 \hline
 100100110
 \end{array}
 \end{array}$$

$$\begin{array}{r}
 (11001100)_2 \times (1100)_2 \\
 \begin{array}{r}
 11001100 \\
 \times 1100 \\
 \hline
 11001100 \\
 11001100 \times \\
 11001100 \times \times \\
 11001100 \times \times \times \\
 \hline
 100110010000
 \end{array}
 \end{array}$$

8. Binary Division

$$\begin{array}{r}
 (1010)_2 \div (10)_2 \\
 \begin{array}{r}
 10 \overline{)1010} \overline{)101} \\
 \underline{10} \\
 10 \\
 \underline{10} \\
 0
 \end{array}
 \end{array}$$

$$\begin{array}{r}
 (1110100)_2 \div (110)_2 \\
 \begin{array}{r}
 110 \overline{)1110100} \overline{)10011} \\
 \underline{110} \\
 1001 \\
 \underline{-110} \\
 0110 \\
 \underline{110} \\
 0
 \end{array}
 \end{array}$$

$$\begin{array}{r}
 (100010011)_2 \div (101)_2 \\
 \begin{array}{r}
 101 \overline{)100010011} \overline{)110101} \\
 \underline{-101} \\
 110 \\
 \underline{-101} \\
 110 \\
 \underline{-101} \\
 101 \\
 \underline{-101} \\
 0
 \end{array}
 \end{array}$$



2.

Using Excel as Database

Let Us Answer

A. Multiple Choice Questions :

1. (a), 2. (b), 3. (a), 4. (c), 5. (a).

B. Fill in the blanks by choosing the correct word from the brackets :

1. Insert, 2. Filter, 3. Field, 4. Ctrl + C, 5. Paste.

C. Write 'T' for true or 'F' for false statements :

1. F, 2. F, 3. F, 4. T, 5. T.

D. Fill in the blanks with correct options :

1. Data, 2. Tables, 3. View, 4. Data Tools, 5. Data.

E. Short Answer Type Questions :

1. Database is the collection of information in an organised manner.

2. **Field** : Field is a column which contains only one type of data.
For example : In the given figure, Name is the field which contains only names of the students.

Field Name : Field name is the name given to the headings of columns like name, Swimming, Cricket, Football etc.

3. **Record** : A record is a row that has the entire information about a person or organization.

4. Freeze Panes are used to freeze a particular row or columns.

5. No, we cannot freeze the top row.

6. When we enter the data in the form of table in the Excel sheet, we enter the data for each row one by one. This way, we manage the lists where information is arranged in the rows of the table. MS Excel 2016 provides a special feature of Form, which offers a simple way to deal with big data arranged in rows.

7. Sort option is used to arrange data in selected cells.

8. Filtering the data means to retrieve only those records which satisfy the given criteria. If one does not want to get the entire details of the organisation, he/she can filter out the details and get the required records.

9. Two rules that should be followed before Advanced Filter :

(i) Header row must have a unique column heading.

(ii) You cannot have any blank row in data set.

10. A PivotTable is a modern tool in Excel 2016. It helpful to summarize and analyze the data.

F. Long Answer Type Questions :

1. 1. Firstly, create a table in Excel.

2. We have to convert column names into a table. Select **Table Headings**. Now, click **Insert > Table**.
3. A **Create Table** dialog box opens.
4. Make sure that the My table has headers checkbox is marked. Click **OK** button.
5. The column names are converted into table.
6. Now, to add form, go to **File> Options**. An **Excel Options** dialog box opens.
7. Now click on **Ribbon**.
8. Click on **Choose commands** from drop-down list box and select **Commands Not in the Ribbon**.
9. Click on **Form** option.
10. Click on **New Tab**. Under **New Tab**, select **New Group**.
11. Click **Add** button.
12. You will see that a form has been added to the New tab, in the Ribbon.
13. Click **OK** button.

2. (a) Adding a new record :

1. Select field names of a table, click on **New Tab> Form**.
2. A **Sheet 1** dialog box opens.
3. Now add values of your choice in each field. That way, a record will be created.
4. Click on **New button**. A new record will be created and added to the table in Excel.
5. You can move to previous or next record by clicking on the **Find Prev** or **Find Next** buttons accordingly.
6. Click on **Close button** to close the data form.

(b) Searching a record :

1. Click on **New Tab> Form**.
2. From the **Sheet 1** dialog box, click on **Criteria** button.
3. Now type the data in a field whose record is bought by you. You can type the name in the field Emp name. Press **Enter**.

(c) Deleting a record :

1. Click on **New Tab> Form**.
2. A **Sheet 1** dialog box opens.
3. Click on **Find Prev** or **Find Next** to find the record you want to delete from the table.
4. As and when you arrive at the record that was being bought by you, click on **Delete**.

5. A message box appears to confirm the deletion of a record.
6. Click **OK** button.

(d) **Arranging data :**

1. Click on the drop-down arrow of the field name according to which you want to arrange the data. (Example : Salary)
2. From the drop-down list, select the required option. (Example : Largest to Smallest)
3. Thus, the data will be rearranged in the table.

3.
 1. Select the table which you want to sort.
 2. Click on **Data** tab.
 3. Select the **Sort** option under **Sort & Filter** group.
 4. A **Sort** dialog box opens.
 5. Under the option column, click on sort in the drop-down list. You have to select column A in Sort.
 6. Click on **Sort** on drop-down list, select **Cell values**.
 7. Click on **Order** drop-down list, select A to Z.
 8. Click **OK** button.
 9. The data in the table will be arranged according to Column.
4.
 1. Select the table from which you want to retrieve the data.
 2. Go to **Data** tab and select **Filter** option under **Sort & Filter** group.
 3. Small arrows will be added in all the field names.
 4. Now click on the arrow next to Bill Amount field name.
 5. Click on the **Select All** check box to uncheck it.
 6. Now select the checkboxes of 575 and 500.
 7. Click OK button.

It will filter the list and display only those records that satisfy the criteria i.e. only those records will be displayed whose bill amount is 575 and 500, as shown in the figure.

	A	B	C	D	E	F
1	Customer's Bill Details					
2	Cust_Name	Cust_ID	Location	Payment Mode	Bill Amount	
3	Ashok Kumar	10031	New Delhi	Cash	575	
15	Zeenat	10069	Gurgaon	Online	500	
16						
17						
18						

5. Advanced filters are used to apply complex criteria to create a list of unique items or to extract specific items to different locations or to filter data in multiple fields.

Two rules that should be followed before Advanced Filter :

- (i) Header row must have a unique column heading.
- (ii) You cannot have any blank row in data set.

Let us see how it works :

1. Now, you can add more than two blank rows above the range. These rows will be used for criterion. Right click on the row and select **Insert>Entire Row** option.
2. Select the column headings say **A6:E12**. Copy the range by pressing **Ctrl + C**.
3. Click on cell A3 and paste the copied contents by pressing **Ctrl + V**.
4. Type the criteria under the column heading. For example : type >500 under bill amount heading.
5. Type Gurgaon under **Location**.
6. Select the data set.
7. Go to **Data>Sort & Filter>Advanced** option.
8. An **Advanced Filter** dialog box will pop up on the screen.
9. Click on **Copy to another location** radio button.
10. **List range** will contain the selected range of data set.
11. Specify the **Criteria range**.
12. Specify the destination range in the **Copy to** option where the filtered rows will be copied. (say \$A\$21:\$E\$21)
13. Click on the checkbox of **Unique Records only** to extract the unique records.
14. Now Click on **OK**.

Customer's Bill Details				
Cust_Name	Cust_ID	Location	Payment Mode	Bill Amount
		Gurgaon		>1000
Cust_Name	Cust_ID	Location	Payment Mode	Bill Amount
Ashok Kumar	10031	New Delhi	Cash	575
Balwinder Singh	10034	Gurgaon	Online	1020
Danish	10045	Jalandhar	Cash	1250
Disha	10040	Ghaziabad	Online	3000
Ekamjot Singh	10042	Patiala	Online	2500
Meenakshi	10033	Panipat	Cash	1700
Navita	10023	Jalandhar	Cash	1560
Sunita	10050	Karnal	Online	3500
Tanya	10047	Ludhiana	Online	4100
Taranjit Kaur	10062	Gurgaon	Online	2100
Urvashi	10041	New Delhi	Online	2800
Vani	10051	New Delhi	Online	2200
Zeenat	10069	Gurgaon	Online	500
Cust_Name	Cust_ID	Location	Payment Mode	Bill Amount
Balwinder Singh	10034	Gurgaon	Online	1020
Taranjit Kaur	10062	Gurgaon	Online	2100

6. You can enter all types of data in an Excel worksheet. However, you can allow only a particular data to be entered in a cell. In

that case, other types of data cannot be added to that cell. This can be done by using Data Validation feature of MS Excel 2016.

It allows you to do the following :

- Make a list of the entries that restricts the values allowed in a cell.
- Create a prompt message explaining the kind of data allowed in a cell.
- Create messages that appear when incorrect data has been entered.
- Set a range of numeric values that can be entered in a cell.

Lets see how it works :

1. Select the range of cells E7:E12.
 2. Go to **Data tab>Data Tools group>Data Validation option.**
 3. A **Data Validation** dialog box opens.
 4. Now, go to the **Settings** tab. Set the criteria for validation by clicking the drop-down arrow of option **Allow**.
 5. Click on any value from the list (say Whole Number).
 6. Click on the drop-down arrow of the **Data** option.
 7. Select any option (say less than).
 8. In the **Maximum** text box, type 500.
 9. Click on the **Input Message** tab. In **Title**, type Validation. In **Message**, type Enter a whole number less than 500.
 10. Click on **Error Alert** tab. In the Error Message, type Invalid input.
 11. Now, Click on **OK**.
 12. If you enter the data which does not match the Data validation criteria, an error message will be displayed.
7. Subtotal is another feature provided by Excel 2016 which is used to summarize the different groups of data and create an outline for your worksheets.

Subtotal is used to calculate the sum of a set of numbers. This sum is then added to another calculated sum of set of numbers to get the grand total. Besides, it also helps you group and summarize data. For this purpose, you can use functions such as MAX, MIN, AVERAGE, SUM, etc. An outline is created, with the help of which you can show or hide the details for each subtotal or view just a summary of the subtotals and grand totals. Let us see how it works :

1. Create a table in a worksheet.
2. Select any cell in the data set.
3. Go to **Data tab>Outline group>Subtotal option.**

4. A **Subtotal** dialog box opens. Here, you need to specify three things,
 - In **At each change** in box, select the column containing the data you want to group by. (say Area)
 - In **Use function** list box, select the function you want to apply to calculate the value. (say Sum)
 - In **Add Subtotal** to list box, select the checkbox of the column you want to subtotal. (say Sales)
 5. Now, click on **Replace current subtotals**. This option will be deselected. It will also overwrite the existing subtotal, if it existed.
 6. You will see that the **Summary below data** check box is marked by default. Let it be marked because after calculation, it will place the total below the corresponding column.
 7. Click **OK** button.
8. Steps to create a PivotTable are :
1. Create a table of Employee in Excel 2016.
 2. Select the entire table.
 3. Go to **Insert>Tables group>PivotTable** option.
 4. A **Create PivotTable** dialog box opens.
 5. Now select a table or range. The radio button is selected by default.
 6. **Table/Range** box contains the range that you have selected.
 7. In **Choose where you want the PivotTable report to be placed, New Worksheet** radio button is selected by default.
 8. Click **OK** button.
 9. A new worksheet will be opened with the layout of PivotTable. You can also see the **PivotTable Fields** task pane on the right side of the window.
 10. Now select the fields that are to be added.
For example : Select the check boxes of Emp id and Salary.
 11. In **Values**, select the Sum of Salary and drag it to the Rows section.
 12. Now to change the heading from **Rows** labels to Emp id, first deselect the **Defer Layout Update** checkbox which is marked by default to uncheck it.
 13. Now select the cell **Rows** labels. In this cell, type Emp id. And your pivot table is ready.

Let us Do

General Activity

A. Find out any five new features in MS Excel 2016 which were not a part of previous versions and write down below :

1. 'Tell Me' Box, 2. Forecasting, 3. Search Field, 4. Data Grouping, 5. Histograms.



3. More About MS Excel 2016

Let Us Answer

A. Multiple Choice Questions :

1. (a), 2. (c), 3. (a), 4. (c), 5. (a).

B. Fill in the blanks by choosing the correct word from the brackets :

1. Column, 2. Bubble, 3. Combo chart, 4. Data, 5. Insert.

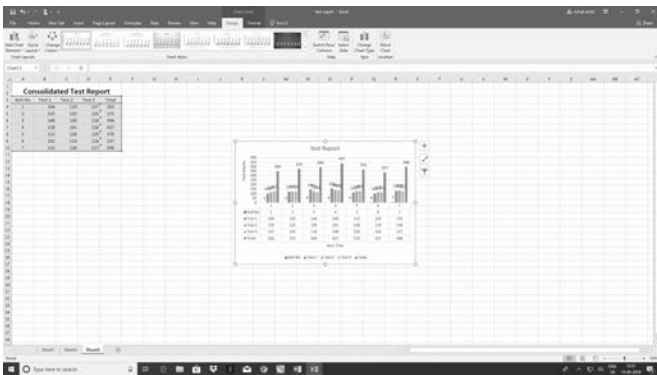
C. Write 'T' for true or 'F' for false statements :

1. F, 2. T, 3. F, 4. T, 5. T.

D. Match each chart type to its related image :

1. (d) Column Chart
2. (c) Bubble Chart
3. (a) Area Chart
4. (b) Pie Chart

E. Look at the following chart and name the various elements present in it :



1. Chart Title, 2. Chart Area, 3. X-axis, 4. Y-axis, 5. Axis Title, 6. Data Labels, 7. Data Table, 8. Gridlines, 9. Legend, 10. Trendline.

F. Short Answer Type Questions :

1. A chart is the pictorial representation of data in the form of a graph.
2. **(a) Column Chart :** In column charts, vertical bars are used to compare data values. Bars are tall rectangular rods which are displayed in vertical side. In column charts, categories are typically organised along horizontal axis and values along vertical axis. It is the default chart of MS Excel.
(b) Bar Chart : Bar chart is used to display the data in the form of horizontal bars. This horizontal bar is the tall rectangular rod which is displayed in horizontal direction. In this type of chart, categories are represented in horizontal axis. All of the bar charts are available in 2D and 3D formats. Just like column chart, it also has bars in the form of cylinder, cone and pyramid type.
(c) Pie Chart : It is a form of a circle or pie (in case of a 3D image). The slices of the pie represent percentages. It shows the contribution of each value to the sum of items. It is best to use this type of chart when you have only one data series.
(d) Line Chart : Line chart is used to display trends over time. The data is displayed in the form of lines. It has lines going across the chart horizontally, with the values axis on the left side of the chart. It works similar to a plotter which plots the graph on a graph paper using pens which draw the lines in X-axis and Y-axis direction.
(e) Doughnut Chart : This type of chart is called Doughnut because it is shaped like a doughnut, a circle with a hole in it. As in the pie chart, it displays data as sections of a circle, but may have multiple data series. Each data series that you plot in a doughnut chart adds a ring to the chart. After you create a doughnut chart, you can rotate the slices for different perspectives, focus on special slices by pulling out slices of the doughnut chart, or change the hole size of the doughnut chart to enlarge or reduce the size of the slices. Two formats of doughnut charts are : Doughnut and Exploded Doughnut.
(f) Scatter Chart : Scatter chart is also known as XY chart. This type of chart is used to compare pairs of values. Its purpose is to observe how the values of two series compare over time or another category. X axis is usually assigned to an independent variable, whose value is controlled or set by the experimenter. The Y variable then becomes the dependent variable i.e. the values that follow from each value of X.

(g) Area Chart : These charts are similar to line charts. However, the area below the plot line in such a chart is solid. It shows trends over time or another category. It emphasises on the magnitude i.e. volume of change over time. Area chart comes in two formats : 2D Area chart and 3D Area chart. In many cases, 2D version of the Area chart can be ineffective in displaying multiple series of data meaningfully. So, we can make use of 3D version of area chart.

3. Legend : It contains symbols, patterns and colour assigned to data series.

4. Plot area is the area where the objects and elements of a chart are plotted.

Whereas, Chart area is the area where a chart is present. This area has all objects and elements of the chart.

5. MS Excel 2016 supports three types of sparklines :

(i) **Line :** This type represents data values with or without any marker for every data point.

(ii) **Column :** The column type of sparkline represents the data values in the form of tiny columns.

(iii) **Win/Loss :** The Win/Loss type of sparkline is a binary chart which represents data values as Win or Loss, where win blocks are represented by blue squares and little high than Loss blocks which are represented by red squares.

G. Long Answer Type Questions :

1. To create a chart, we need to follow the given steps.

1. Data has been shown here. Create an Excel sheet using this data.

2. Select the data including Field names.

3. Go to **Insert** menu.

4. In **Charts** group, click on the drop-down arrow next to **Column Chart**.

5. Click on the drop down next to the **Column Chart** in **Charts** group.

6. Select the **Cluster Column Chart** from 2-D Column.

7. The chart will be created on the basis of your selection. You can see it in the worksheet beside your selected portion.

8. When you select the chart you have created, a **Chart Tools** tab appears on the ribbon.

9. Click on **Chart Tools**. Various tools related to the selected chart will be displayed.

10. To add various chart elements in the chart, click on the drop-down arrow next to **Add Chart Element**, and add any element (discussed in previous topic).

11. Click on the **Quick Layout** drop-down arrow and select the layout to change the layout of the chart from the available options.
 12. There is another way to change chart colours. Click on **Change Colour**, it is a drop down button. From the window that pops up, select a colour of your choice.
 13. **Chart Styles** consists of various styles available for the chart, choose one by clicking on it.
 14. You can also swap the data by moving it from X-axis to Y-axis and from Y-axis to X-axis. For this, there is one option available in Chart Tools i.e. Switch **Row/Column**.
 15. Select **Data** option is used to change the data range for the chart. You click on this option; a **Select Data Source** dialog box opens. Enter the new data range and click OK button.
 16. **Chart Type** option is used to change the type of chart to any other chart like Pie chart, Area Chart, Line Chart, Scatter chart etc. You just need to click on **Chart Type** and a dialog box opens. Select the chart of your choice and your existing chart will be replaced with the new chart.
 17. **Move Chart** option is used to move the chart to another worksheet in the same workbook or another workbook.
2. (a) **Chart Title** To give a title to the chart :
1. You have created a chart. Click on it.
 2. Go to **Design** tab.
 3. Click on the drop-down arrow of the **Add Chart Element** option.
 4. From the list, select the **Chart Title** option.
 5. A further list opens. Click on None if you don't want to display the chart title.
Otherwise, click on **Above Chart** or **Centered Overlay** option.
 6. A **Chart Title** textbox opens.
 7. Type the title in it and click outside the chart.
- (b) **Axis**
1. Select the chart.
 2. Go to the **Design** tab.
 3. Click on the drop-down arrow of the **Add Chart Element** option.
 4. From the list, select the **Axis Title** option.
 5. You can click on **Primary Horizontal** to add the title for X-axis.
 6. You can click on **Primary Vertical** to add the title for Y-axis.

7. When you click the desired option, a textbox appears.
 8. Type the title in it and click outside the chart area.
- (c) **Data legend**
1. Select a chart of your choice. Go to **Design** now.
 2. Click on the drop-down arrow of the **Add Chart Element** option.
 3. From the list, select the **Legend** option.
 4. Legend can be inserted to right, top, bottom or left. Select any option according to your choice.
- (d) **Gridlines**
1. Select the chart. Go to **Design** tab.
 2. Click on the drop-down arrow of the **Add Chart Element** option.
 3. From the list, select the **Gridlines** option.
 4. There are various types of major and minor gridlines available which can be displayed in vertical direction or horizontal direction. Select any option according to your choice and gridlines will appear in a chart accordingly.
3. 1. Right click on the **Plot Area** now. A list will pop up. Select **Format Plot** from the list.
2. A **Format Plot Area** task pane opens to the right side of the window.
 3. Click on the **Fill** tab, select any option by clicking on its corresponding radio button. (say, **Gradient Fill**)
 4. Click on the arrow next to **Preset Gradients** and choose any **colour** form the options.
 5. Choose **Type** and **Direction** of the Gradient Fill.
 6. Click on **Colour** option to set the colour with the **Preset Gradient** in the Plot area of a chart.
 7. Click on **Border**.
 8. To apply border to the plot area, click on **Solid Line**.
 9. Select the colour of your choice using **Color** option and set the other options as per your needs. A border will be applied to the plot area of a chart.
 10. You can see the effects side by side as you do selections in the task pane.
4. To format data series, follow the given steps :
1. Right click on the **Data Series**. Select the **Format Data Series** from the pop up list.
 2. You will see that a **Format Data Series** task pane has popped up on your screen; it is on the right side of the window.

3. Click on the **Fill** tab.
 4. Select any option by clicking on the corresponding radio button (say **Pattern Fill**).
 5. Select the required pattern. Change the foreground and background colour by choosing the colour from the **Foreground** and **Background** options.
 6. If you wish to give a border to your Data Series, go to the **Border>Solid Radio Button**.
 7. Choose **Border Color** and increase the width to see the effect.
5. To format the legend of a chart, follow the given steps :
1. Right click on the **Legend boundary**. A Legend task pane opens on the right side of the window.
 2. Now, click on tab called **Fill and Line**.
 3. Go to **Fill** option and select any option by clicking on its radio button (say Solid Fill) and choose the colour.
 4. Go to **Border** option and select any option by clicking on its radio button (say Solid Line) and select colour and width of border.
 5. You can also apply special effects to the legends by clicking on the **Effects** tab.
 6. The effects are of three types - **Soft Edges, Glow Shadow**.
 7. Click on any effect type and choose the desired effect. Choose colour of your choice and other options.
 8. It is also possible to change the position of the legend in a chart like top, bottom, left or right. For this, click on the **Legend** option tab.
 9. Select the desired option where you want to place the legend in the chart.
6. It refers to the integration of data from various sources so that all data comes to one destination. An example will clarify the concept.
1. Open the worksheets and group them by using the procedure explained in previous topic.
 2. Click on Sheet 3 tab, change the title of the table as Consolidated Test Report.
 3. In sheet 3, select cell B4.
 4. Click on **Data** tab. Under **Data Tools** group, select **Consolidate** option.
 5. A Consolidate dialog box opens.
 6. From the Function list box, click on the **SUM function** to calculate the total of the marks in the test reports of Sem 1 and Sem 2.

7. Click on the **Reference field** box and select the range from Sheet 1 (B4:D10). Click on **Add**. The reference will get added to the All reference box.
 8. Again, click on the **Reference field** box.
 9. Select the Sheet 2 tab and select the range from B4:D10.
 10. Click on **Add** button and the reference will be added to the **All Reference** box.
 11. Click on **OK** button.
 12. The consolidated data of sheet 3 will look like.
7. Let us see how we can group multiple worksheets:
1. Open a workbook. A worksheet will open named Sheet 1.
 2. Add two more worksheets named Sheet 2 and Sheet 3.
 3. Now, select the Sheet 1 tab.
 4. Now, press Shift key. Hold the key even as you click on the tab of sheet 3.
 5. You will observe that Group of worksheets is created with three worksheets in it, named Book 1 in the title bar.
 6. Sheet 1 is active currently. Enter the data.
 7. Change the format of table headings. Change the background colour to yellow. Make the heading text bold-faced.
 8. Apply border to all the cells from A1:E8.
 9. Select column **Total** and change its text colour to Red.
 10. Select the **Roll No** column and bold the text in it.
 11. Click on any worksheet. You will notice that all worksheets displays the common data with same formatting effects.

Ungrouping Worksheets

1. Now you can right click on the **Sheet** tab.
 2. A pop-up list opens. Click on **Select All Sheets** option.
 3. All grouped sheets will get selected.
 4. Again, right click on any **Sheet** tab.
 5. A popup list opens.
 6. Click on **Ungroup Sheets** option.
 7. The grouped sheets will became ungrouped. Thus, the editing done in one sheet will not be applied to any other sheet.
8. Tiny charts can be added in a cell using the sparklines option. To insert tiny charts in a cell follow these steps :
- MS Excel 2016 supports three types of sparklines :
- Line** : This type represents data values with or without any marker for every data point.

Column : The column type of sparkline represents the data values in the form of tiny columns.

Win/Loss : The Win/Loss type of sparkline is a binary chart which represents data values as Win or Loss, where win blocks are represented by blue squares and little high than Loss blocks which are represented by red squares.

9. Goal seek is a unique concept in Excel 2016. You have already given a output. You want to find out the input values for the same. It is also called What-If analysis or Back-Solving. Goal Seek feature allows you to adjust a value used in a formula to achieve a specific goal. In simple words, if you know the output that you want to get by applying a formula and you want to know what input values are needed by a formula to get the output, you can use Goal Seek feature. Let us see how it works :

1. Open a blank worksheet and enter the values as given below :
 - The date of sales by an employee per month has been given. We have to find the sales for one quarter, the total sales for every month and the total sales value. (grand total)
 - Calculate the total for Quarter 1 for the month January to March using SUM() function.
 - Also, calculate the total for Quarter 2 for the month April to June using SUM() function.
 - Calculate the total month wise also in Totals row.
 - Find out the grand total now.
2. Now, our grand total is 618. Using Goal Seek feature, we will determine the changes in C4 in order to get the grand total of 650.
3. Go to **Data** tab.
4. Go to **Forecast** group and click on **what if analysis** in it. A drop-down list will appear , select **Goal Seek** in that list.
5. A **Goal Seek** dialog box will open.
6. In **Set Cell** text box, type the address of a cell on which you want to apply the goal seek (For example: J9). But the cell chosen for the Goal Seek must be a formula cell.
7. In **To Value** text box, type the value we want on that cell.
8. Click in **By Changing Cell** textbox, and click in the cell in the worksheet which we want to change to get the desired result. Click on cell C4 or type C4 in this field.
9. Click **OK** button.
10. A dialog box will pop up on the screen. It will show the total. This total was adjusted to get a value 650 click on **OK** now.



4. Control Statements in Small Basic

Let Us Answer

A. Multiple Choice Questions :

1. (c), 2. (a), 3. (b), 4. (c), 5. (a).

B. Fill in the blanks by choosing the correct word from the brackets :

1. If, 2. Control, 3. Condition, 4. False, 5. True.

C. Write 'T' for true or 'F' for false statements :

1. F, 2. F, 3. T, 4. F, 5. F.

D. Short Answer Type Questions :

1. Control statements help to make flow of program control. This is made possible through decisions, repetitions, or to jump from one section of code to another.

2. There are three types of control statements. These are as follows :

(i) Selection Statements

(ii) Jumping Statements

(iii) Iteration Statements

3. If Then statement does not have a False block.

4. Label is the name given to the particular statement.

5. The various selection statements are : If Then, If Then Else and If Else If ladder.

E. Long Answer Type Questions :

1. **If Then Statement** : If Then statement is used to carry out a logical test (condition) and then take actions depending on the result of the test.

Syntax

```
If < condition > Then  
    <Statements>  
EndIf
```

If Then statement does nothing when the condition is False as it does not contain the False block. When a program is being executed, a condition is checked. If the condition is True, the statements specified after Then are executed. If the condition is False, it does nothing and the control directly jumps to the statements written after EndIf.

2. Goto Statement

Goto statement is a jumping statement. It helps to break the sequence by jumping to the statement which is labelled. In such statements, you need to put a label name on the statement, on which the control will jump.

Syntax :

```
Goto <Label>
.
.
.
<Label> Statement
```

In the above syntax, **Goto** will transfer the control to the statement having the label name mentioned with Goto statement. A Label can be a word, number or symbol, which identifies a location in a program.

3. If ElseIf ladder

If there are multiple conditions in a single program, then this statement helps. In order to apply multiple conditions, multiple ElseIf statements are used. In this case, if a statement is True, the statements in its associated block is executed and control jumps out of the If ElseIf ladder. If the condition is False, the control skips the associated statements and jumps to the next condition.

- 4. Goto statement is a jumping statement. It helps to break the sequence by jumping to the statement which is labelled. In such statements, you need to put a label name on the statement, on which the control will jump.

Syntax :

```
Goto<Label>
.
.
.
<Label> Statement
```

In the above syntax, **Goto** will transfer the control to the statement having the label name mentioned with Goto statement. A Label can be a word, number or symbol, which identifies a location in a program.

Example : Here is a program in Small Basic to print numbers 1 to 5.



5.

More on Small Basic

Let Us Answer

A. Multiple Choice Questions :

1. (a), 2. (b), 3. (c), 4. (b), 5. (c).

B. Fill in the blanks by choosing the correct word from the brackets :

1. Iteration, 2. pixels, 3. F5, 4. (0, 0), 5. FontFamily.

C. Write 'T' for true or 'F' for false statements :

1. F, 2. F, 3. T, 4. T, 5. T.

D. Write down the syntax for the following :

1. GraphicsWindow.FontBold="value"
2. GraphicsWindow.Width="value"
3. GraphicsWindow.BackgroundColor="Color name"
4. GraphicsWindow.FontColor="value"
5. GraphicsWindow.PenColor = "value"

E. Short Answer Type Questions :

1. Business All-purpose Symbolic Instruction Code.
2. Various types of control statements are : selection, jumping and Iteration statements.
3. Iteration statements are also called looping statements. It is used when there is a need to repeat a task until some condition is satisfied.

4. For Loop with Step Statement :

If you want to increase or decrease the variable value other than 1, you can use the **Step** command in the for statement. Step value is an optional statement, which may have either a positive or a negative value.

5. We have done simple programming to display alphanumeric data and do calculations. But Small Basic can be used to do more than doing simple programming of displaying text and numbers. It can be used to create graphics of different colours, colourful text by specifying its Font colour, size, style, different shapes, designs and sound as well.

F. Long Answer Type Questions :

1. For loop is Count-Controlled Loop. It is used when you know how many times you want the computer to repeat the instructions. The set of statements is executed for a specific number of times.

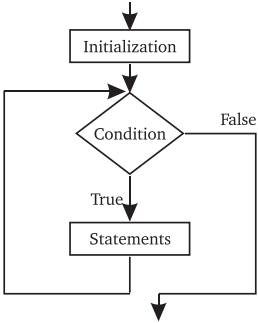
Syntax :

For <Loop Counter> = <Initial Value> To <Terminal Value>

For loop starts with the keyword **For**. The statements written between For and EndFor is called the body of For loop. The loop

counter variable controls how many times the loop runs. In this looping statement, you take a variable, assign it an initial value and a terminal value and let the computer increment the variable for you. Every time the computer increases the value of the variable by 1, the statements between For and EndFor will get executed.

Flowchart :



Example : Write a program to print a table of 5.

```

    Untitled *
    1 For i = 1 To 10
    2   TextWindow.WriteLine(" 5 * " + i + " = " + 5 * i)
    3 EndFor
  
```

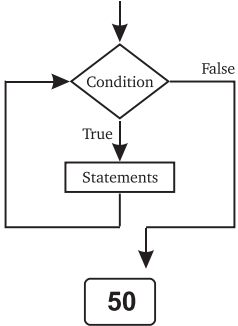
2. While loop is the looping statement, in which a set of instructions are executed repeatedly until some condition is satisfied. When the condition is **False**, the loop terminates.

Syntax :

```

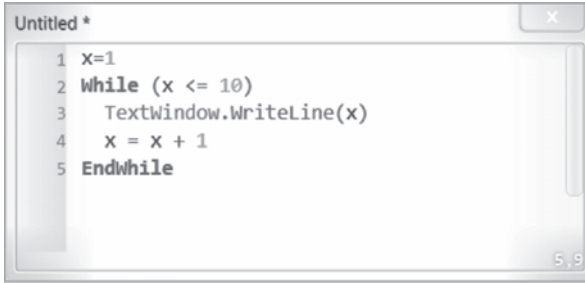
    While <condition>
    {
    Statements
    }
  
```

Flowchart :

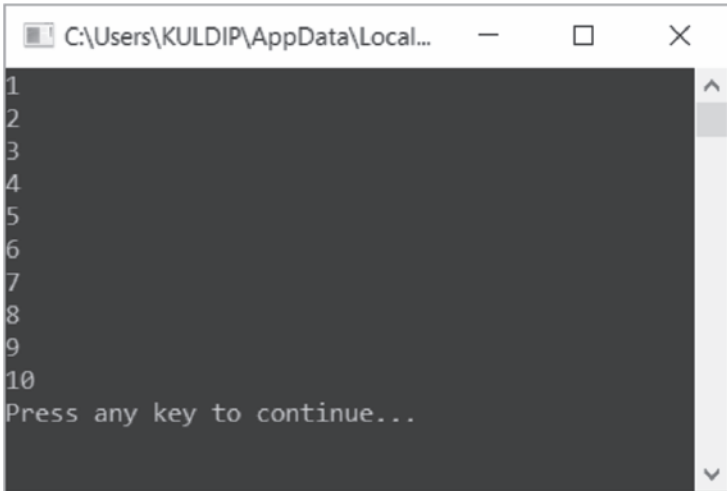


The flowchart on the previous page makes it clear that first the condition is checked. If the condition is true, the statements are executed and control goes back to the condition. If the condition is false, the control comes out of the loop.

Example :



```
1 X=1
2 while (x <= 10)
3   Textwindow.WriteLine(x)
4   X = X + 1
5 endwhile
```



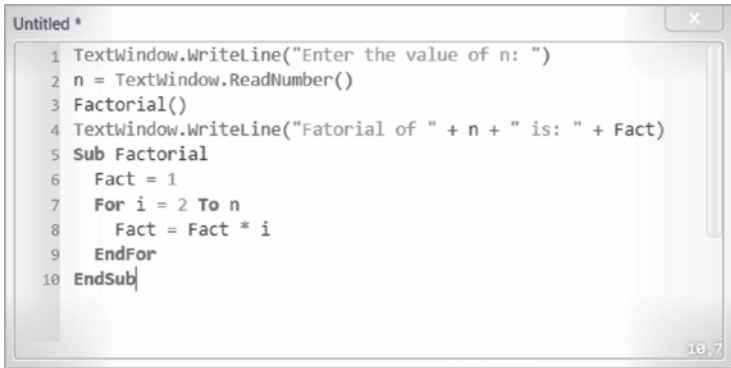
```
C:\Users\KULDIP\AppData\Local...
1
2
3
4
5
6
7
8
9
10
Press any key to continue...
```

3. Subroutine are used in those cases where we have to execute the same steps over and over again. These instructions can be called and executed anywhere in the program whenever needed. By creating subroutines in a program, you reduce the size of the program. Despite using the same instructions again and again in a program, you can create its subroutine and can call the subroutine and execute the instructions in it as and when required.

Syntax :

```
SUB <subroutine name>
  Statements
EndSub
```

Example : Write a program to find the factorial of given number



```
1 TextWindow.WriteLine("Enter the value of n: ")
2 n = TextWindow.ReadNumber()
3 Factorial()
4 TextWindow.WriteLine("Fatorial of " + n + " is: " + Fact)
5 Sub Factorial
6     Fact = 1
7     For i = 2 To n
8         Fact = Fact * i
9     EndFor
10 EndSub
```

4. For Loop with Step Statement :

If you want to increase or decrease the variable value other than 1, you can use the **Step** command in the for statement. Step value is an optional statement, which may have either a positive or a negative value.

Example : Write a program to print the numbers in reverse order.



```
1 For i = 10 To 1 Step -1
2     TextWindow.WriteLine(i)
3 EndFor
```

5. When you use the Write() function to display the output, the output is displayed in Text Output area. To display the text in Graphics window, you can use the DrawText() method. With the help of this method, you can draw and display the text and numeric values in Graphics Output area. Specify the position where the text will be displayed by specifying the x and y coordinates.

Syntax :

DrawText(x, y, "Text:)

where,

x : is the x coordinate

y : is the y coordinate

Example : Write a program to display the text “Good Morning” in Graphics Window.



```
1 GraphicsWindow.Show()
2 GraphicsWindow.Height = 350
3 GraphicsWindow.Width = 400
4 GraphicsWindow.BackgroundColor = "Black"
5 GraphicsWindow.FontName = "Forte"
6 GraphicsWindow.FontSize = 45
7 GraphicsWindow.FontItalic = "true"
8 GraphicsWindow.PenColor = "Red"
9 GraphicsWindow.DrawText(120, 120, "Learning Small Basic")
10
11
```

6. GRAPHICS WINDOW

The graphics window is made up of tiny dots called **pixels**. A group of pixels together makes an image which is seen by you. The quality of the image depends on the number of pixels in it. More number of pixels will make a high-resolution image which will improve its quality. The low-resolution image consists of less number of pixels. Graphics Window is made up of pixels. A Graphic Window can be displayed in which we can create designs and graphics patterns.

Graphics Window is divided into x and y coordinates. By default, the Graphics window is 624 pixels wide (x) and 444 pixels high (y). At the top left corner, the x and y coordinates are (0,0). The x coordinates increase when we move from left to right. The y coordinates increase when we move from top to bottom.

Display a Graphics Window

To display or show the Graphics window, you need to use Graphics Window.

Show () function : This function will open a Graphics window in which you can draw various shapes, colourful lines and text.

7. While Loop

While loop is the looping statement, in which a set of instructions are executed repeatedly until some condition is satisfied. When the condition is False, the loop terminates.

Syntax :

```
While<Condition>
```

```
{
Statements
}
```

For Loop

For loop is count-controlled loop. It is used when you know how many times you want the computer to repeat the instructions. The set of statements is executed for a specific number of times.

Syntax :

```
For <Loop Counter> = <Initial Value> To <Terminal Value>
```

Let us Do**General Activity**

How is Small Basic easier and interesting than other programming languages? You may take the help of the internet and answer the above question.

1. Size, 2. Variables, 3. Events, 4. Libraries, 5. Type system.

6. Working With Flash CS6

Let Us Answer**A. Multiple Choice Questions :**

1. (c), 2. (a), 3. (c), 4. (a), 5. (c).

B. Fill in the blanks by choosing the correct word from the brackets :

1. 550*400, 2. Library, 3. one, 4. Control, 5. Single.

C. Write 'T' for true or 'F' for false statements :

1. F, 2. F, 3. T, 4. T, 5. T.

D. Short Answer Type Questions :

1. Timeline controls the contents over time in layers and frames.
2. When you open a new Flash document, you can see a Layer 1 in the Timeline. A single frame on the timeline can have multiple layers. Graphics and other elements can be added on different layers. Further, the combined content of all layers can be seen on Stage.
3. Playhead is displayed in red colour frame with a red vertical line as you can see in the figure above. It is used to represent the current frame opened on the stage. When you play the movie, it moves as the movie proceeds from left to right direction. You can set the frame rate to control the speed of the movement of the playhead. You can also drag the playhead to watch the animation.

4. Library contains the symbols for future use.
5.
 1. Click on **Start** button, a pop-up list opens.
 2. Select **Adobe Master Collection CS6**.
 3. Now click on **Adobe Flash Professional CS6**.
 4. Adobe Flash Professional CS6 screen opens.
 5. Click on ActionScript 3.0. Under Create New section, a new blank file will get opened.
6. Each object you create or insert on the stage has some properties. These properties can be viewed or changed by opening the Property Inspector or property Panel and do the necessary changes. All the objects and graphics may have different properties.
7. Animation is nothing but an illusion of the movement of still images in a fast sequence.

E. Long Answer Type Questions :

1.
 1. Click on **File**. A drop-down menu will appear. Select New from that list.
 2. The **New Document** dialog box opens.
 3. Click on **Action Script 3.0** option from **General** tab.
 4. Now, select frame rate, background colour, ruler units, height and width of your choice. Click **OK** now.
 5. An Untitled document will be opened in the window.
 6. Go to **Modify>Document** option.
 7. The **Document Settings** dialog box will pop up before you, on the screen.
 8. Enter the values of height and width, they are to be added in the option called **Dimensions**.
 9. Now, click on **Ruler** unit. A drop-down list will pop up. The options - millimetres, centimetres, points, inches and pixels have been displaced in the in that list. Select any one option.
 10. In **Match** option, click on the **Printer** radio button, if you want to set the stage size to the maximum available print area.
 11. Click on the **Background Color** to change the background colour of the stage by selecting from the colour palette.
 12. Click on the **Frame Rate** value to change the speed of the movement of the animation in frames per second. The default value is 24fps.
 13. Click on the **Auto-Save** checkbox, which will enable the **Auto-Save** feature of Flash document. This feature will

automatically save the Flash document at regular intervals of 10 minutes.

14. Click **OK** button to apply the setting to the document.
2. When we create a drawing, two objects are created, one is Fill and other one is Outline. You can group them together to make a single object.
 1. In the Tools panel, select the tool called **Brush**. Now, go to **Properties Inspector**. Select the **Brown Fill Colour**, Also, change the style to Hairline. Now, you can draw the flower stem.
 2. Similarly, draw the flower petals using **Brush Tool** with **Yellow Fill Color**.
 3. You can see that they both are the different objects.
 4. Now combine them by selecting the **Selection Tool** from the **Tools Panel** and double click on the Flower petals. Drag the flower petals over the top of the flower stem to group them together.
 5. The flower petals have already been selected. Click on the flower stem now. So, them and petals are selected **together**.
 6. Now go to **Modify > Group** option.
 7. The objects you selected (flower petals and flower stem) will be grouped and become a single object.
3. This utility has a colour palette. It has a range of colours. Use these colours in objects. You can also merge colours. Gradients are basically formed by mixing more than one colour in an object. There are in-built gradient presets available, but you can also create your own gradient by selecting the colours of your choice and add them in the Swatches Panel.

Let us see how to fill Gradient colors in an object :

 1. Create a circle with the help of Oval tool.
 2. Select the circle.
 3. Go to **Tools Panel**. Select the **Paint Bucket Tool** from that panel.
 4. Go to **Properties Inspector** and select the **Fill Colour** to open the colour palette.
 5. Select the **Gradient** effect at end of the **Fill Colour** swatch and that will be applied on the object.
4. Yes, it is possible to create a user defined Gradients. To create user defined gradient, follow these steps :
 1. Open a Flash document.
 2. Create a circle by using **Oval Tool** and select it.
 3. Click on window in the menu bar. Now, click on colour.

4. A Color panel is opened in a window.
5. Click on the arrow next to **Color Type** and choose **Linear Gradient** or **Radial Gradient** from the list.
6. Click on the Left Pointer which appears on the below left side of the gradient bar. A Color Palette opens. Choose any one colour (say Red).
7. Now, double click on the Right Pointer and choose Yellow colour from the Colour Palette.
8. You can adjust the slides as per your need to finalize the colour blends of the gradient.
9. In **Flow** section, you can see three options: **Extend**, **Reflect** and **Repeat**. Select any one as per requirements.
10. Click on the drop-down arrow on the upper right corner of the Colour panel bar.
11. From the list, select the **Add Swatch** option.
12. Your newly created gradient is created and added to the **Swatch Panel** with existing gradients.
13. The effect can be seen in the circle selected by you.
14. Similarly, you can create **Radial** gradient and add in the Swatch Panel.

5. (a) Changing the centre of gradient

1. Move the mouse pointer to the center point of the Gradient.
2. Now, click the left button of mouse and at the same time drag the center point in the required direction.

(b) Changing the gradient width

1. You can see a small arrow on the right side of the selection of the object, called **Width Adjustment Handle**. Move the mouse pointer on it.
2. The shape of the pointer will change into a double - sided arrow
3. Click on left mouse button and drag the mouse inward or outward to adjust the width of the gradient.

(c) Rotating the gradient fill

1. You can see a **Rotation Handle** at the upper right corner of the selection of object.
2. Move the mouse pointer on the **Rotation Handle**.
3. The shape of the mouse pointer will change to circle with arrows.
4. Click left mouse button and drag the selection to rotate the gradient.

(d) Importing graphics on a stage

1. Open a blank Flash document.

2. Go to **File>Import>Import to Stage** option.
 3. The **Import** dialog box opens.
 4. Browse through file names select one file of your choice from that list.
 5. Click **Open** button.
 6. You will get the file on the stage.
6. Tint Tweening feature of Flash is used to modify the colour of a symbol. We have used a word 'symbol' here, because this feature works only with symbols and not the objects you have created on the canvas.
1. Open the **Tools Panel**. Pick the **Text Tool** from this **Panel**.
 2. Change the **Font family, style, color** and **size** of the text.
 3. Type some text on the stage. (say Good Morning)
 4. Click on the **Selection Tool** from the **Tools Panel**.
 5. Select the text by double clicking on it.
 6. Click on **Modify>Convert to Symbol** option to convert the text into symbol.
 7. A **Convert to Symbol** dialog box opens.
 8. Type the name for the symbol (say Text) and click **OK** button.
 9. Text will be converted into symbol and automatically saved in the **Library**.
 10. Click on Frame 40 in the Timeline. Insert a frame by right-clicking on it. Now, press insert frame.
 11. Insert a keyframe in Frame 10, Frame 20, Frame 30 and Frame 40 by right clicking on it and select the **Insert Keyframe** option.
 12. You will see small solid black dots indicating the keyframe in the timeline.
 13. Select the Frame 1 and click on the Text symbol.
 14. Open **Properties Panel**.
 15. Go to colour Effects and click on the drop-down arrow of the style option.
 16. From the drop-down list, select **Tint** option.
 17. Now, move the slider of Tint to 100%, Red to 0, Green to 0 and Blue to 255.
 18. Select Frame 10 now. Add tweening by moving the slider of Red to 255. Also, change Green 0 and Blue to 0.
 19. Now select the Frame 20 and add tweening by moving the slider of Red to 0, Green to 255 and Blue to 0.

20. Now select the Frame 30 and add tweening by moving the slider of Red to 0, Green to 0 and Blue to 255.
 21. Now select the Frame 40 and add tweening by moving the slider of Red to 255, Green to 0 and Blue to 0.
 22. Now, right click on Timeline between Frames 1 to 10. Now, select **Create Motion Tween** from the pop-up menu that appears on screen.
 23. Similarly, right click at any place between Frame 10 and Frame 20, then Frame 20 and Frame 30, then Frame 30 and Frame 40 and select the **Create Motion Tween** option from the pop-up list.
 24. Go to **Control>Test Movie>Test** to preview what Tint effects you have created on the Text symbol.
- 7.
1. Select the **Text Tool** from the **Tools Panel**.
 2. Click **Properties Inspector** now. Change the Font Family to Comic Sans, Style to Bold, size to 40 and colour to purple.
 3. After setting the properties of the text, its time to type the text.
 4. Select Frame 1 in the Timeline.
 5. A textbox appears on the stage with a cursor in it.
 6. Type text Computer System in it.
 7. Now select Frame 40. Right-click on it. Select **Insert Keyframe** option from the list displayed on the screen.
 8. Type the text Technology in it.
 9. Click on Frame 1.
 10. In the list of Modify, select Break Apart.
 11. The letters in a word will get separated.
 12. Again, select the Break Apart option from **Modify** menu. The text gets converted into shape.
 13. Select Frame 40.
 14. Select the typed text that now. Now, select **Break Apart** from the list that turns up after clicking Modify.
 15. From the menu of Modify, pick the **Break Apart** option. The text will acquire a shape.
 16. To create the Shape Tween, right click between Frame 1 and select the **Create Shape Tween** option from the pop-up list.
 17. You will notice that a Green coloured solid panel appears between Frame 1 and Frame 40 with an arrow in it indicating a Shape Tween in it.
 18. Go to **Control>Test Movie>Test** to preview the changing of shape of the text.

8. 1. Open a blank Flash document.
2. In the **Tools Panel**, select the **Text Tool** option.
3. Click on the stage, a text box appears along a cursor in it.
4. Type the text (say Humanity).
5. Go to **Tools Panel**, select **Selection Tool** from it.
6. Now, double-click on the text; it will be selected.
7. Go to **Modify>Break Apart** option from it.
8. The text will be separated into characters.
9. Now select each character in the text and convert it into a symbol by right click on it and select the **Convert to Symbol** option from the list.
10. You will see a dialog box. It is the **Convert to Symbol** dialog box. Write the name of the symbol (Symbol 1). Now, in the type drop-down menu, select **Movie Clip**.
11. Click **OK** button.
12. Select all the characters of the text using **Selection tool**.
13. Open **Properties Inspector**.
14. In Filters section, click on the **Add Filter** button at the bottom left corner of the section.
15. A pop-up list opens. Select any of the effect you want to apply (say Blur).
16. Go to the top-right corner and click the drop down button located there. Select **Close Group** to close this panel.
17. Now observe the blur effect on the text.

Let us Do

Mindful Activity

Distinguish between Frame by Frame animation and Tweened Animation. You can take the help of Internet.

Frame by Frame animation : In this class of animation, we create one image in one single frame and keep adding a small change in each frame to create the illusion of animation.

Drawbacks of Frame by Frame Animation :

1. It is labour intensive.
2. It creates large files.

Tweened Animation : In Tweened Animation, starting and ending keyframes are created by user and the in between motion effects are created by Flash.



7.

Working With Layers

Let Us Answer

A. Multiple Choice Questions :

1. (a), 2. (a), 3. (c), 4. (a), 5. (a).

B. Fill in the blanks by choosing the correct word from the brackets :

1. One, 2. Red, 3. Building Brush, 4. Masking, 5. Control.

C. Write 'T' for true or 'F' for false statements :

1. T, 2. F, 3. F, 4. T, 5. F.

D. Write down the purpose of following buttons in a single line :

1. It is used to move a layer.
2. It is used to delete a layer.
3. It is used to hide layer.
4. It is used to create a new layer.
5. It is used to lock layer.
6. It is used to rename a layer.

E. Short Answer Type Questions :

1. A layer is a transparent sheet which contains objects, stacked on the top of each other.
2. Steps to select a layer are :
 1. Go to **Timeline** and click on the layer. The layer will be highlighted in the blue colour.
 2. Or Select an object on the stage, the related layer will get selected and highlighted with blue colour.
3. Steps to add new layers in a Timeline are :
 1. Click on the **New** button on the left bottom corner in a Timeline.
 2. You will observe that a new layer has been added above the active layer. This new (added) layer becomes active.
4. Lock a Layer button is used to lock the contents in the layer in order to prevent from accidental changes.
5. It is a utility that is used to display or hide some parts of a layer in Flash. You can use the masking feature to control the content that you want the viewers to see. You can give the spotlight effects and transitions by using the mask layer in which a hole is created through which the underlying layers are visible to the viewers. The items which can be masked in a layer are a graphic symbol, filled object, text, or a movie clip.
6. It is used to show all the layers.

7. To delete a selected layer, click on the Delete layer button.

F. Long Answer Type Questions :

1. Layer is a transparent sheet that has objects.

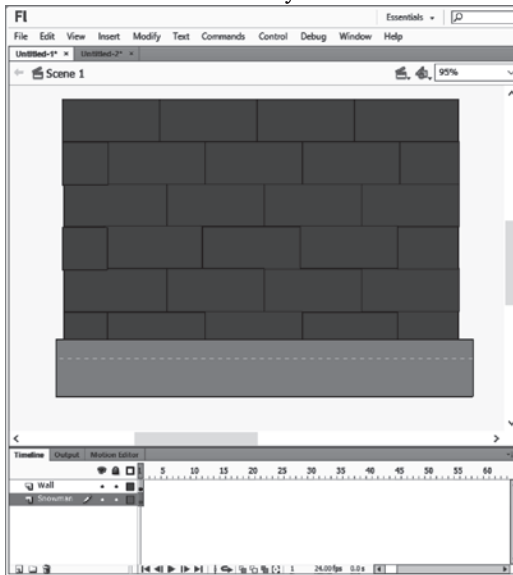
Steps to rename a layer are :

1. Right click on the Layer name which you want to rename.
2. A pop-up list opens.
3. Click on the **Properties** option.
4. A Layer Properties dialog box will pop-up on the screen.
5. Type the new name for the layer in Name textbox.
6. Click **OK** button.
7. Observe that the name of the layer is changed to Wall.

2. When multiple layers are overlapped, then various objects embedded in different layers come up on the stage. When you change the order of layers in the Timeline, the order of various objects on the stage changes accordingly. It means that the layer which is on top of all the layers, its contents will appear in front of all the contents of other layers. So, objects of higher layers appear in front of the objects in the below layers.

Steps to change the order of layers :

1. Select the layer which you want to move by clicking on it with left mouse button.
2. Drag the layer to move it to the required position and release mouse button.
3. You will notice that the layer is moved accordingly.



4. In this picture, the Layer Snowman goes downwards. Also, note that Layer Wall is on the top.
5. Contents of Layer Wall is above and Snowman is hidden on the back of the Wall.

3. (a) Steps to Hide/Show the layers are :

1. Click on the **Eye** icon which appears above the layers. A Red Cross will appear in the Eye column in all layers. It will hide all the layers by removing their contents. You will get a blank stage.
2. Now, click the Eye once again. All the contents of all layers will be displayed on the stage.
3. If you click on the small circle in the Eye icon column, a Red cross appears and corresponding layer will be hidden and its contents will disappear. This way, you can hide the contents of individual layers.
4. Again, click on that **Red Cross**, it will disappear and contents will be displayed again.

(b) Lock a layer

1. Now, click on the **Lock** icon which is above the layers. You will see that a lock symbol has come up on all layers. This proves that all layer contents have been locked.
 2. To lock the individual layer, click on the dot in the **Lock** column of the layer to lock its contents.
 3. Click again on the **Lock** icon to unlock the layers.
- 4.** It is a utility that is used to display or hide some parts of a layer in Flash. You can use the masking feature to control the content that you want the viewers to see. You can give the spotlight effects and transitions by using the mask layer in which a hole is created through which the underlying layers are visible to the viewers. The items which can be masked in a layer are a graphic symbol, filled object, text, or a movie clip.

Creating a Mask Layer :

1. Open a blank Flash document.
2. Now change the background colour of the stage by opening the Properties Inspector and change the colour to red.
3. Change the name of the **Layer to Text**.
4. From the **Tools Panel**, select the **Text Tool**. Now, change Font Style, font color, font size and font family using the Properties Inspector of the Text Tool.
5. Type the text **MASKING**.
6. Choose the **Selection Tool** and select the text.
7. Go to **Modify>Convert to Symbol** option to convert the text into symbol.

8. Using **Selection Tool**, drag the text to the bottom left corner of the stage.
 9. Now, click on Frame 50. Now click on **Insert Frame**.
 10. Right click on Frame 1 and select **Create Motion Tween**. Move the Playhead to Frame 50.
 11. Now drag the text to the upper right corner of the stage.
 12. Insert new layer and rename it to Mask.
 13. Now open the **Tools Panel**. From the options present in it, choose the **Oval Tool**. Now, choose a **Fill Color**.
 14. Now draw an oval shape in the middle of the stage. It must be noted that the width of the oval must be larger than the text.
 15. Now, right click on the Layer Mask from the Timeline. Now, select the **Mask** option from the menu that pops up on the screen.
 16. The selected layer will be converted into a mask layer which will take the Text layer underneath. Both the layers are locked automatically.
 17. Now, go to **Control**. Click on **Test Movie** in the options present in it. Now, click **Test**.
- 5.
1. Open a blank Flash document.
 2. Click on File, Now, go to **Import> Import to stage**.
 3. An **Import** dialog box opens.
 4. Browse and select the image you want to choose to import on the stage.
 5. Click **Open** button.
 6. Select the **Free Transform** Tool now. Now, click on the image. Drag it to make it fit on the stage.
 7. Select the Layer and rename it as Scene.
 8. Select Frame 50, right click on it and insert a new frame.
 9. Lock the layer.
 10. Create a new layer and name it Polymask.
 11. Use a **PolyStar Tool**. Draw a polygon in the middle of the stage with its help. Now go to the **Tools Panel**. Select a Fill colour from the options present there.
 12. Now select the Polygon using Selection Tool.
 13. Go to **Modify>Convert to Symbol** option.
 14. Give the name 'Polygon' to the symbol. Now, select **Graphic Style**. Go to the **Convert to Symbol** dialog box. Click **OK** in the dialog box.
 15. Reduce the size of Polygon using **Free Transform Tool**.
 16. Right click on Frame 50 and select **Insert Keyframe** option from the pop-up menu.

17. Increase the size of Polygon using **Free Transform Tool**.
 18. Now, right click on Frame 25. Now, in the list that appears, select the option **Create Classic Motion Tween**.
 19. An Arrow line will be displayed in the frames.
 20. Now, go to **Property Inspector**. Select the option CW in the **Rotation field**.
 21. Right click on the Polymask layer and select the **Mask** option from the pop-up list.
 22. You will see that the Scene layer has come under the Polymask layer.
 23. Go to **Control>Test Movie>Test** to see the effects of masking.
6. Now, we know that we can use Frame by Frame method to create animations. We can also create them using the Tween animation method. Both these methods are called **Linear Frame by Frame** view.
- Onion Skinning, on the other hand, is a technique in which you can view more than just one frame at a time. It allows you to view multiple frames of an animation sequence at once. Using this method, you can create a faint ghost image of the previous frame with whose help you can place the art work in new frames. In this way, an animator can make a decision on how to make some changes in the image on the basis of previous image in sequence.



8. Introduction to HTML 5

Let Us Answer

- A. Multiple Choice Questions :**
1. (b), 2. (a), 3. (a), 4. (b), 5. (c).
- B. Fill in the blanks by choosing the correct word from the brackets :**
1. Hyper, 2. <h2>, 3. Black, 4. .html, 5. <title>.
- C. Write ‘T’ for true or ‘F’ for false statements :**
1. F, 2. T, 3. F, 4. F, 5. T.
- D. Give the syntax to perform the following :**
1. <body TEXT = “red”>
 2. <hr ALIGN = “Left” SIZE = “r”>
 3.

E. Short Answer Type Questions :

1. Internet is based on Client/Server Architecture. A client is a user's computer who sends the request to the server which responds by providing the required data to the client. The server stores files and information in the form of websites.
2. Web Browser is a software application which is used to locate, retrieve and present the contents on world wide web.
3. Hyper Text Markup Language.
4. A webpage is an electronic page contain the information which may be text, graphics, audio, video etc.
5. HTML or Hyper Text Markup Language is a standard markup language which describes the structure of web pages using markup. This language is used to create web pages, also called **Hyper Text Documents**. These documents can be viewed through web browsers like Internet Explorer, Google Chrome etc.
6. A hyperlink is a link by clicking on which you move to the linked page.
7. A tag with no closing tag is called Empty tag. For example, `
`.
8. A tag with both starting and ending tags is called container tag. For example, ``.
9. Tag Attributes are the tag properties which are used along with the related tag. These are the keywords which are enclosed in the starting tag, and are used to modify the default tag properties. These attributes are totally optional. They are used when some specific property of the tag needs to be changed. Attribute value must be enclosed in double quotation mark.
10. Italic tag is used to display the text little slanted. `<I>.....</I>`.

11. **
 tag :**

You can introduce a line break into your HTML document with the help of `
` tag. This tag is an empty tag.

Syntax :

`
`

<p> tag :

To display a long piece of text on a web browser, a paragraph element `<p>` is used, which marks a block of text as a paragraph. To mark the end of a paragraph, `</p>` element is used. The text starts from a new line and adds some extra space at the starting of the paragraph.

Syntax :

`<p> Text </p>`

F. Long Answer Type Questions :

1. Hyper Text Markup Language was developed by **Tim Berners Lee** at **CERN** in November 1990. The journey of HTML began as **GML** (General Markup Language) in 1980s. Then some modifications and new features were added in it and a new version, namely **SGML** (Standard General Markup Language) was established in 1986. Then, Lee and his team worked on it, re-designed it and create a language called Hyper Text Markup Language. The standard version of HTML was HTML 2.0 which came into existence in 1995. Later, newer versions came with new features and modifications. HTML laid down the foundation of World Wide Web (WWW). This was helpful for scientists in different universities to access each other's research documents, by linking the text to research documents with relevant document of other researchers.

2. `<html>`

`<head>`

`<title> Title of a web page </title>`

`</head>`

`<body>`

Body of a web page

`</body>`

`</html>`

(i) **<html>** : This tag is the root element of an HTML page. Everything is written within `<html>` tag. It must have a closing tag `</html>`

(ii) **<head>** : This tag is used to define the heading of a page.

(iii) **<title>** : This tag defines the title of the document.

(iv) **<body>** : This tag is used to define the body section of the document.

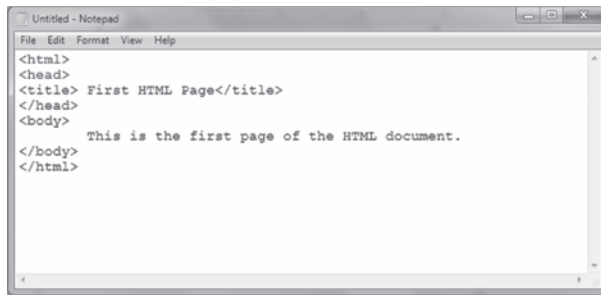
3. 1. Click on **Start** button>**All apps**.

2. Select **Windows Accessories>Notepad** option.

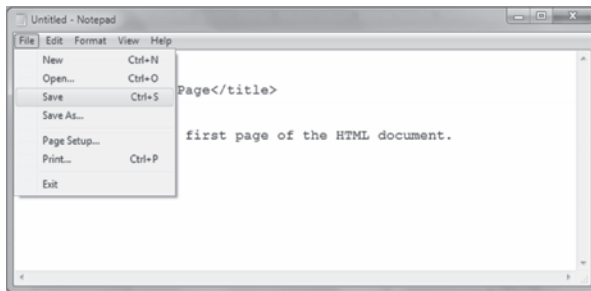
3. A **Notepad** window will open.



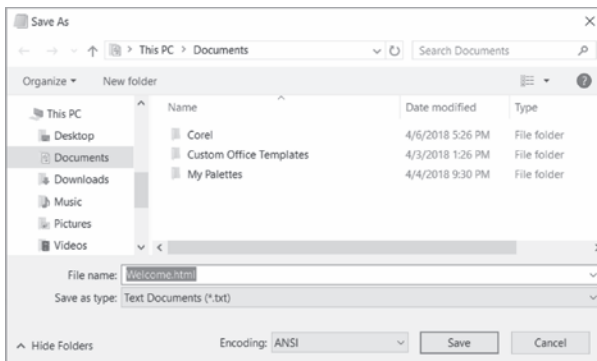
- Now type the HTML code for creating an HTML document as shown in the figure.



- Save the HTML code that you have typed.
- Yes, it is important to save HTML document. To save HTML documents, follow these steps :
 - Click on **File** menu from the menubar.
 - From the drop-down list, select **Save** or **Save As** option.

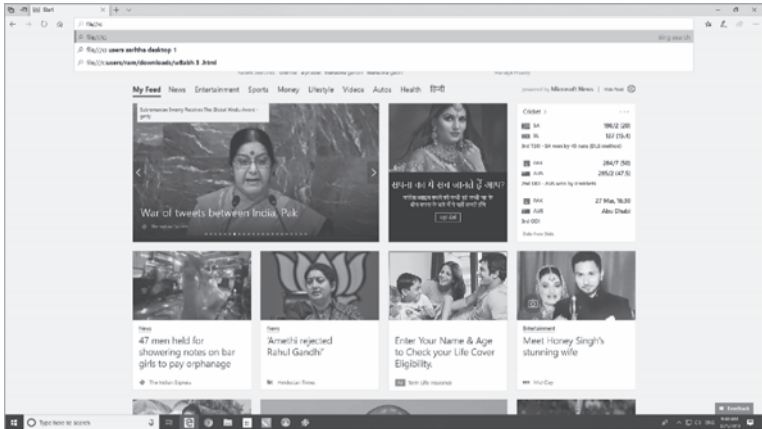


- A **Save As** dialog box opens.
- Type the name of document in **Filename** textbox and save it with an extension '.html'.

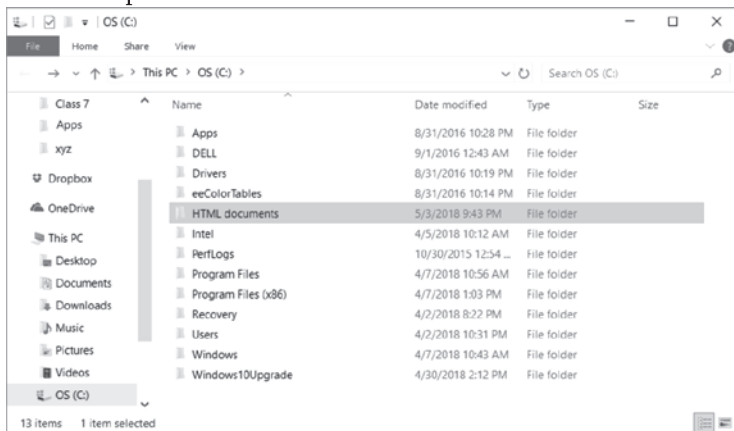


- Click on **Save** button.

5. 1. Click on **Start** button>All apps.
2. Click on **Microsoft Edge**.
3. A **Microsoft Edge** window opens.
4. Type in URL file:///C:/ drive name in which your file is present and press **Enter** key from the keyboard.



5. It will display the list of all the files and directories which are present in C: drive.



6. Now navigate through the files and directory to get the HTML file you want to open.
 7. Click on the HTML file and the HTML document will be displayed on the screen.
- 6. (i) BGCOLOR :** This property is used to set the background colour of the HTML element. The value assigned to the attribute may be in the form of colour name or hexadecimal code.

Syntax :

<body BGCOLOR = "colour name">

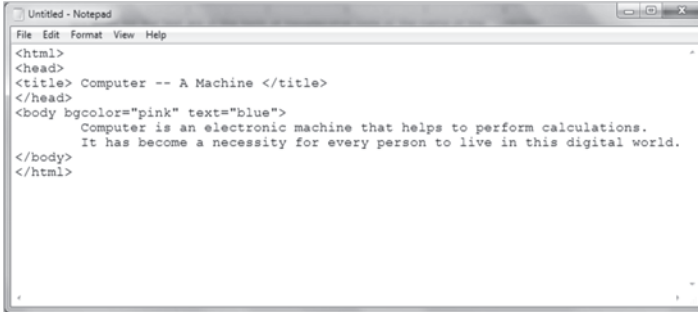
Or

<body BGCOLOR = "hex code">

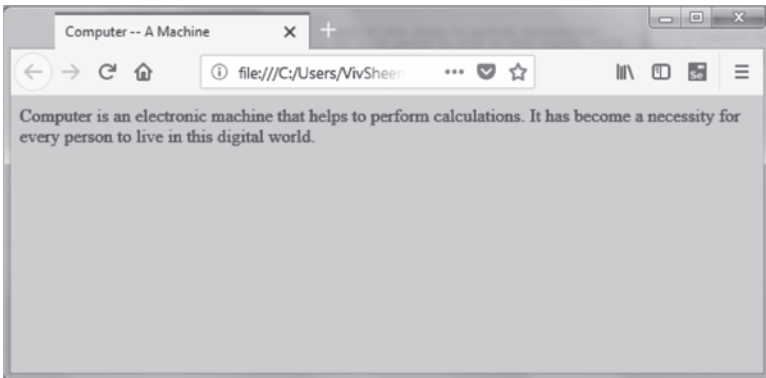
(ii) TEXT : We use this attribute to change the text colour of entire web page. The value assigned to this attribute can be a colour name or hexadecimal code.

Syntax :

<body TEXT = "value">



```
Untitled - Notepad
File Edit Format View Help
<html>
<head>
<title> Computer -- A Machine </title>
</head>
<body bgcolor="pink" text="blue">
  Computer is an electronic machine that helps to perform calculations.
  It has become a necessity for every person to live in this digital world.
</body>
</html>
```



(iii) BACKGROUND : With this property, we can add an image in the background of an HTML document. For this, BACKGROUND attribute is used with <body> tag. The value to be assigned must be a complete path where the image is stored.

Syntax :

<body BACKGROUND = "path">

7. tag :

This tag is used to format the text of a web page. Formatting the text means to change the looks of the text by displaying it in a presentable manner, so that your web page looks more

attractive. This can be done by changing the font face, its colour, applying style to the font or changing its size.

Attributes of tag :

(i) FACE : This attribute is used to change the type face of the text contained in this tag. The value assigned to this attribute is the specific font face.

Syntax :

```
<font FACE = "font name">  
    Web page contents  
</font>
```

(ii) SIZE : This attribute is used to change the default size of the text contained in this tag. You can assign the value which must be from 1 to 7, where 1 indicates the smallest value and 7 indicates the largest value.

(iii) COLOR : This attribute is used to change the default colour of the text enclosed in this tag. The value assigned to this attribute must be colour name or hexadecimal code.

Syntax :

```
<font COLOR="value">  
    Web page contents  
</font>
```

8. Heading tag (<h1> to <h6>) :

This is a heading tag. It is used to define different heading levels in an HTML document. This is basically used to emphasize the text. There are six levels of headings from <h1> to <h6>. <h1> represents the top level of heading and is the most prominent heading. <h6> represents the bottom level of heading and is the least prominent heading. <h1> is mainly used for main headings and rest of the header tags are used for sub-headings or sub-sub headings.

Syntax :

```
<hn> Heading text </hn>
```

Where, the value of n can be 1, 2, 3, 4, 5, or 6.

9. <hr> tag :

This tag is used as a separator between blocks of text. The <hr> element draws a horizontal line across the page. It is an empty element and has no end tag. One time use of <hr> will draw a single line. To draw two lines, use it twice. You can use this tag anywhere in a document.

Syntax :

```
<hr>
```

Attributes of <hr> tag :

- (i) **ALIGN** : This attribute is used to set the alignment of the line, i.e. Left, Right or Center.
Syntax :
<hr ALIGN = "value">
Here, value can be left, right or center.
- (ii) **SIZE** : This attribute helps to specify the thickness of the horizontal line. The value assigned to the SIZE attribute must be set in pixels.
Syntax :
<hr SIZE = "value">
- (iii) **WIDTH** : This attribute helps to set the length of the horizontal line. The value assigned to this attribute must be set in pixels or percentage.
Syntax :
<hr SIZE = "value">
- (iv) **COLOR** : This attribute helps to set the colour of the horizontal line. The value assigned to this value can be color name or hexadecimal code.
Syntax :
<hr COLOR = "value">

Let us Do

General Activity

Find and write down various hexadecimal codes for the given colours with the help of Internet.

1. # 008000, 2. # 0000FF, 3. # EE82EE, 4. # 00FFFF,
5. # FFFFFFFF, 6. # 808080, 7. # FF0000, 8. # FFA500,
9. # FFFF00, 10. # 000000.



Half Yearly Model Test Paper

Do it yourself.

Annual Model Test Paper

Do it yourself.

