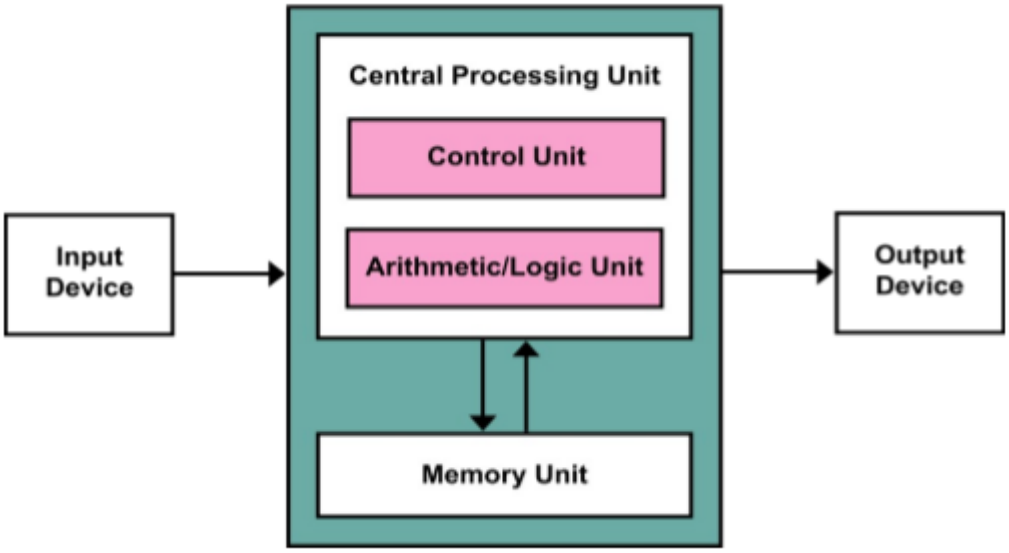
CCA-101: Fundamentals of IT & Programming

Assignment -1

Q1: What are the four fundamental parts of computer? Explain it with the help of diagram?

Answer: - 1:- Input Device 2:- Central Processing Unit 3:- Memory Unit 4:- Output Device



Q2: Discuss about the classification of computers based on size and capacity?

Answer:- Computers are classified into four parts as per size and capacity, which are:-

1:-**Super Computer** :- Largest In size and most powerful in terms of speed,accuracy and processing power. It can perform over one trillion calculations per second.

2:- **Mainframe Computer** :- Very large in size and can fill a room. These computers are also powerful and can perform thosands of millions of instructions per second. Used in railway reservations,flight scheduling etc.

3:-**Mini Computer**:- Much smaller in size as compared to mainframe computers bur slightly bigger and expensive than desktop computers. Gradually used by small and medium businesses as their servers.

4:-**Micro Computer:-** Microcomputers are the most frequently used type of computer. Also, known as Personal Computer (PC), a microcomputer is a small computer system designed to be used by one person at a time.

Q3: What is the meaning of computer generation? How many Computer Generations are defined? What technologies were/are used?

Answer:- The evolution of digital computing is often divided into generations. Each generation is characterized by dramatic improvements over the previous generation in the technology used to build computers, in terms of the internal organization of computer and programming languages.

→ Five Generations of Computers:

First Generation: Vacuum Tubes (1940-1956): The first computer systems used vacuum tubes for circuitry and magnetic drums for memory, and were often enormous, taking up entire rooms. These computers were very expensive to operate and in addition to using a great deal of electricity, the first computers generated a lot of heat, which was often the cause of malfunctions. First generation computers relied on machine language, the lowest-level programming language understood by computers, to perform operations, and they could only solve one problem at a time. It would take operators days or even weeks to set-up a new problem. Input was based on punched cards and paper tape, and output was displayed on printouts. The UNIVAC (Universal Automatic Computer) and ENIAC (Electronic Numerical Integrator and Computer) computers are examples of first-generation computing devices. The UNIVAC was the first commercial computer delivered to a business client, the U.S. Census Bureau in 1951.

Second Generation: Transistors (1956-1963): The world would see transistors replace vacuum tubes in the second generation of computers. The transistor was invented at Bell Labs in 1947 but did not see widespread use in computers until the late 1950s. The transistor was far superior to the vacuum tube, allowing computers to become smaller, faster, cheaper, more energy-efficient and more reliable than their first-generation predecessors. Though the transistor still generated a great deal of heat that subjected the computer to damage,it was a vast improvement over the vacuum tube. Second-generation computers still relied on punched cards for input and printouts for output. Second-generation computers moved from cryptic binary machine language to symbolic, or assembly, language.

Third Generation: Integrated Circuits (1964-1971) The development of the integrated circuit was the hallmark of the third generation of computers. Transistors were miniaturized and placed on silicon chips, called semiconductors, which drastically increased the speed and efficiency of computers. Instead of punched cards and printouts, users interacted with third generation computers through keyboards and monitors and interfaced with an operating system, which allowed the device to run many different applications at one time with a central program that monitored the memory. Computers for the first time became accessible to a mass audience because they were smaller and cheaper than their predecessors.

Fourth Generation: Microprocessors (1971-Present): The microprocessor brought the fourth generation of computers, as thousands of integrated circuits were built onto a single silicon chip. What in the first generation filled an entire room could now fit in the palm of the hand. The Intel 4004 chip, developed in 1971, located all the components of the computer—from the unit and memory to input/output controls—on a single chip. In 1981 IBM introduced its first computer for the home user, and in 1984 Apple introduced the Macintosh. Microprocessors also moved out of the realm of desktop computers and into many areas of life as more and more everyday products began to use microprocessors. As these small computers became more powerful, they could be linked together to form networks, which eventually led to the development of the Internet. Fourth generation computers also saw the development of GUIs, the mouse and handheld devices.

Fifth Generation: Artificial Intelligence (Present and Beyond): Fifth generation computing devices, based on artificial intelligence, are still in development, though there are some applications, such as voice recognition, that are being used today. The use of parallel processing and superconductors is helping to make artificial intelligence a reality. Quantum computation and molecular and nanotechnology will radically change the face of computers in years to come. The goal of fifth-generation computing is to develop devices that respond to natural language input and are capable of learning and self-organization.

Q4: Differentiate between Volatile & Non- Volatile memories ?

Answer:-

VOLATILE MEMORY	NON-VOLATILE MEMORY
1: Data loses when the power is turned off.	**1**: Data remains safe if saved even if the power is turned off. Always retains its data.
2: The programs and data that the CPU requires during execution of a program are stored in this memory.	**2:** Stores crucial information essential to operate the system, like the program essential to boot the computer.
3: Ex:- Random Access Memory (RAM)	**3: Ex:-** Read Only Memory (ROM)

Q5: Distinguish among system software, application software and open source software on the basis of their features ?

Answer:-

System Software	Application Software	Open Source Software
1: Designed to run a computer's hardware and application programs.	1: Created for a specific purpose, used by end users. It can be called an application or simply an app.	1: Type of computer software in which source code is released under a license in which the copyright holder grants users the rights to study, change, and distribute the software to anyone and for any purpose.
2: Ex: Operating systems, compilers, editors and drivers etc	2: Ex: Word processor, accounting application, a web browser, an email client, media player etc	2: Ex: The Linux operating system(OS)

Q6. a) Create a file in MS-word to insert a paragraph about yourself and save it with file name "yourself". Describe all steps involved in it ?

Answer:-

To create a new blank document: -

1:- Click the Microsoft Office button.

2:- Select New. The New Document dialog box appears.

3:- Select Blank document under the Blank and recent section. It will be highlighted by default.

4:- Click Create. A new blank document appears in the Word window.

5:- Now write the paragraph about yourself.

Now to save it by the name “yourself” :-

1:- Click the Microsoft Office button.

2:- Select Save As Word Document. The Save As dialog box appears.

3:- Select the location where you want to save the document using the drop-down menu.

4:- Enter a name for the document i.e “yourself” .

5:- Click the Save button.

Q6 b) Write steps regarding following

→To change the font style

→To change the font size

→To change the font colour

→To highlight (in yellow) the line that reads “need to get IMS’s address”.

Answer:-

→To change the font style:-

1:- Select the text you want to modify.

2:- Left-click the drop-down arrow next to the font style box on the Home tab. The font style drop-down menu appears.

3:- Move your cursor over the various font styles. A live preview of the font will appear in the document.

4:- Left-click the font style you want to use. The font style will change in the document.

→To change the font size:-

1:- Select the text you want to modify.

2:- Left-click the drop-down arrow next to the font size box on the Home tab. The font size drop-down menu appears.

3:- Move your cursor over the various font sizes. A live preview of the font size will appear in the document.

4:- Left-click the font size you want to use. The font size will change in the document.

→**To change the font colour:-**

1:- Select the text you want to modify.

2:- Left-click the drop-down arrow next to the font colour box on the Home tab. The font colour menu appears.

3:- Move your cursor over the various font colours. A live preview of the colour will appear in the document.

4:- Left-click the font colour you want to use. The font colour will change in the document.

→**To highlight (in yellow) the line that reads "need to get IMS's address". :-**

1:- Select the text "**need to get IMS's address"** to modify.

2:- Left-click the drop-down arrow next to the **Text Highlight** colour box on the Home tab. The text colour menu appears.

3:- Move your cursor to yellow among various text colours. A live preview of the colour will appear in the document.

4:- Left-click the text colour which is yellow .The text colour will change in the document.

Q7. Create a file in MS-Word for the following document and save it with file name 'ms-word'. Describe all steps involved in it?

Answer:-

Steps involved:-

1:- Click the Microsoft Office button.

2:- Select New. The New Document dialog box appears.

3:- Select Blank document under the Blank and recent section. It will be highlighted by default.

4:- Click Create. A new blank document appears in the Word window.

5:- Now write the document given. The font colour, size, text can be selected from font colour, font size, bold,italic and underline menu in home tab.

Now to save it by the name "ms-word" :-

1:- Click the Microsoft Office button.

2:- Select Save As Word Document. The Save As dialog box appears.

3:- Select the location where you want to save the document using the drop-down menu.

4:- Enter a name for the document i.e "ms-word" .

5:- Click the Save button.

Q8. Create a file in MS-word for the following document and save it with file name 'equations'. Describe all steps involved in it ?

Answer:-

Steps involved:-

- 1:- Click the Microsoft Office button.
- 2:- Select New. The New Document dialog box appears.
- 3:- Select Blank document under the Blank and recent section. It will be highlighted by default.
- 4:- Click Create. A new blank document appears in the Word window.
- 5:- Now write the document given.The font which is in power and in the base can be selected from font menu in home tab.

Now to save it by the name "equations" :-

- 1:- Click the Microsoft Office button.
- 2:- Select Save As Word Document. The Save As dialog box appears.
- 3:- Select the location where you want to save the document using the drop-down menu.
- 4:- Enter a name for the document i.e "equations" .
- 5:- Click the Save button.

Q9. Create a file in MS-word that convert existing highlight text to table as shown below and save it as file name 'text_to_table'. Describe all steps involved in it ?

Answer:-

- Write down the text you want to convert.
- Select the text you want to convert.
- Select the **Insert** tab.
- Click on **Table** command. A dialog box appears
- Click on **Convert Text to Table**, a new dialog box appears
- Here set number of columns. (required 2)
- Click on OK finally, selected text convert in a table.

Now to save it by the name "text_to_table" :-

- 1:- Click the Microsoft Office button.
- 2:- Select Save As Word Document. The Save As dialog box appears.
- 3:- Select the location where you want to save the document using the drop-down menu.
- 4:- Enter a name for the document i.e "text_to_table" .
- 5:- Click the Save button.

Q10. Create a file in MS-Word to insert a table in the document. Describe all steps involved in it ?

Answer:-

To insert a table in the document:-

- Place your insertion point in the document where you want the table to appear.
- Select the **Insert** tab.
- Click the **Table** command.
- Drag your mouse over the diagram squares to select the number of columns and rows in the table.
- Left-click your mouse and the table appears in the document.

Now to save it by the name "Insert a table" :-

- 1:- Click the Microsoft Office button.
- 2:- Select Save As Word Document. The Save As dialog box appears.
- 3:- Select the location where you want to save the document using the drop-down menu.
- 4:- Enter a name for the document i.e "Insert a table".
- 5:- Click the Save button.

Q11. Create a following worksheet in MS-excel and save it with name 'book1'?

Answer: - Saved

Q12. Calculate the following things of a range (C2:C11) of data in the worksheet created in question no 10.

- **the sum of the marks using AutoSum in a range of cells (C2:C11)**
- **average of the marks in a range of cells (C2:C11)**
- **highest marks in a range of cells (C2:C11)**
- **minimum marks in a range of cells (C2:C11)**

Answer:- The sum of the marks using AutoSum in a range of cells (C2:C11) :- 654, SUM(C2:C11)

Average of the marks in a range of cells (C2:C11):- 65.4, AVERAGE(C2:C11)

Highest marks in a range of cells (C2:C11):- 90, MAX(C2:C11)

Minimum marks in a range of cells (C2:C11):- 4, MIN(C2:C11)

Q13 a) Describe various steps involved in the following:-

- **To modify column width of a worksheet**
- **To modify the row height of a worksheet**
- **To delete rows and columns of a worksheet**

Answer:-

→To modify column width of a worksheet:-

Method 1 - How to change Column width by clicking and dragging on boundary gridline

To change the Column width of a single Column by clicking and dragging on Column boundary gridline, follow these steps:-

Step1 - Select the Column you want to change its height by clicking on Column letter. Place the mouse pointer on left-side or right-side gridline of the Column letter until the mouse pointer turns to a double-sided arrow. You need to place the mouse pointer on left-side or right-side gridline depending on to left or right direction you want to change the Column width. Now left click on the double-sided arrow.

Step2 - Drag the mouse till the desired width is reached and then drop the mouse to change the Column width. As you drag, Excel will keep displaying the changing Column width as tooltip message.

Similarly, you can change the width of multiple Columns simultaneously by click, drag and drop. Select multiple Columns and then click, drag and drop on left-most or right-most gridline of the Columns selection for changing the width of multiple Columns simultaneously.

Method 2 - How to change Column width by entering the exact Column width value

Sometimes it is difficult to select the exact Column width by using drag and drop method described above, because the Column width value keep changing as you drag. Follow below steps to change single Column width by entering the exact Column width value.

→**Step 1** - Right-click the Column you want to change the column width and click the "Column Width" to open "Column Width" dialog box from the context menu.

You can open the "Column Width" dialog box also from Excel Ribbon > "Home" Tab > "Cells" > "Format".

→**Step 2** - Enter exact value for Column width in Column width dialog box and click "OK" to change the Column width.

Similarly, you can change the width of multiple Columns simultaneously by typing-in the Column width value. Select multiple Columns and then right-click on any Column in the selection. Click the "Column Width" from the context menu and type-in the Column width value in dialog box. Click "OK" button.

→To modify the row height of a worksheet:-

Method 1 - How to change Row height by clicking and dragging on boundary gridline

To change the Row height of a single Row by clicking and dragging on Row boundary gridline, follow these steps.

Step1:- Select the Row you want to change its height by clicking on Row number. Place the mouse pointer on top or bottom gridline of the Row number until the mouse pointer turns to a double-sided arrow. You need to place the mouse pointer on top or bottom gridline depending on to top or bottom direction you want to change the Row height. Now left click on the double-sided arrow,

Step2:- Drag the mouse till the desired height is reached and then drop the mouse to change the Row height. As you drag, Excel will keep displaying the changing Row height as tooltip message.

Similarly, you can change the height of multiple Rows simultaneously by click, drag and drop. Select multiple Rows and then click, drag and drop on top-most or bottom-most gridline of the Rows selection for changing the height of multiple Rows simultaneously.

Method 2 - How to change Row height by entering the exact Row height value

Sometimes it is difficult to select the exact Row height by using drag and drop method described above, because the Row height value keep changing as you drag. Follow below steps to change single Row height by entering the exact Row height value.

Step1:- Right-click the Row you want to change the height and click the "Row Height" to open "Row Height" dialog box from the context menu.

You can open the "Row Height" dialog box also from Excel Ribbon > "Home" Tab > "Cells" > "Format" as shown below.

Step2:- Enter exact value for Row height in Row height dialog box and click "OK" to change the Row height.

Similarly, you can change the height of multiple Rows simultaneously by typing-in the Row height value. Select multiple Rows and then right-click on any Row in the selection. Click the "Row Height" from the context menu and type the Row height value in dialog box. Click "OK" button.

→To delete rows and columns of a worksheet:-

- ### Method 1 - How to delete a single Row or Column from Excel worksheet

Step1:- Select the Row or column which you want to delete by clicking on its Row number from the context menu.

Step2:- After selecting the Row/Column number, right-click anywhere on the Row/Column and select "Delete"

Step3:- Entire row/column will be deleted.

- **Method 2 - How to delete multiple Rows/Columns from Excel worksheet**

To delete multiple Rows/Columns from Excel worksheet, follow these steps.

Step1:- Select the Row/Columns you want to delete from Excel worksheet by clicking, dragging and releasing mouse pointer on its Row/Column numbers.

Step2:- After selecting the Rows/Columns, right-click on any of the selected Rows/Columns and select "Delete" from context menu.

Q13 b) Describe following terms in the worksheet:-

- **Absolute reference and relative reference in formula**
- **Cell address**

Answer:-

Relative reference:-

A relative cell reference is the most widely used cell reference in formulas in Excel. These are basic cell references that adjust and change when copied or using the Auto fill function in Excel. **For Example**: If the position of the cell that contains the formula changes, the reference is changed.

Absolute reference:-

An Absolute cell reference is indicated in your spreadsheet by a $ sign around the cell, for example =A1 means that when referring to this cell is ALWAYS in that location. If the position of the cell that contains the formula changes, the absolute cell reference remains the same. If you copy the formula across rows or down columns, the absolute cell reference remains the same unlike the example above.

Cell address:-

The cell ADDRESS function is categorized under Excel Lookup and Reference functions. It will provide a cell reference (its “address”) by taking the row number and column letter. The cell reference will be provided as a string of text. The function can return an address in a relative or absolute format and can be used to construct a cell reference inside a formula.

As a financial analyst, cell ADDRESS can be used to convert a column number to a letter, or vice versa. We can use the function to address the first cell or last cell in a range.

Q14. a) What tools are available to customize our PowerPoint presentation?

Answer: - Some of the tools are:-

Clipart, Animation, Slide Show etc.

Q14 b) Write the steps for the following action for creation of power point presentation

- **Open a Blank presentation**
- **Save the presentation as Lab1.ppt.**
- **Add a Title to the first slide: the name of your college**
- **Type your first name and last name in the Subtitle section**
- **Add a New Slide which has a Title and Content**

Answer:-

Open a Blank presentation:-

1. Double click on the Microsoft PowerPoint shortcut on the desktop, or
   Click on the Start menu, click on Programs, and click on Microsoft Power Point.
2. Click on the Microsoft Office Button and click new.
3. A new window will appear with several categories of templates to choose from.
4. Click on the template style that you wish to use and click the Create Button.This will allow us to easily a consistent background and style to our presentati on.
5. Slides will be added automatically to your slide presentation.Instructios will be include d on each slide explaining how to add content to your slideshow.

Save the presentation as Lab1.ppt.-

- Click on the Microsoft Office Button and click “save as”.
- In the File name field, type the name of the presentation i.e. Lab1.ppt.
- Click on the Save in: dropdown menu and choose where you would like the presentation saved.
- Click on the Save button.

Add a Title to the first slide: the name of your college:-

- Click on the text area (Title) of the slide.
- Start typing the name of college. .
- To make it look nice click in the clip art area. The clip art gallery will appear.
- Type a keyword into the clipart gallery search box and click on Go.
- The title i.e. name of the college will appear on the slide.

Type your first name and last name in the Subtitle section:-

- Click on the Subtitle area of the slide.
- Start typing your first name and last name. .
- To make it look nice click in the clip art area. The clip art gallery will appear.
- Type a keyword into the clipart gallery search box and click on Go.
- The subtitle i.e. your name will appear on subtitle block in the slide.

Add a New Slide which has a Title and Content:-

- Click on New Slide on the Slides group of the Home tab.
- A new slide will be created after your currently selected slide.
- Write the title and content in the Title and Subtitle section respectively.

Q15. Write steps for creation of a set of PowerPoint slides that demonstrates your skill to use the tools of PowerPoint. It should include the following things

- **Title slide & bullet list**
- **Inserting Excel Sheet**
- **Clip art and Text**
- **Slide show effects**

Answer:-

1:- Title slide & bullet list:-

→Title Slide

- Select the slide whose layout you will change so that it can have a title.
- Click Home> Layout
- Select Title Slide for a standalone title page or select Title and Content for a slide that contains a title and a full slide text box.
- Select the Click to add Title text box.

→Bullet list

- Click in the text box or placeholder where you want to add bulleted or numbered text.
- Now start typing your list.
- Press return to create a new list item.
- Select lines of text that are already on your slide.
- Click Bullets in Home tab to format that text as a list.

2:- Inserting Excel Sheet:-

- For the first step, just create Excel spreadsheet as you normally would and save it on the hard drive.

- Create a new PowerPoint presentation or open a presentation that the user wants to insert the spreadsheet into.
- Go to the slide to insert the spreadsheet into and choose I**nsert** then **Object.**

- Once the user has chosen to Insert Object, click on **Create from New** to create a new object from the existing spreadsheet and then browse to the

hard drive to find the Excel spreadsheet that the user wants to insert. Choose and click **[OK]** twice.

- Once this is done, the user will have the spreadsheet successfully inserted into PowerPoint.

3:- Clip art and Text:-

➔Adding and editing text:-

- Click on the text area of the slide.
- Start typing.
- When typing in a bulleted list area, press the Enter key on your keyboard to cr eate another bulleted line.

➔Adding or changing clip art:-

- Click in the clip art area. The clip art gallery will appear.
- Type a keyword into the clipart gallery search box and click on Go.
- Click on the desired clip art that appears in the gallery to insert it into your slid e.

➔Inserting additional text boxes:-

- On the Insert tab, in the Text group click on Text Box.
- The cursor will turn into what looks like an upside down “t”.
- Click on the slide and drag the mouse diagonally on the slide to create a new t ext box of whatever size and shape you need and release the mouse button.
- Click on the new text box to begin typing text into it.

➔Inserting additional clip art:-

- On the Insert tab, in the Illustrations group click on Clip Art.
- The clip art gallery will open in the task pane.
  Type in a keyword and click on **Go**.
- Click on the art that you would like to include in your slide. The art will appear in your slide and you can drag it with the mouse to wherever you would like it t o appear on the slide.

4:- Slide show effects:-

It is a presentation tool providing enhanced transitions and effects. Using a standard Presentation Software user interface, people can create slide presentation with movies and images in a simpler way than using video editing software.

- **On the left side of the slide window, in the pane that contains the Outline and Slides tabs, click the Slides tab.**
- **Select any slide thumbnails of the slides on which you want to apply or change a Slide transition.**
- **On the Animations tab, in the Transition to the Slide group, click a Slide group.**
- **Now click a slide transition effect.**

Part -2

Q16. What is the difference between Machine Language and High Level Language?

Answer:-

Machine Language	High Level Language
1:-A computer programming language consisting of binary instructions which a computer can respond to directly.	1:-A high-level language is any programming language that enables development of a program in a much more user-friendly programming context.
2:- All operation codes have to be remembered.	2:-High level languages are programmer friendly. They are easy to write, debug and maintain.
3:-Level of abstraction is lower than high level language.	3:-It provides higher level of abstraction from machine languages.
4:-Its machine language.	4:-It is machine independent language.
5:-It requires no translator to translate the code. It is directly understood by the computer.	5:-It takes additional translation times to translate the source to machine code.

Q17. Discuss about different data types of C programming Language?

Answer:-

Following are the Data types in C programming languages –

DATA TYPE	KEYWORD
Character:-	char
Number:-	int
Small Number:-	short
Long Number:-	long
Decimal Number:-	float

Q18. Find the output of the following expressions

a) X=20/5*2+30-5

b) Y=30 – (40/10+6) +10 **c) Z= 40*2/10-2+10**

Answer:-

(a)X=20/5*2+30-5

X=20/10+30-5

X=2+30-5

X=32-5

→ X=27 (answer)

(b) Y=30 – (40/10+6) +10

Y=30-(4+6) +10

Y=30-10+10

Y=30-20

→ Y=10 (answer)

(c) Z= 40*2/10-2+10

Z=80/10-2+10

Z=8-2+10

Z=8+8

→Z=16 (answer)

Q19. Describe the syntax of the following statements

a) **If – else statement**
b) **for loop**
c) **while loop**
d) **do-while loop**

Answer:-

(a)<u>If – else statement:-</u>

```
if (expression)
{
    Block of statements;
 }
```

```
else
{
    Block of statements;
}
```

(b) for loop :-

```
for( Expression1; Expression2;Expression3)
{
    Single statement   or   Block of statements;
}
```

In the above syntax:

- **Expression1 :- Initializes variables. (Ex: i=0)**
- **Expression2 :- Conditional expression, as long as this condition is true, loop will keep executing.(Ex : i<=10)**
- **Expression3:- Expression3 is the modifier which may be simple increment of a variable (Ex: i++)**

(c) while loop :-

```
while ( expression )
{
   Single statement    or   Block of statements;
}
```

(d)do-while loop:-

```
Do
{
   Single statement   or   Block of statements;
 } while(expression);
```

Q20. Find the output of the following program segments:-

(a)

```
#include <stdio.h>
 int main()
 {
     int i;
     for (i=1; i<2; i++)
          {
               printf( "IMS Ghaziabad\n");
           }
    }
```

Answer: - **IMS Ghaziabad**

(b)

```
#include <stdio.h>
 int main()
 {
     int i = 1;
     while ( i <= 2 )
          {
               printf( "IMS Ghaziabad\n");
               i = i + 1;
           }
 }
```

Answer: - **IMS Ghaziabad**

IMS Ghaziabad

(c)

```
#include <stdio.h>
 void main()
 {
     int a = 10, b=100;
      if( a > b )
            printf( "Largest number is %d\n”, a);
      else
            printf( "Largest number is %d\n”, b);
  }
```

Answer: - **Largest number is 100**