Assignment 1:

Fundamentals of IT& Programming

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

ANS:-

It is a programmable electronic device designed for storing and processing data, based on sequence of instruction.

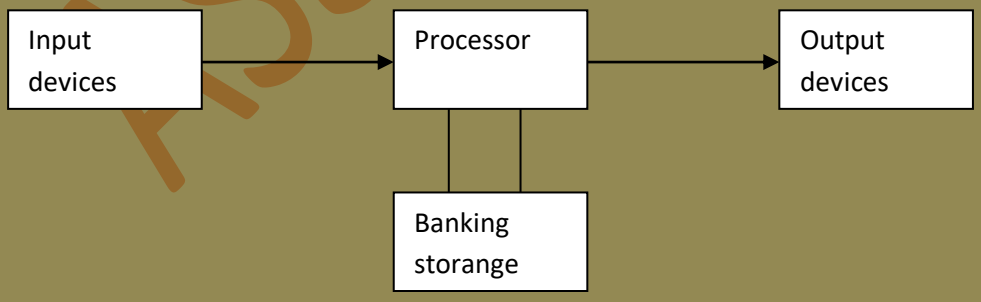
A computer is a fast system that is organized to accept, store, and process data and produce output results under the direction of a stored program of instructions.

There are four fundamental parts:-

1. **Input devices**
2. **Output devices**
3. **Processor(CPU)**
4. **Banking storage**

1. **Input Devices:**
    - **Computer systems use many devices for input purpose.**
    - **Input devices include the mouse, input pen, touch screen and microphone.**
    - **Regardless of the type of device used, all are components for interpretation and communication between people & computer systems.**

2. **Output device**
    - **Output device is used to show the result of the instructions. Example: Monitor, printer, Headphones, etc.**



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

ANS:-

Based on size and capacity, computers are classified as follows:

- **Super Computers**
- **Mainframe Computer**
- **Mini Computers**
- **Micro Computers**

1. **Super Computers**
    - **Supercomputers are the most powerful and physically the largest by size.**
    - **These are systems designed to process huge amounts of data.**
    - **The fastest supercomputers can perform over one trillion calculations in a second.**
    - **Supercomputers have thousands of processors.**
    - **Because of their extraordinary speed, accuracy and processing power, supercomputers are well suited for solving highly complex problems & huge amounts of calculations.**
    - **Example: JAGUAR, ROADRUNNER etc**

2. **Mainframe Computer**
    - **Mainframe computers are very large often filling an entire room and can process thousands of millions of instructions per second.**
    - **In a mainframe environment, users connect to the mainframe through the many terminals wired to the mainframe.**
    - **Mainframes are capable of supporting hundreds to thousands of users simultaneously.**
    - **Some of the functions performed by a mainframe include: flight scheduling, reservations and ticketing for an airline etc**
    - **Example: IBM mainframes Z13, IBM System z9 mainframe**

3. **Minicomputers**
    - **Minicomputers are much smaller than mainframes.**
    - **These computers are also less expensive.**
    - **Sometimes referred to as Midrange Server or Midrange Computer.**

- **They are typically larger, more powerful and more expensive than desktop computers.**
- **Midrange computers are usually used by small and medium-sized businesses as their servers**
- **Users connect to the server through a network by using desktop computers. Example: Apple iPod, CDC 160A**

4. **Microcomputers**
   - **Microcomputers are the most frequently used type of computer.**
   - **It is also, known as Personal Computer (PC)**
   - **A microcomputer is a small computer system designed to be used by one person at a time. Example :Desktop computers, laptops**

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

ANS:-

- **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.**

1.First Generation: Vacuum Tubes (1940-1956):

- **The first computer systems used vacuum tubes for circuitry and magnetic drums for memory**
- **These computers were very expensive to operate**
- **Computers of this generation consumed a lot of electricity**
- **First generation computers relied on machine language, the lowest-level programming language understood by computers to perform operations**
- **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**
- **First computers generated a lot of heat ,which was often the cause of malfunctions**

Example: The UNIVAC (Universal Automatic Computer)

The UNIVAC was the first commercial computer delivered to a business client, the U.S. Census Bureau in 1951

ENIAC (Electronic Numerical Integrator and Computer) computers

2.Second Generation: Transistors (1956-1963):

- **Transistors replaced vacuum tubes in the second generation of computers.**
- **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**
- **Second-generation computers still relied on punched cards for input and printouts for output**
- **Second-generation computers moved from binary machine language to symbolic, or assembly language**

3.Third Generation: Integrated Circuits (1964-1971):

- **The development of the integrated circuit was the hallmark of the third generation of computers**
- **Transistors were replaced by Integrated circuits, 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**
- **Computers for the first time became accessible to a mass audience because they were smaller and cheaper than their predecessors.**

4.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**
- **In 1981, IBM introduced its first computer for the home user**
- **in 1984, Apple introduced the Macintosh.**
- **Microprocessors also moved out to the desktop computers**

- **Fourth generation computers also covered the development of Graphical User Interface(GUIs), mouse and handheld devices**
- **Quantum computation 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.

ANS:-

	Volatile memory	Non- Volatile
	Volatile memory is a computer storage that only maintains its data while the device is powered	**Nonvolatile memory is a type of computer memory that has the capability to hold saved data even if the power is turned off**
	Example: RAM (Random access memory) is volatile. When we are working on a document, it is kept in RAM, and if the computer loses power, your work will be lost.	**Example: Read-only memory (ROM), Hard disk, floppy disk ,etc**
Random Access Memory (RAM):	**It is also called as read write memory or the main memory or the primary memory.**	**Stores crucial information essential to operate the system, like the program essential to boot the computer.**
Read Only Memory (ROM)	**It is a volatile memory as the data loses when the power is turned off.**	**It is non volatile.**

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

ANS:-

Software:-

Software is a set of instructions used to operate computers and execute specific tasks.

Software has mainly divided into two Categories:

1)System Software

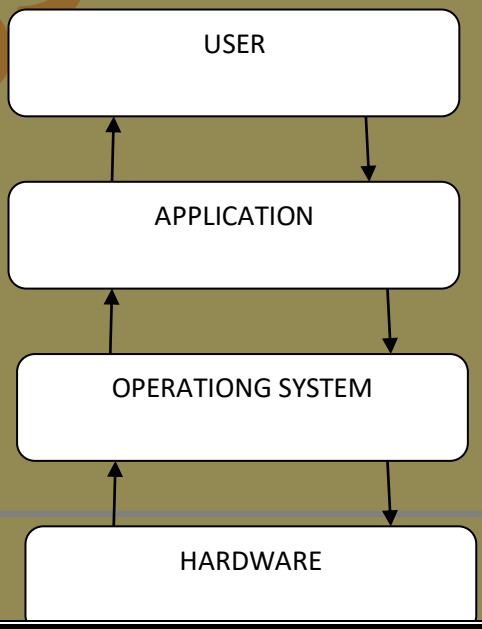
2)Application Software

1)System Software:-

- **It is a type of software that is designed to run a computer's hardware and application programs.**
- **Software like operating systems, compilers , editors and drivers etc., come under this category.**
- **A computer cannot function without the presence of system software. If we think of the computer system as a layered model, the system software is the interface between the hardware and user applications.**

  - **Operating system**
    - **It is system software that manages computer hardware and software resources and provides services**
    - **Operating system acts as manager of all the resources of computer i.e. resource manager.**

Operating System Representation



APPLICATION SOFTWARE:-

- **It is software created for a specific purpose, used by end users. It can be called an application or simply an app.**
- **Examples: Word processor, accounting application, a web browser, an email client, media player etc**

❖ **Some others types of software**

1. **utility software**
2. **proprietary software**
3. **overview of open source technology**
4. **open source software (OSS)**

1. utility software

- **These programs analyze and maintain a computer.**
- **These programs are focused on how OS¬ works to perform the task to enable the smooth functioning of computer.**
- **This program may come along with OS like windows defender, windows disk cleanup tool, Antivirus, backup software, files manager, disk compression tool all are utility software.**

2.proprietary software

- **It is software that is owned by an individual or a company (generally the one that developed it).**
- **There are almost always major restrictions on its use, and its source code is almost always kept secret.**
- **The proprietary Software is a non-free computer software for which the software's publisher or another person retains intellectual property rights usually copyright of the source code.**
- **It is also known as 'closed-source software'.**

3. overview of open source technology

Open source technology is defined as the development of software for allowing end users and developers to not only see the source code of software, but modify it as well.

4. open source software(OSS):-

- **It is a type of computer software in which source code is released under a license in which the copyright holder grants users rights to study, change and distribute the software to anyone and for any purpose.**
- **The Linux operating system (OS) is the best-known examples of open source software .**

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.

ANS:-

OPENING MS WORD

- **Click the Start icon.**
- **Then point to All Programs.**
- **Then click Microsoft Office and**
- **then click Microsoft Word.**

CREATING A NEW DOCUMENT

To create a new document:

- **Click the Microsoft Office button / File tab.**
- **Select New. The New Document dialog box' appears.**
- **Select Blank document. It will be highlighted' by default.**
- **A new blank document appears in the Word' window.**
- **Now you can create document by inserting text'**
- **Finally save document'**

SAVING DOCUMENTS

To Save document using Save As command:

- **Click the Microsoft Office button/ File tab.**
- **Select Save As – Word Document**
- **Select the location where you want to save the document using the drop-down menu.**
- **Enter a name for the document.**
- **Click the Save button.**

SAVING DOCUMENTS

Other commands to save document :

First Method

- **Click the Microsoft Office button or file tab.**
- **Select Save from the menu.**

Second Method

- **Click Save command on Quick access toolbar**

Third Method

- **press Ctrl + S Key on keyboard**

Q6 b) Write steps regarding followings

ANS:-

- **To change the font style:**

  To change font style

  - **Select the text you want to modify.**
  - **Click on font style box on the Home tab. The font style drop-down menu appears.**
  - **Move your cursor over the various font styles.**
  - **Left-click the font style you want to use.**
  - **Then font style will change in the document.**

- **To change the font size**

  To change size of your text

  - **Select the text you want to modify.**
  - **Click on font size box in the Font group on the Home tab. The font size drop-down menu appears.**
  - **Move your cursor over the various font sizes.**
  - **Left-click on font size you want to use.**
  - **Then it will change font size in your document.**

- **To change the font color**

  To change font color:

  - **Select the text you want to modify.**
  - **Click on the font color box on the Home tab. The font color menu appears.**
  - **Move your cursor over the various font colors.**
  - **Left-click the font color you want to use.**
  - **Then font color will change in the document.**

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

  To change Text Highlight color:

  - **Select the text**
  - **Click on the Text Highlight color in font group on the Home tab.**
  - **Various colors will appears**
  - **Move your cursor over the various colors.**
  - **Click on color you want to use.**
  - **Then text highlight color 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.

ANS:-**OPENING MS WORD**

- **Click the Start icon.**
- **Then point to All Programs.**
- **Then click Microsoft Office and**
- **then click Microsoft Word.**
- **Write down the paragraph given in Question 7**
- **Then to save word document click on office button to save file, click on save as you will see save dialog box give name "ms_word" and select location where you want to save this file and click on 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

ANS:-

- **Click the Start icon.**
- **Then point to All Programs.**
- **Then click Microsoft Office and**
- **then click Microsoft Word.**
- **Write down equation given bellow**

EQUATIONS

- $X_2+Y_5=30$:- **this is a subscript equation**
- $Z^3+Q^4=50$:- **this is a superscript equation**
- $A_2+B^8=X_2+Y^8$:- **this is a subscript and superscript equation**

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.

ANS:-

Select the text you want to covert.

Select the insert tab.

Click on table command. A dialog box appears

Here set number of columns .

Click on ok finally selected text convert in a table

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

ANS:-

ORKING WITH TABLES

To convert existing text to a table:

- **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.
- Click on OK
- Finally Selected text convert in a table.

To add a column:

- Place the insertion point in a column adjacent to the location where you want add new column
- Right-click the mouse. A menu appears.
- select Insert Columns to the Select Insert Left or Insert Columns to the Right. A new column appears.

To delete a row or column:

- Select the row or column.
- Right-click your mouse, and a menu appears.
- Select Delete Columns or Delete Rows.

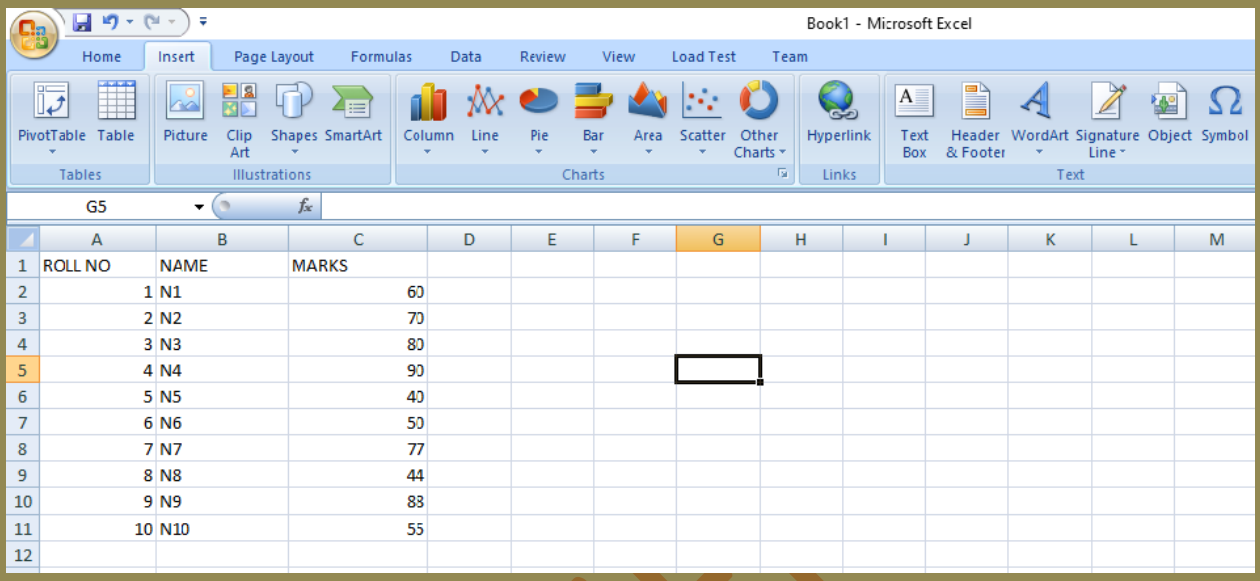
WORKING WITH TABLES

To insert a blank table:

- Place your insertion point in the document where you want to insert table
- 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.
- Enter text into the table.

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

ANS:-



	A	B	C	D	E	F	G	H	I	J	K	L	M
1	ROLL NO	NAME	MARKS										
2	1	N1	60										
3	2	N2	70										
4	3	N3	80										
5	4	N4	90										
6	5	N5	40										
7	6	N6	50										
8	7	N7	77										
9	8	N8	44										
10	9	N9	83										
11	10	N10	55										
12													

Q12. Calculate the following things of a range (C2:C11) of data in the worksheet created in question no 11.

the sum of the marks using AutoSum in a range of cells (C2:C11) ANS: =**SUM(C2:C11)**

average of the marks in a range of cells (C2:C11) ANS : =**AVERAGE(C2:C11)**

highest marks in a range of cells (C2:C11) ANS: =**MAX(C2:C11)**

minimum marks in a range of cells (C2:C11) ANS: =**MIN(C2:C11)**

Q13

A.)Describe various steps involved in the following

- To modify column width of a worksheet :- **ANS:- To modify column with go to home tab and go to format option and then click on column width option**

- To modify the row height of a worksheet:-**ANS**:- **To modify row with go to home tab and go to format option and then click on row hight option**
- To delete rows and columns of a worksheet:-**ANS:- to delete row and column go to home tab and goto delete option selected delete row and column.**

Q13 b) Describe following terms in the worksheet

Absolute reference and relative reference in formula:**ANS:- ABSOLUTE REFERENCE=(A1) AND**

RELATION REFERENCE=(A1)

Cell address:**ANS:- CELL ADDRESS:- cell adreess examples are A1,B1,C1 ETC.**

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

ANS:-

Presentation:

The presentation can be defined as the practice of showing the content of a topic along with explaining it to a specific audience. It is a collection of information and data which has to be delivered to an audience or learners. It helps both the speaker and the participants to learn about the topic more easily.

A PowerPoint presentation is an excellent way of presenting information or ideas to an audience. The software is easy to use and offers a lot of cool effects for your slideshows, too. Here, contents are helpful to learn about creation of presentation using Microsoft PowerPoint 2007 and upper version.

To open an existing presentation:

To open a complete presentation in front of audience, please follow the steps mentioned below:

1. **Select the File tab to go to Backstage view.**
2. **Select Open. Clicking Open.**
3. **Select Computer, and then click Browse. Alternatively, you can choose OneDrive to open files stored on your OneDrive.**
4. **The Open dialog box will appear.**

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

- Open a Blank presentation
- Save the presentation as Lab1.pptx
- 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

ANS:-

1. Open a Blank presentation:-

To use one of built-in templates to create a new presentation, follow these steps:

1. Select Office button → New. The New Presentation window appears.
2. In the left side of the New Presentation window, click Installed Templates.
3. Click a template to select it. ...
4. Click Create

2. Save the presentation as Lab1.pptx:-

It's a good idea to keep saving our work periodically as we never know when we will lose power or when our computer is likely to crash. Keep saving it. At the time of creation of new presentation (first time),please save it with the help of following steps:

1. Locate and select the Save command on the Quick Access Toolbar.

2. If you're saving the file for the first time, the Save As pane will appear in backstage view.

3. You'll then need to choose where to save the file and give it a file name.

4. The Save As dialog box will appear.

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

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2. If you're saving the file for the first time, the Save As pane will appear in backstage view.

3. You'll then need to choose where to save the file and give it a file name.

4. The Save As dialog box will appear.

4. Add a New Slide which has a Title and Content

This part covers how to insert a new slide in PowerPoint. When we create a new presentation, PowerPoint gives us default slide. For insertion/addition of new slide, we can follow the steps, mentioned below:

1. On the Home tab, click the New Slide button in the Slides group. PowerPoint adds a blank slide to your presentation. or
2. Press Ctrl+M. And again, PowerPoint adds a blank slide. or
3. Right-click in the Slides or Outline tab on the left and then choose New Slide. And again, PowerPoint adds a blank slide. It is also shown in the following slide view of presentation

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

ANS:-

- **Title slide &bullet list**

1.On the Home tab, click the New Slide button in the Slides group. PowerPoint adds a blank slide to your presentation. or

2. **Press Ctrl+M. And again, PowerPoint adds a blank slide. or**
3. **Right-click in the Slides or Outline tab on the left and then choose New Slide. And again, PowerPoint adds a blank slide. It is also shown in the following slide view of presentation**

- **Inserting Excel Sheet**

The great thing about the Microsoft Office Suite is the fluid interaction of each application type. By embedding the Excel document into your presentation or document you can use it to make a point more effectively with numbers or even graphs.

1. In PowerPoint, select the Insert tab & Click the Insert tab.
2. Click the Object command in the Text group. ...
3. A dialog box will appear. ...
4. Locate and select the desired Excel file, then click Insert. ...

- **Clip art and Text**

1.open the Microsoft power point then a click insert and you show the illustration
And u show the clip art to click and press to a go and you show the all clip art to add the presentation
To add the clipart

- **Slide show effects:-**

  - **We can apply slide transition to slide**
  - **We can apply animation effect to slide contend**

Assignment 1

PART:-2

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

High Level Language	Machine Language
High level language are easy to learn and understand	**Machine level language are challenging to learn and understand**
hey are executed silower than lower level languages speed. because they require a translator program.	**They executed with high languages speed.**
They allow much more abstraction.	**They allow little or no abatraction**
They do not provide meny facities at the hardware level.	**They are very close to the hardware and help to write a program at the hardware level**
for writing programs. hardware knowledge is not required.	**For writing programs hardware knowiedge is a must.**
The programs are many to modify.	**Modifying programs is dificut**

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

ANS:-

- **int** – Used to store an integer value.
- **char** – Used to store a single character.
- **float** – Used to store decimal numbers with single precision.
- **double** – Used to store decimal numbers with double precision.

short int	**2**	**-32,768 to 32,767**
unsigned short int	**2**	**0 to 65,535**
unsigned int	**4**	**0 to 4,294,967,295**
Int	**4**	**-2,147,483,648 to 2,147,483,647**
long int	**4**	**-2,147,483,648 to 2,147,483,647**
unsigned long int	**4**	**0 to 4,294,967,295**
signed char	**1**	**-128 to 127**
unsigned char	**1**	**0 to 255**
Float	**4**	**1.2E-38 to 3.4E+38**
Double	**8**	**2.3E-308 to 1.7E+308**

Q.18Find the output of the following expressions

a) X=20/5*2+30-5 **ANS:-33**

b) Y=30 – (40/10+6) +10 **ANS:-30**

c) Z= 40*2/10-2+10 **ANS:-16**

Q19. Describe the syntax of the following statements

a) If – else statement : ANS:-

If the Boolean expression evaluates to true, then the if block will be executed, otherwise, the else block will be executed. C programming language assumes any non-zero and non-null values as true, and if it is either zero or null, then it is assumed as false value.

b) for loop **: ANS:-**

1. **Int. The init code runs once to set things up at the very start of the loop. ...**
2. **Test. The boolean test is evaluated. ...**
3. **Loop-body. If the test was true, the body runs once. ...**
4. **Increment. Finally, the increment code executes just after the body, and then the program loops back to the test, (step 2).**

c) while loop :ANS:-

The syntax of a while loop in C programming language is – while(condition) { statement(s); } Here, statement(s) may be a single statement or a block of statements. The condition may be any expression, and true is any nonzero value. The loop iterates while the condition is true.

d) do-while loop ANS:-

The do/while loop is a variant of the while loop. This loop will execute the code block once, before checking if the condition is true, then it will repeat the loop as long as the condition is true.

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");
        }
}
```

ANS:- IMS Ghaziabad

B.
```
#include <stdio.h>

int main()

{

    int i = 1;

     while ( i <= 2 )

    {
```

```
printf( "IMS Ghaziabad\n");

I = i + 1;

 }
}
```

ANS:-

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);

     }

    }
```

ANS:- **Largest number is=100**