101

"FUNDAMENTALS

OF

IT

AND

PROGRAMMING"

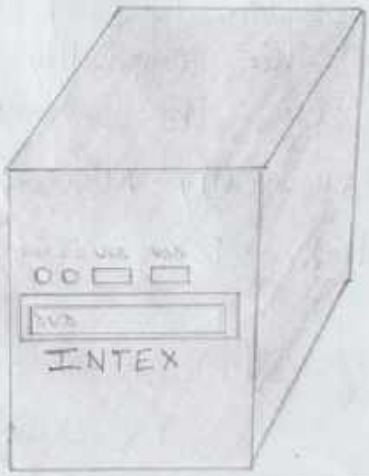
Q1. What are the four fundamentals parts of Computer? Explain it with the help of a diagram.

Ans - The four fundamentals parts of Computer are :

1) CPU (Central Processing Unit).
2) Main Memory / Primary Memory.
3) Input and
4) Output devices.

> CPU (Central Processing Unit):

Central Processing Unit (CPU) Consists of the following features - CPU is considered as the brain of the computer. CPU performs all types of data processing operations. It stores data, intermediate results, and instructions (program). It Controls the operation of all parts of the computer.



> Memory Unit:

Computer memory is any physical device, capable of storing information temporarily or permanently. Memory refers to the computer hardware integrated circuits that store information for use in a computer. The types of memory are primary memory / volatile memory and secondary memory / non-volatile memory.

1) Primary memory / volatile memory:

It is a computer storage that only maintains its data while the device is powered. Eg - RAM (Random Access Memory) is volatile. When we are working on a document it is kept in RAM, and if the computer loses power, our work will be lost.

2) Secondary memory / non-volatile memory:

It is a type of computer memory that has the capability to hold saved data even if the power is turned off.

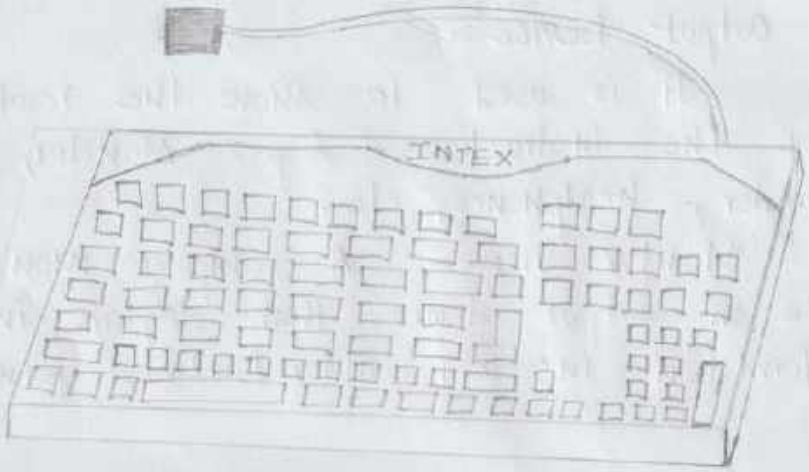
E.g Read-only Memory Hard Disk, Floppy disk, etc.

> 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. Some e.g of Input devices are keyboard, mouse, etc.

Keyboard : It is a human interface device which is represented as a layout of buttons. Each button or key can be used to either input a character to a computer, or to call upon a particular function of the computer.

Mouse : A mouse is a small handheld input device that controls a computer screen's cursor or pointer in combination with the way it is moved on a flat surface. The mouse term name originates from its likeness to a small, corded and elliptical shaped device that looks like a mouse tail.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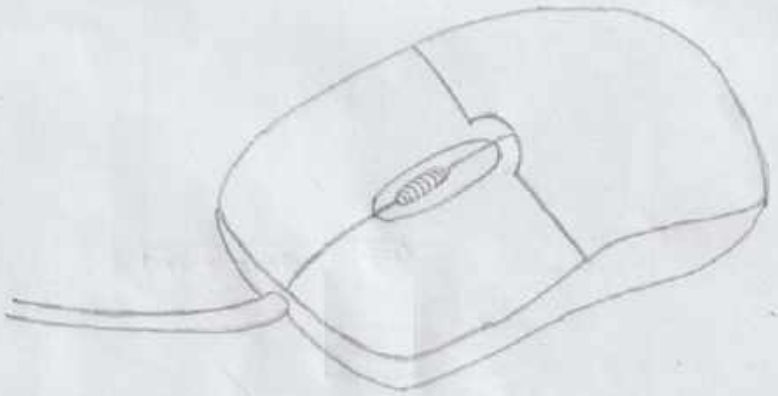
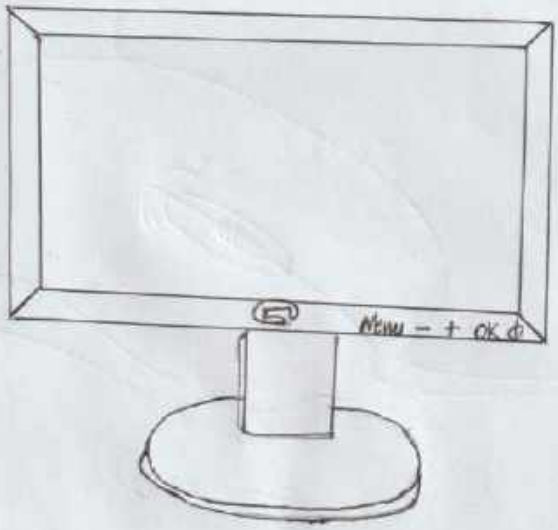


> Output Device :

It is used to show the result of the instructions. E.g : Monitor, printer, headphones, etc.

Monitor view - A computer monitor is an output device that displays information in user understandable form.



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 computers
- Mini Computers
- Micro Computers

Supercomputers:

1) They are the most powerful and physically the largest by size.
2) These are systems designed to process huge amounts of data.
3) The fastest supercomputers can perform over one trillion calculations in a second.
4) Supercomputers have thousands of processors.

5) Because of their extraordinary speed, accuracy and processing power, supercomputers are well suited for solving highly complex problems & huge amounts of calculations. e.g : Jaguar, Roadrunner etc.

Mainframe Computers :

1) Mainframe computers are very large often filling an entire room and can procen thousands of millions of instructions per second.

2) In a mainframe environment users connect to the mainframe through many terminals wired to the mainframe.

3) Mainframes are capable of supporting hundreds to thousands of users simultaneously.

4) Some of the functions performed by a mainframe include: flight scheduling, reservations and ticketing for an airline etc. Eg : IBM Machines Z13, IBM System z9 mainframe.

Mini Computers :

1) Minicomputers are much smaller than mainframes.
2) These computers are also less expensive.
3) Sometimes referrred to as Midrange Server or Midrange Computer.
4) They are typically larger, more powerful and more expensive than desktop Computers.
5) Midrange computers are usually used by small and medium - sized businessess as their servers.
6) Users connect to the server through a network by using desktop computers.

Eg: Apple Ipod, CDC 160A.

Micro Computers :

1) Microcomputers are the most frequently used type of computer.
2) It is also known as Personal Computer (PC).
3) A microcomputer is a small Computer System designed to be used by one person at a time. Eg - Desktop Computers, Laptops.

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

Ans- Generation in computer terminology is a change in technology a computer is / was being used. Initially, the generation term was used to distinguish between varying hardware technologies. Nowadays, generation includes both hardware and software, which together make up an entire computer system.

There are five generations known till date:

1) First Generation :- This generation are used in the period 1946 to 1959, Vacuum tube based.

2) Second Generation :- ~~Second Gen~~ This generation are used in the period 1959 to 1965, Transistor based.

3) Third Generation :- This generation are used in the period 1965 to 1971, Integrated Circuit based.

4) Fourth Generation :- This generation are used in the period 1971 to 1980, VLSI Microprocessor based.

5) Fifth Generation :- This generation are used in the period 1980 onwards, Artificial Intelligence based.

Technologies that are used in these generations are :-

1) First Generations :

1. The first computer systems used Vacuum tubes for circuitry and magnetic drums for memory.
2. These computers were very expensive to operate. Computers of this generation consumed a lot of electricity.
3. First Generation Computers relied on machine language, the lowest - level programming language understood by computers to perform operations.
4. They could only solve one problem at a time. It would take operators days or even weeks to set - up a new problem.
5. Input was based on punched cards and paper tape, and output was displayed on printouts.
6. First computers generated a lot of heat, which was 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 :

1. Transistors replaced vacuum tubes in the second generation of computers.
2. 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.
3. Second - generation computers still relied on punched cards for input and printouts for Output.
4. Second generation computers moved from binary machine language to symbolic, or assembly language.

3) Third generation :

1. The development of the integrated circuit was the hallmark of the third generation of computers.
2. Transistors were replaced by Integrated Circuits, which drastically increased the speed and efficiency of computers.
3. Instead of punched cards and printouts, users interacted with third generation computers through keyboards and monitors.
4. Computers for the first time became accessible to a mass audience because they were smaller and cheaper than their predecessors.

4) Fourth Generation:

1. The microprocessor brought the fourth generation of computers as thousands of integrated circuits were built onto a single silicon chip.
2. What in the first generation filled an entire room ~~(called)~~ could now fit in the palm of the hand.
3. In 1981, IBM introduced its first computer for the home user.
4. In 1984, Apple introduced the Macintosh.
5. Microprocessors also moved out to the desktop computers.
6. Fourth generation computers also covered the development of Graphical User Interface (GUI), mouse and handheld devices.

5) Fifth Generation:

1. ~~Fifth~~ Fifth generation computing devices, based on artificial intelligence, are still in development.
2. There are some applications, such as voice recognition, that are being used today.
3. The use of parallel processing and superconductors is helping to make artificial intelligence a reality.

4. Quantum Computation and nanotechnology with radically change the face of computers in years to come.

5. 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 memory and non- volatile memory.

Ans- Volatile Memory :

Volatile memory is a memory type in computing that requires power to retain the stored information. The contents of the memory device have to be regularly refreshed to avoid data loss. The RAM (Random Access Memory) modules in Computers and the Cache memory in the processors are examples to volatile memory components.

RAM devices are built using a large assembly of capacitors that are used to store loads temporarily. Each capacitor represents one memory bit. There are three main classes of RAM, and those are static RAM (SRAM), dynamic RAM (DRAM) and Phase- change RAM (PRAM). In SRAM, data is stored using the State of a single flip-flop for every bit and, in DRAM, a single capacitor is used for every bit.

Non - Volatile Memory :

Nonvolatile memory is a type of computer memory that does not require refreshing to retain the memory values. All types of ROM, flash memory, optical and magnetic storage devices are nonvolatile memory devices.

Earliest ROM (Read Only Memory) devices had only the capability to read but not write or edit the contents. In some instance data can be modified, but with difficulty. The oldest type solid state of ROM is Mask ROM where the content of the memory is programmed by the manufacturer itself and cannot be modified.

EEPROM or Electronically Erasable Programmable ROM is an extension from the EPROM where the memory can be programmed multiple times by the user.

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

Ans –

System Software :

- It is a type of software that is designed to run a computer's hardware and application programs.
- Software like operating system, 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.

Application Software :

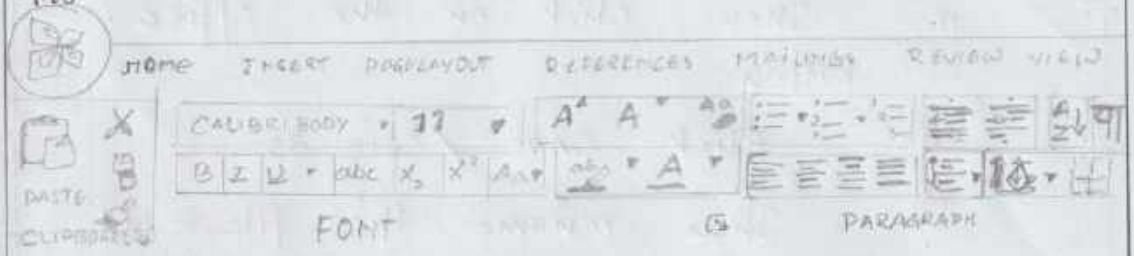
- It is a software created for a specific purpose, used by end users, it can be called an application or simply an app. Examples: Word processor, an email client, media player etc.

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 - freely available in the market.

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—



To Insert a paragraph in Ms Word:

1. Select the Home tab in the ribbon.
2. Insert your cursor into a paragraph.
3. Select select in the ~~(Edition)~~ Editing group.
4. Select select Text with Similar Formatting in the drop-down menu.
5. Select Paragraph group's dialog box launcher.
6. Select the Special menu arrow in the Paragraph dialog box.
7. Select First Line in the Special drop down menu.
8. Use the increment arrows to adjust the length of the indent.

9. Make any additional adjustments to alignment or line spacing.

10. Select the OK button to save your selection.

11. Then click on the Office button.

12. Click SAVE / Save as

13. Then rename the file and tye "yourself".

14. Then click SAVE.

Q.6(b) Write steps regarding followings
> To change the font style.
> To change the font size.
> To change the font color.
> To highlight (in yellow) the line that reads "need to get IMS's address."

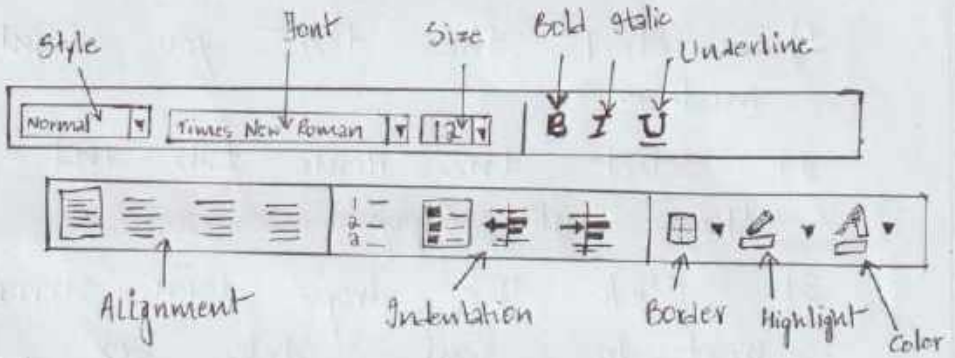
Ans — To change the font style in a document are as follows:

1) Select the text you want to modify.
2) Select the Home tab and locate the Font Group.
3) Click the drop-down arrow next to font style box
4) Font style menu appears.
5) With a left click select the desired font style.
6) If we want to change the font to bold or italic, click the 'B' or 'I' icons on the format bar.

To change font size : in a document are as follows :

1) Highlight the text you want to change.

2) Click the down arrow next to the size box on the format bar or Ribbon. Often, the default size, as shown in the example below.



3) After clicking the down arrow for the size, we'll have a selection of different sizes to choose. Some fonts may not scale properly, so they may have limited size options.

To change the font color in a document are as follows:

1) Highlight the text you want to change.
2) Click the down arrow next to the color icon on the format bar or Ribbon. It is usually displayed as the letter "A".
3) After clicking the down arrow for the color, select the color you want to make the text.

To ~~change~~ highlight the line "need to get IMS's address", the following steps must be followed:

1) First, select Home and select the arrow next to Text Highlight Color.
2) Select the color that we want.
3) Select the text or graphic that we want to TexT Highlight Color.

Q 7. 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 - To create and save a file in Ms- word :

1. Click on the start Button
2. (~~Point~~) Click on the Microsoft Word.
3. An open (and blank) word document will open on the screen.
4. Enter document data
5. Then click on "File" at the top of the Screen.
6. Click on " SAve As"
7. Then type 'ms - word' in the file name.
8. Then click on Save.

MS Word.

Ms Word is a widely used Commercial word processor developed by Microsoft. MS word is application software. Which is capable of

- Creating,
- editing,
- saving and
- printing any type of document

Ans - To create a new 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.

To Edit a Microsoft Word document:

1. Select the text that you want to edit.
2. Using the tools in the edit toolbar, change the required formatting including font style, paragraph alignment, list formatting and indentation options.
3. We can also insert images.

To Save a 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 the keyboard.

To print any type of a document in MS-Word :

1. Click on file tab, menu appears.
2. Then click on Print and a print window will pop-up on the screen.
3. Finally click on ok for your document to start printing.

Q.8. Create a file in MS Word for the following document and save it with file name 'equations'. Describe all steps involved in it.

Equations

$X_2 + Y_5 = 30$

$Z_3 + Q_4 = 50$

$A_2 + B^8 = X_2 + Y^8$

Ans — The steps involved are :

1. First, Click on the Start Button and Click the MS Word.
2. On the MS Word Window, Click the Insert tab.
3. Then Select Equations and Click the Insert New Equations.
4. Select Script (e^x)
5. We can select different script under the script option
6. After this, select the office button.

7. Then select save / save as.

8. Type 'Equations' in the file name box and click save.

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- To convert text to table:

1. Select the text you want to convert.
2. Select the Insert tab.
3. Click on Table Command, A dialog box appears.
4. Click on Convert Text to Table, a new dialog box appears
5. A set of number of Columns appear.
6. Click on Ok.
7. Finally selected text convert in a table.
8. Click on the office button.
9. Click on the Save As inside the menu options
10. Select a location where you want to save.
11. Then click save.

Q 10. Create a file in MS-Word to insert a table in the document. Describe all steps involved in it.

Ans – To insert a table in MS-Word:

1. (Selec) Place the cursor where you want to insert the table.
2. Select the Insert tab.
3. Select Table.
4. In the Insert Table dialog box, select the number of rows and columns as per requirement.
5. Then click on Insert table

Q 11. Create a following worksheet in MS - excel and save it with name 'book 1'.

Ans — To Create a Worksheet in MS Excel:

1. Click on the start Button
2. Point the mouse to ALL Programs.
3. Click MS office
4. Click MS office Excel 2004.
5. Click on the Insert Worksheet tab at the end of the sheet tabs.
6. Double - click the sheet tab.
7. Type the desired name for sheet.
8. Click on the office button and select save.
9. Choose the location and folder.
10. Write file name as 'book 1' in the file name combo box.
11. Select the type of the Work-book from the SAve As type drop-down list.
12. Click SAve.

Q12 Calculate the following things of a range (C2 : C11) of data in the work-sheet created in question no 10

> the sum of the marks using Auto Sum in a range of cells.

> average of the marks in a range of cells.

> highest marks in a range of cells.

> Minimum marks in a range of cells.

Ans — To calculate the sum of a range of data using Auto - Sum :

1. Select the formula tab.
2. Locate the function Library group.

From here, you can access all available functions.

3. Select the cell where you want the functions to appear, In this e.g, Select G42.

4. Select the drop - down arrow ~~(and)~~ next to the Auto - Sum command.
5. Select Sum. A formula will appear in the selected cell, Eg 42.

(i) This formula, = Sum (C2 : C11), is called a function. The Auto Sum command and automatically selects the range of cells from C2 to C11, based on where you inserted the function you can alter the cell range if necessary.

(ii) Press the enter key or enter button on the formula bar. The total will appear. Excel will not always tell you if your formula contains an error, so its up to you to check all of your formulas.

> To calculate the average of a range of data:

1. Select the cell where you want the function to appear.
2. Click the drop-down arrow next to the Auto Sum Command.
3. Select Average.
4. Click on the first cell (in this e.g, C2) to be included in the formula.
5. Left-click and drag the mouse to define a cell range (C2 through cell C11, in this eg).
6. Click the Enter icon to Calculate the average.

> highest marks in a range of cells.

The following range (C2:C11), C11 is the highest marks and C2 is the minimum marks in a range of cells.

Q.13. a) Describe various steps involved in the following

> To modify column width of a worksheet.

> To modify the row height of a work sheet.

> To delete rows and columns of a worksheet.

Ans — To modify column width:

1. Position the cursor over the column line in the column heading,
2. and a double arrow will appear.
3. Left - click the mouse, then drag the cursor to the right to increase the column width or to the left to decrease the column width.
4. Release the mouse button.

Another way to modify column width:

1. Left - click the column heading of a column you want to modify. The entire column will appear highlighted.

2. Click the Format command in the Cells group on the Home tab. A menu will appear.
3. Select Column Width to enter a specific column measurement.
4. Select Autofit Column Width to adjust the column so all the text will fit.

To modify the row height of a worksheet:

1. Position the cursor over the row line you want to modify, and a double arrow will appear.
2. Left-click the mouse, then drag the cursor upward to decrease the row height or downward to increase the row height.
3. Release the mouse button.

Other method to modify the row height :

1. Click the Format command in the Cells group on the Home tab. A menu will appear.
2. Select Row Height to enter a specific row measurement.
3. Select Autofit Row Height to ~~(dd)~~ adjust the row so all of the text will fit.

To delete rows and columns of a worksheet :

1. Select the row or column you want to delete.
2. Click the Delete command in the Cells group on the Home tab.
3. Selected column or row deleted.

Q13(b) Describe following terms in the worksheet.

> Absolute reference and relative reference in formula

> Cell Address.

Ans – Absolute reference and relative reference in formula :

- Relative Reference : Cell references in formula automatically adjust to new locations when the formula is passed into different cells. This is called a relative reference.
- Sometimes when you copy and paste a formula, you don't want one or more cell references change.
- An absolute reference solves this problem.
- Absolute Reference ; cell references in a formula always refer to the same cell or cell range. If a formula is copied to a different location, the absolute reference remains the same.

Absolute Reference : An absolute reference is designated in the formula by the addition of a dollar sign ($). It can precede the column reference or the row reference, or both. Examples of absolute referencing include :

$A $2 :	The column and the row do not change when copied.
A $2 :	The row does not change when copied.
$ A2 :	The column does not change when copied.

To create an absolute reference :

- Select the cell where you want to write the formula (in this eg, H2).
- Type formula = F3* $C $2.
- Copy the formula into H3. The new formula should read = F3* $C $2. The F2 reference changed to F3 because it is a relative reference, but C2 remain constant because you created an absolute reference by inserting the dollar signs.

Q 14 a) What tools are available to customize our PowerPoint presentation? Pg-40

Ans — Tools which are available to customize our PowerPoint presentation are:

Home : On the home tab, there are various tools like Clipboard, Slides, Font, Paragraph, drawing and Editing.

Insert: On the Insert tab, the various tools are Tables, Illustrations, Links, Text, Media clips.

Design : On the Design tab, the various tools are Page setup, Themes, Background.

Animations: On the animations tab, the tools are Preview, Animations and transition to their slides.

Slide Show : The various tools are Start slide show, Setup and monitors.

Review: On the Review tab, the various tools are Proofing, Comments and

View: On the View tab, the various tools are Presentation views, Show / Hide, Zoom, Color / Grayscale, Window and Macros.

Q.14 b) Write the steps for the following action for creation of power point presentation.

> open a Blank presentation.
> Save the presentation as Lab 1.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 — Steps to open a blank presentation:

1. open a start button / ~~stat~~ start menu from monitor.
2. Search for microsoft powerpoint.
3. open a microsoft powerpoint.
4. The microsoft powerpoint blank-page will appear on the monitor.

> To save the presentation as Lab 1. pptx:

1. After the microsoft powerpoint blank page appear on the monitor.
2. open a start menu / start button.
3. Then click on save / save as
4. Then rename the file and save the presentation with a file name 'Lab 1. pptx'.

> (~~Add~~) To add a title to the first slide of a powerpoint presentation are as follows:

1. Select the slide so that it can have a title.
2. Click Home > Layout
3. Select Title Slide for a stand-alone title page or select Title and content (for) for a slide that contains a title and a full slide text box.
4. Select the Click to add title text box.
5.

> Type your first- name and last name in the subtitle sector.

Ans — 1) On the blank page of microsoft power point which show the two box we can enter the name by using with the help of keyboard on the first one.

2) On the second one we can enter the last name or surname

> Add a new slide which has a Title and content.

Ans — 1) On the blank page of microsoft power point we can add more slide as we needed by using enter on the sheet one and the second sheet will appear.

Q 15. Write steps for creation of a set of Power Point slides that demonstrates your skill to use the tools of Powerpoint. It should include the following things.

> Title slide and bullet list.
> Inserting Excel sheet.
> Clip art and Text.
> Slide Show effects

Ans – In a powerpoint presentation, we can use different tools including adding slide, bullet list etc. The following steps are as follows:

1. First select on the New Slide/ Layout tab and the Title Slide will appear.
2. To add a bullet lists, Click the arrow to choose different bullet styles.
3. On the Insert tab, click on the Table Command and select the Excel spreadsheet to Insert excel sheet.

4. On the Insert tab we can also Insert Clip art into the document, including drawing, movies, sounds, or Stock photography to illustrate a specific concept.

5. We can also add text by selecting the text box on the Insert tab.

6. To add slideshow, click on the slide show tab and select the different effects on the slide Show group.

Q.16 What is the difference between Machine language and High-level language ?

Ans - Machine Language :

- A computer programming language consisting of binary instructions which a computer can respond to directly.
- Sometimes, it is referred to as machine code or object code. Machine language is a collection of binary digits or bits that the computer reads.
- A computer cannot directly understand the programming languages used to create computer programs, so the program code must be compiled. Example : 01001000, 01100101, 01101100, 01101100 etc.

Advantages :

- This languages makes fast and efficient use of the computer.
- It requires no translator to translate the code. It is directly understood by the computer.

Disadvantages :

- All memory addresses have to be remembered.
- All operation codes have to be remembered.

High - Level Languages:

- A high- level languages is a pro - gramming language that enables development of a program in a much more user - friendly programming contex.
- This language is a programming language with strong abstraction about the details of the computer in contrast to low - level programming language (Assembly Language).
- Ex: C, C++, Java.
- High level languages are grouped in two categories based on execution model
  1. Complied, or
  2. interpretend, languages.
- Complier and interpretend are used to convert the high level language into machine level language. The program written in high level language is known as source program and the corresponding machine level language program is called as object program.
- When program size is large then compiler is preferred whereas interpreter ~~read~~ read only one line of the source code and convert it to object code.

Advantages of High - level languages:

- High - level languages are programmer friendly. They are easy to write, debug and maintain.
- It provides higher level of abstraction from machine language.
- It is machine independent language.
- Easy to learn.
- Less error prone, easy to find and debug errors.
- High level programming results in better programming productivity.

Disadvantages of High - level languages:

- It takes additional translation times to translate the source code to machine code.
- High level program are comparatively slower than low level programs.
- Compares too low level programs, they are generally less memory efficient.
- It can not communicate directly to the hardware.

Q 17 Describe the different

Pg-50

Q 17 Discuss about different types of C programming language.

Ans- Each variable in C has an associated data type. Each data type requires different amounts of memory and has some specific operations which can be performed over it. Let us briefly describe them one by one:

Following are the examples of some very common data types used in C:

- char: The most basic data type in C. It stores a single character and requires a single byte of memory in almost all compilers.
- int: As the name suggests, an int variable is used to stored an integer.
- float: It is used to store decimal numbers (numbers with floating point value).
- double: It is used to store decimal numbers (numbers with floating point value but its range of values is high in comparison to float.

Important Data type in C with range.

Type	Keyword	Value range which can be represented by this data type
Character	char	-128 to 127 or 0 to 255.
Number	int	-32, 768. to 32, 767 or 2,147,483,648 to 2,347,483,647.
Small Number	Short	-32, 768 to 32, 767.
Long Number	long	-2,147,483,648 to 2,147,483,647.
Decimal Number	float	1,2E-38 to 3,4E+38. till 6 decimal places.

These data types are called primitive data, types and we can use these data types to build more complex data types, which are called user-defined data type, for example a string will be a sequence of characters.

Q 20. Find the output of the following programs segments.

a)

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

b)

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

c)

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

Ans — a)

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

Output :

GMS Ghaziabad
GMS Ghaziabad

---

b)

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

Output :

GMS Ghaziabad

c)

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

Output:

Enter two numbers: 10 , 100

Largest number is 100.

Q 18 Find the output of the following expressions.

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

b) $Y = 30 - (40 / 10 + 6) + 10$

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

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

(i) $20/(5*2) + 30 - 5$

perform the operation in parenthesis first:

5×2

$= 10$

ii) $20/10 + (30-5)$

Next comes the substraction : $30-5$

$= 25$

iii) $(20/10 + 25)$

Next we have to perform with lowest common factor (LCM)

$\Rightarrow \frac{20}{10} + 25$

$\Rightarrow \frac{20 + 250}{10}$

$\Rightarrow \frac{270}{10}\ 27$

$\Rightarrow 27$

The final answer is 27.

b) $Y = 30 - (40 / 10 + 6) + 10$

Ans - $Y = 30 - (40 / 10 + 6) + 10$

(i) $30 - (40 / 10 + 6) + 10$

└ Perform the operation in parenthesis first:

$10 + 6$

$= 16$

(ii) $30 - ((40 / 16) + 10]$

└ Next we have to perfom with Lowest Common factor (Lcm):

$\frac{40}{16} + 10$

$\Rightarrow \frac{40 + 40}{16}$

$\Rightarrow \frac{80}{16}$

$\Rightarrow 5$

(iii) $(30 - 5)$

└ Next comes the subtraction:

$30 - 5$

$= 25$

The final answer is 25.

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

Ans — $Z = 40 * 2 / 10 - 2 + 10$

(i) $40 * 2 / (10 - 2) + 10$

Perform the operation in parenthesis first:

$10 - 2$

$= 8$

(ii) $(40 * 2) / 8 + 10$

Next comes the multiplication : 40×2

$= 80$

(iii) $(80 / 8 + 10)$

We have to perform with L.C.M. :

$(80 / 8 + 10)$

$\Rightarrow \frac{80}{8} + 10$

$\Rightarrow \frac{80 + 80}{8}$

$\Rightarrow \frac{160}{8}$

$\Rightarrow 20$

The final answer is 20

Q 19. Describe the Syntax of the following statements.

a) If - else statement

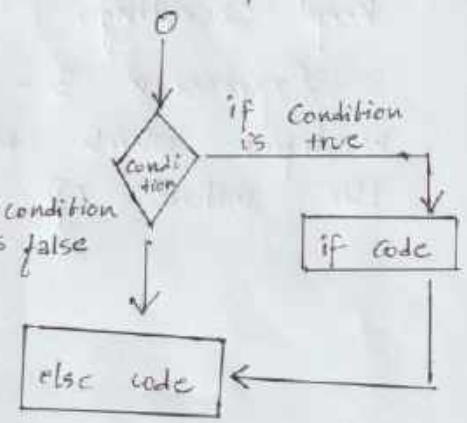
b) for loop

c) While loop

d) do - while loop.

Ans - a) If - else statements:

if statement can be followed by an optional else block of statements, which executes when the Boolean expression is false.



Syntax

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

b) for loop :

for loop is similar to while Basic Syntax of for loop is as follows:

```
for ( expression 1 ; expression 2; expression 3)
{
Block of statements;
}
```

* In the above syntax :

- Expression 1 - Initializes variables.
- Expression 2 - Conditional expression, as long as their condition is true, loop will keep executing.
- Expression 3 - expression 3 is the modifier which will increase or decrease the value of the variable.

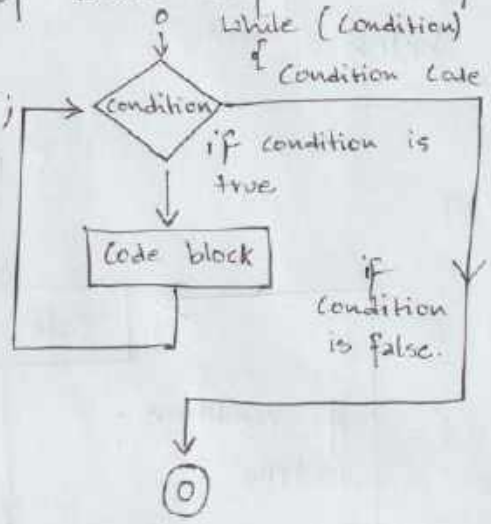
c) While loop :

- Basic syntax of while loop is as follows:

```
While (condition)
Single statement;
```

or

```
While (condition)
{
block of statements;
}
```



The above code can be represented in the form of a flow diagram as shown above.

d) do ..... while loop

- do ..... while is just like a while loop except that the test condition is checked at the end of the loop rather than the start. This has the effect that the body of the loop are always excetuded at least once.
- Basic syntax of do.... while loop is as follows:-

```
do
{
Single statement
   or
Block of statements
} While (condition);
```

This code can be represented in the form of a flow diagram as shown below :