ASSIGNMENT -1

FUNDAMENTAL OF IT & PROGRAMMING

QUE- 1- what are the four fundamental parts of computer explain it with the help of diagram.

ANS- A computer has four main components: the central processing unit or CPU, the primary memory, input units and output units. A system bus connects all four components, passing and relaying information among them. This type of computer organization and architecture is called a "von Neumann machine" after John von Neumann, who finalized the theory and design of the first modern digital computer

1- CPU-

Computer scientists typically call the CPU the "brain" of the computer because this is where programs are executed. A program is a set of instructions that tells the computer how to accomplish a specific task, such as sending a file to the printer, opening a browser window, or playing music or video.

The CPU is further broken up into three smaller components: the arithmetic unit handles all the simple mathematical computations; the control units interpret the instructions in a computer program; and the instruction decoding unit converts computer programming instructions into machine code. Machine code is the basic language understood by all the components in a computer.

2- Memory

Once the CPU converts a specific set of computer program instructions into machine code, it stores that machine code in primary storage or memory. The machine code will be treated as either data or instructions. The CPU fetches data and instructions from

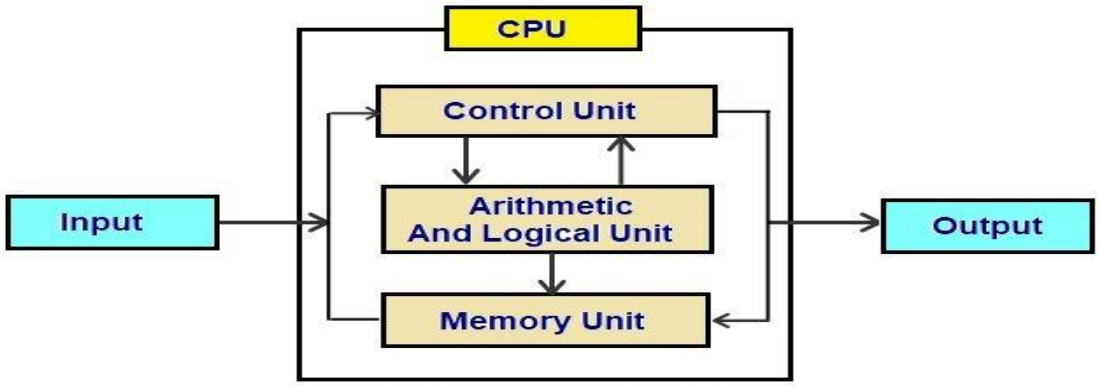
memory, uses an instruction to manipulate the data, and then sends the result and the next set of instructions back to memory.

3- Input Units

Input units are all the devices you use to feed information to the computer, such as a keyboard, a hard drive or a networking card. These devices, in essence, bring data from the "outside world" into your computer, in much the same way that your eyes and ears bring information to your brain. Each input device has its own hardware controller that connects to the CPU and primary memory, and it has a set of instructions that tells the CPU how to use it.

4- Output Units

Output units are the devices your computer uses to relay information to the user, such as a printer, monitors and speakers. For example, everything you see on your computer monitor starts as machine code in memory. The CPU takes that machine code and converts it into a format required by your monitor's hardware. Your monitor's hardware then converts that information into different light intensities so that you see words or pictures.

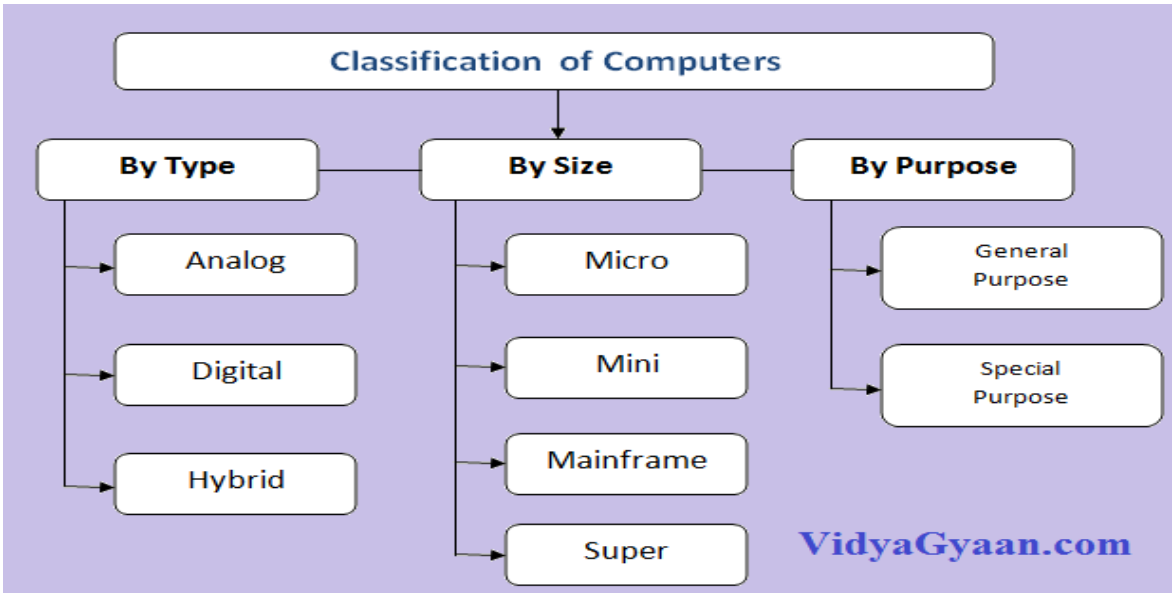


Block Diagram of a Computer

ArtOfTesting

QUE- 2 -DISCUSS ABOUT THE CLASSIFICATION OF COMPUTER BASED ON SIZE AND CAPACITY.

ANS-



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Classification of Computer Based on Size and Capability

Introduction

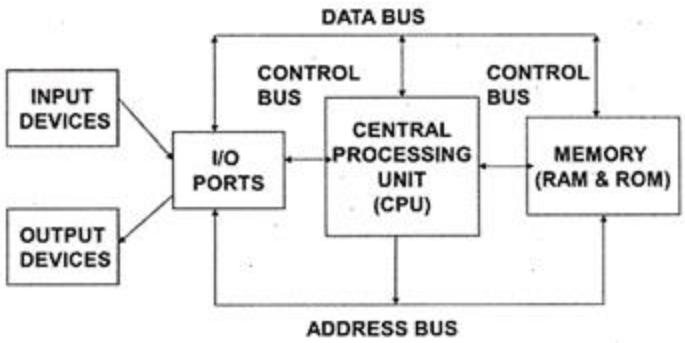
Classification of computers are based on their architecture, speed of executing commands or instructions, peripheral used and also their uses. Microcomputers are usually used in home and offices and only a single user can perform the task using a microcomputer. Its storage and data handling capacity are limited as per the requirement for home and office work. The another type of computer is called minicomputer which has usually larger storage and can handle multiuser at a time. This chapter includes the classification of computers.

Computer's Classification

Computers are classified on different parameters, such as, storage capacity, processing speed and component (CPU) used in computers. Depending upon the components used and features of different computers, they are classified into four groups, Microcomputers, Minicomputers, Mainframe computers and Supercomputers.

Micro Computers

Micro Computer is a computer whose CPU (Central Processing Unit) is a microprocessor. All the components of a microprocessor are on a single integrated circuit chip. Micro computer can be categorized as the desktop, programmable and workstation. The microprocessor based computers are called third generation computers. They are the backbone of the modern computer era. The first and second generation computers are based on vacuum tubes and bipolar junction transistors.



Desktop Computers

Desktop computer is a type of microcomputer. A desktop computer has a keyboard for input data, a LCD or CRT monitor to display information and Central processing unit tower contains storage, memory, different types of drives, such as, CD drive, hard drive, etc. A desktop computer is mainly used at home and office applications.

Programmable Computers (PDA)

Personal digital assistance is a type of hand held programmable digital computer. It is used as notepads, address books and can connect to world web wave to share information. A PDA is equipped with mobile phone hence, called smallest computer.

Workstation

A workstation computer has greater memory capability and more extensive mathematical abilities. It is connected with other workstation computers or personal computer to exchange data and mostly used for scientific applications. It also supports multitasking applications.

Mini Computers

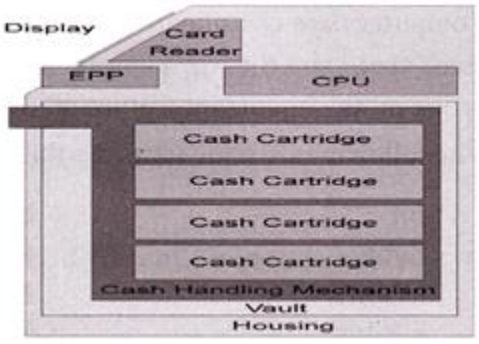
Minicomputers were introduced in early 1960s. They were faster than micro computers. Basically these computers were mainly multi-user systems, where many users work on the systems. Generally these types of computers had larger memories and greater storage capacity. They had large instruction set and address field. These kinds of computers have efficient storage for handling of text, in comparison to lower bit machines. Due to more efficient processor, speed and memory size, minicomputer was used in variety of applications and could support business applications along with the scientific applications. Minicomputer was a multi-user system which means more than one user could use this system simultaneously.

Comparison of Micro and Mini computers

Features	Microcomputer	Minicomputer
Primary memory	Shall memory	Larger memory
Word length	Small word length	Larger word length
Cost low	Low	High
Processor	Low	High

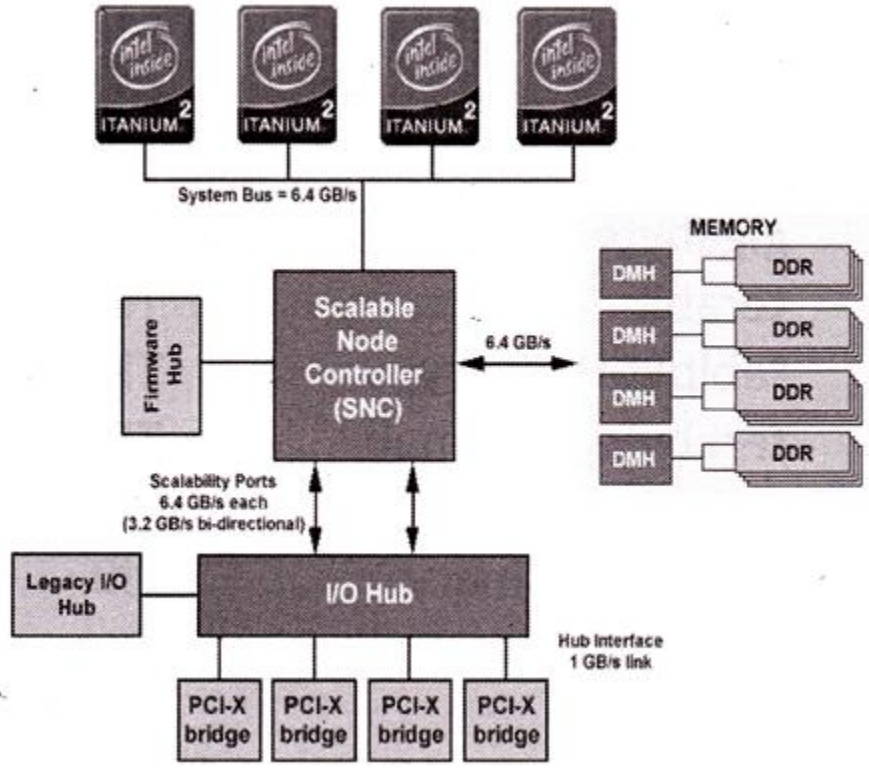
Mainframe Computers

Mainframe computers are large and expensive machines. The word length of mainframe computers may be 48, 60 or 64 bits, memory capacity being in some megabytes and storage capacity in some terabytes. Generally they handle huge volumes of information and data. In terms of speed, they are having significant processing capacity. They are used in research organizations, large industries, airlines reservation where a large database has to be maintained.



Super Computers

Super Computers are the fastest computer in current era. The processing capabilities of super computer lies in the range of GIPS2, word length 64-128 or may be in 256 or so. The memory capacity of super computer is in some gigabytes or in terabytes. The storage capacity of this type of computer is in exabytes.



The parallel processing of a super computer makes it very fast because it contains number of CPU that operates parallel. They are used at some research centers and government agencies involving sophisticated scientific and engineering tasks.

Super computers are used for the followings:

- ❖ Weapons research and development
- ❖ Nuclear and plasma physics
- ❖ Rocket research and development
- ❖ Atomic research
- ❖ Aerodynamics

Units For Measuring Word Length, Data, And Storage Capacity of a Computer

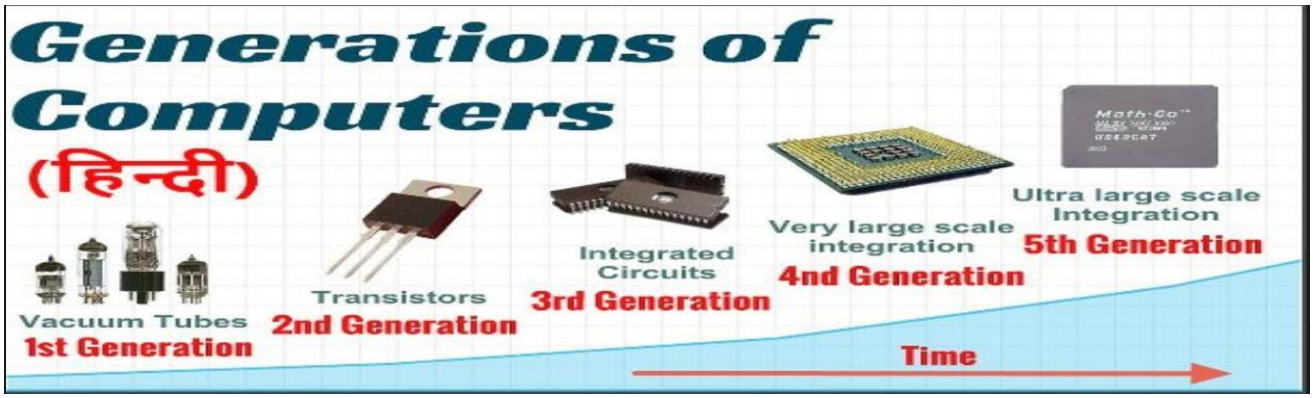
Computers are classified on the basis of their data processing speed better known as clock speed and the word length. The word length that is processed by a CUP at a time is one of the important feature of that CPU.

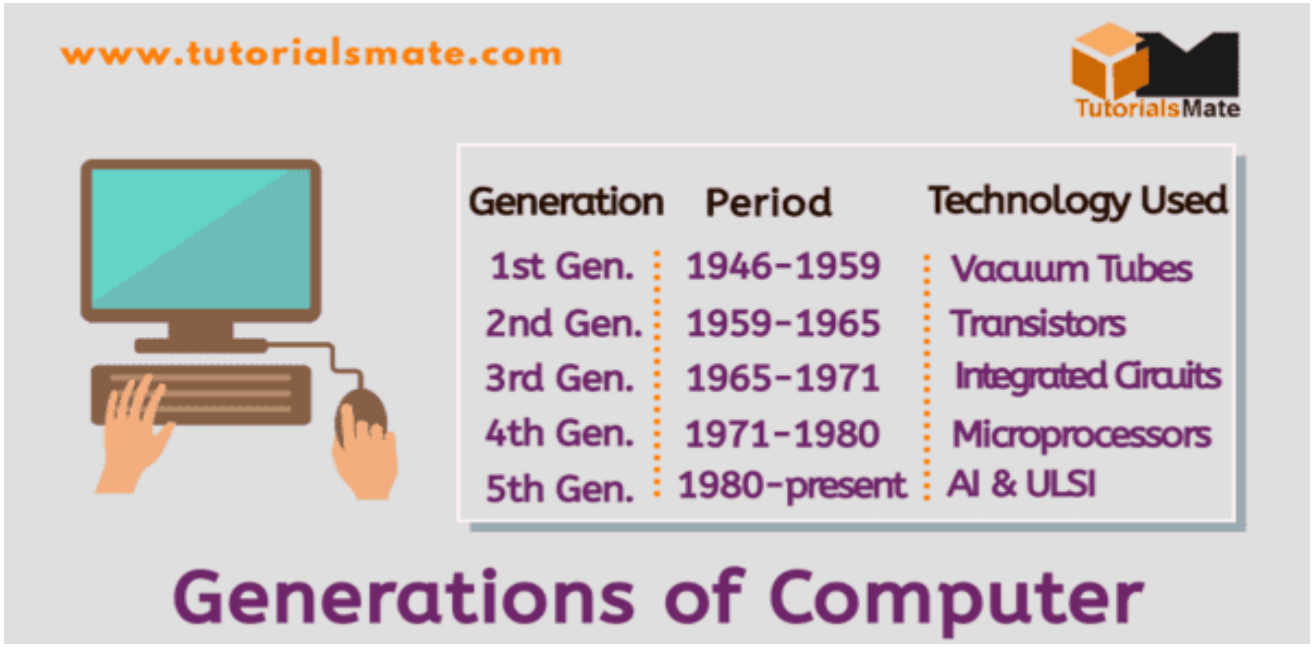
The followings are the units for the measurement of data volume:

bit	**bit**	**0 or 1**
Byte	**B**	**8 bite**
Kibibit	**Kibit**	**1024 bits**
kilobit	**Kbit**	**1000 bits**
kibibyte (binary)	**KiB**	**1024 bytes**
kilobyte (decimal)	**kB**	**1000 bytes**
megabit	**Mbit**	**1000 kilobits**
mebibyte (binary)	**MiB**	**1024 kibibytes**
megabyte (decimal)	**MB**	**1000 kilobytes**
gigabit	**Gbit**	**1000 megabits**
gibibyte (binary)	**Gibbs**	**1024 mebibytes**
gigabyte (decimal)	**GB**	**1000 megabytes**
terabit	**Tbit**	**1000 gigabits**
tebibyte (binary)	**TIB**	**1024 gibibytes**
terabyte (decimal)	**TB**	**1000 gigabyte**
Petabit	**Pbit**	**1000 terabyte**
pebibyte (binary)	**PiB**	**1024 tebibytes**
petabyte (decimal)	**PB**	**1000 terabytes**
exabit	**Ebit**	**1000 petabits**
exbibyte (binary)	**EiB**	**1024 pebibytes**
exabyte (decimal)	**EB**	**1000 petabytes**

QUE-3- COMPUTER GENERATION EXPLAINATION.

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.





QUE- 4- VOLATILE AND NON VOLATILE MEMORY .

ANS- Volatile and Non-Volatile Memory are both types of computer memory. Volatile Memory is used to store computer programs and data that CPU needs in real time and is erased once computer is switched off. RAM and Cache memory are volatile memory. Where as Non-volatile memory is static and remains in the computer even if computer is switched off. ROM and HDD are non-volatile memory.

Following are the important differences between Volatile and Non-Volatile Memory.

Sr. No.	Key	Volatile Memory	Non-Volatile Memory
1	Data Retention	Data is present till power supply is present.	Data remains even after power supply is not present.
2	Persistence	Volatile memory data is not permanent.	Non-volatile memory data is permanent.
3	Speed	Volatile memory is faster than non-volatile memory.	Non-volatile memory access is slower.
4	Example	RAM is an example of Volatile Memory.	ROM is an example of Non-Volatile Memory.
5	Data Transfer	Data Transfer is easy in Volatile Memory.	Data Transfer is difficult in Non-Volatile Memory.
6	CPU Access	CPU can access data stored on Volatile memory.	Data to be copied from Non-Volatile memory to Volatile memory so that CPU can access its data.
7	Storage	Volatile memory less storage capacity.	Non-Volatile memory like HDD has very high storage capacity.
8	Impact	Volatile memory such as RAM is high impact on system's performance.	Non-volatile memory has no impact on system's performance.
9	Cost	Volatile memory is costly per unit size.	Non-volatile memory is cheap per unit size.

QUE-5- SYSTEM SOFTWARE ,APPLICATION SOFTWARE, OPEN SOURCE SOFTWARE .

ANS- **1. Open source Software:** Open source software is computer software whose source code is available openly on the internet and programmers can modify it to add new features and capabilities without any cost. Here the software is developed and tested through open collaboration. This software is managed by an open-source community of developers. It provides community support, as well as commercial support, which is available for maintenance. We can get it for free of cost. This software also sometimes comes with a license and sometimes does not. This license provides some rights to users.

- The software can be used for any purpose
- Allows to study how the software works

- Freedom to modify and improve the program
- No restrictions on redistribution

Some **examples of Open source software** include Android, Ubuntu, Firefox, Open Office, etc.

2. Proprietary Software: Proprietary software is computer software where the source codes are publicly not available only the company that has created can modify it. Here the software is developed and tested by the individual or organization by which it is owned not by the public. This software is managed by a closed team of individuals or groups that developed it. We have to pay to get this software and its commercial support is available for maintenance. The company gives a valid and authenticated license to the users to use this software. But this license puts some restrictions on users also like.

- Number of installations of this software into computers
- Restrictions on sharing of software illegally
- Time period up to which software will operate
- Number of features allowed to use

Some **examples of Proprietary software** include Windows, macOS, Internet Explorer, Google Earth, Microsoft Office, etc.

Difference between Open-source Software and Proprietary Software:

S.No.	OPEN-SOURCE SOFTWARE	PROPRIETARY SOFTWARE
01.	Open-source software is computer software whose source code is available openly on the internet and programmers can modify it to add new features and capabilities without any cost.	Proprietary software is computer software where the source codes are publicly not available only the company which has created can modify it.
02.	Here the software is developed and tested through open collaboration.	Here the software is developed and tested by the individual or organization by which it is owned not by the public.
03.	In open-source software the source code is	In proprietary software, the source

S.No.	OPEN-SOURCE SOFTWARE	PROPRIETARY SOFTWARE
	public.	code is protected.
04.	Open-source software can be installed on any computer.	Proprietary software can be installed into any computer without a valid license.
05.	Users do not need to have any authenticated license to use this software.	Users need to have a valid and authenticated license to use this software.
06.	Open-source software is managed by an open-source community of developers.	Proprietary software is managed by a closed team of individuals or groups that developed it.
07.	It is more flexible and provides more freedom which encourages innovation.	It is not much flexible so there is a very limited innovation scope with the restrictions.
08.	Users can get open software free of charge.	Users must have to pay to get the proprietary software.
09.	In open-source software faster fixes of bugs and better security are availed due to the community.	In proprietary software, the vendor is completely responsible for fixing malfunctions.
10.	Limited Intellectual Property Protections	Full Intellectual Property Protections

S.No.	OPEN-SOURCE SOFTWARE	PROPRIETARY SOFTWARE
11.	Usually Developed and Maintained by non-profit organizations.	Usually Developed and Maintained by for-profit entities.
12.	Examples are Android, Linux, Firefox, Open Office, GIMP, VLC Media player, etc.	Examples are Windows, macOS, Internet Explorer, Google Earth, Microsoft Office, Adobe Flash Player, Skype, etc.

System Software	Application Software
• System software are mainly designed for managing system resources.	• Application software are designed to accomplish tasks for specific purposes.
• Programming of system software is complex.	• Programming of application software is comparatively easy.
• A computer cannot run without system software.	• A computer can easily run without application software.
• System software do not depend on application software.	• Application software depend on system software and cannot run without system software.

QUE- 6(A) – MS WORD FILE –

Steps to create document in MS WORD

Explanation:

Step 1: Open Ms word on your system.

Step 2: Click on the new file when you open the word file when the dialog box appear.

Step 3: Once this click on Blank doc under the recent section, it will get in bold or highlighted by default.

Step 4: Click on the create A new blank doc will open.

Step 5: Once it is opened you can write anything you want in the doc for yourself.

Step 6: You can also edit the text you have written as you can change the background color ,or the text and many other things in the docs.

QUE- 6(B)- WRITE STEPS REGRDING FOLLWING .

ANS- 1- CHANGE THE FONT STYLE –

Word

1. Open a new blank document.
2. On the Home tab, in the Styles group, click the dialog box launcher .. ...
3. Click the Manage Styles button (third from left at the bottom).
4. Click the Set Defaults tab and pick the size you want in the Size box. ...
5. Click the New documents based on this template option.
6. Close and reopen Word.

2- TO CHANGE THE FONT SIZE-

To change the font size of selected text in desktop Excel, PowerPoint, or Word: **Select the text or cells with text you want to change. To select all text in a Word document, press Ctrl + A. On the Home tab, click the font size in the Font Size box**.

3- TO CHANGE THE FONT COLOUR.

You can change the color of text in your Word document. Select the text that you want to change. **On the Home tab, in the Font group, choose the arrow next to Font Color, and then select a color**. You can also use the formatting options on the Mini toolbar to quickly format text.

4- WRITE STEPS TO HIGHLIGHT (IN YELLOW) THE LINE THAT READS "NEED TO GET IMS' S ADDRESS IN MS WORD 2007

Highlight selected text

1. Select the text that you want to highlight.
2. Go to **Home** and, select the arrow next to **Text Highlight Color**.

3. Select the color that you want.

Note: Use a light highlight color if you plan to print the document by using a monochrome palette or dot-matrix printer.

Highlight multiple parts of a document

This method is best for highlighting multiple parts of a document because the Highlight tool stays on until you decide to turn it off.

1. Go to **Home** and select the arrow next to **Text Highlight Color**.

2. Select the color that you want.

The **Text Highlight Color** button displays the selected color, and the mouse pointer becomes a when you point to the area of your document that contains text.

Note: Use a light highlight color if you plan to print the document by using a monochrome palette or dot-matrix printer.

3. Select the text or graphic that you want to highlight.
4. To stop highlighting, select the arrow next to **Text Highlight Color** and select **Stop Highlighting**, or press Esc.

   The mouse pointer becomes a when you point to your document.

Remove highlighting from part or all of a document

1. Select the text that you want to remove highlighting from, or press Ctrl+A to select all of the text.
2. Go to **Home** and select the arrow next to **Text Highlight Color**.

3. Select **No Color**.

QUE- 10- Insert a table IN MS WORD –

ANS- For a basic table, click **Insert** > **Table** and move the cursor over the grid until you highlight the number of columns and rows you want.

For a larger table, or to customize a table, select **Insert** > **Table** > **Insert Table**.

Tips:

- If you already have text separated by tabs, you can quickly convert it to a table. Select **Insert** > **Table**, and then select **Convert Text to Table**.
- To draw your own table, select **Insert** > **Table** > **Draw Table**.

QUE- 13- DIFFERENCE BETWEEN ABSOLUTE REFRENCE AND RELATIVE REFRENCE IN FORMULA

ANS- There are two types of cell references: **relative** and **absolute**. Relative and absolute references behave differently when copied and filled to other cells. Relative references **change** when a formula is copied to another cell. Absolute references, on the other hand, remain **constant** no matter where they are copied.

Absolute references

There may be times when you do not want a cell reference to change when filling cells. Unlike relative references, **absolute references** do not change when copied or filled. You can use an absolute reference to keep a row and/or column **constant**.

An absolute reference is designated in a formula by the addition of a **dollar sign ($)** before the column and row. If it precedes the column or row (but not both), it's known as a **mixed reference**.

Relative references

By default, all cell references are **relative references**. When copied across multiple cells, they change based on the relative position of rows and columns. For example, if you copy the formula **=A1+B1** from row 1 to row 2, the formula will become **=A2+B2.** Relative references are especially convenient whenever you need to **repeat** the same calculation across multiple rows or columns.

-)CELL ADDRESS- A cell reference or cell address is **a combination of a column letter and a row number that identifies a cell on a worksheet**. For example, A1 refers to the cell at the intersection of column A and row 1; B2 refers to the second cell in column B, and so on.

QUE-14- WHAT TOOLS ARE AVAILABLE TO CUSTOMIZE OUR POWERPOINT PRESENTATION.

ANS- **Best Presentation Tools for Beautiful Presentations**

- Tool #1: Templates and Themes
- Tool #2: Slide Layouts
- Tool #3: Fonts
- Tool #4: Color Themes
- Tool #5: Icons
- Tool #6: Shapes
- Tool #7: Stock Photos
- Tool #8: Charts and Graphs
- Tool #9: Maps
- Tool #10: Tables

- Tool #11: Flowcharts
- Tool #12: Icon Charts
- Tool #13: Radials
- Tool #14: Progress Bars
- Tool #15: Animation
- Tool #16: Transitions
- Tool #17: Interactivity
- Tool #18: Audio and Video

PART-2-

QUE- 16- DIFFERENCE BETWEEN MACHINE LANGUAGE AND HIGH LEVEL LANGUAGE

ANS- We will now understand the differences between High-Level and Low-Level programming languages −

High-Level Language	Low-level language
It can be considered as a programmer-friendly language.	It is considered as a machine-friendly language.
It requires a compiler/interpreter to be translated into machine code.	It requires an assembler that would translate instructions.
It can be ported from one location to another.	It is not portable.
It is easy to understand.	It is difficult to understand.
It is easy to debug.	It is difficult to debug.
It is less memory efficient, i.e., it consumes more memory in comparison to low-level languages.	It consumes less memory.

QUE- 17 – DISCUSS ABOUT DIFFERENT DATA TYPES OF C LANGUAGE –

ANS-

Types of Data Types in C

Here are the five major categories into which data types are divided in C language:

Data Type	Example of Data Type
Basic Data Type	Floating-point, integer, double, character.
Derived Data Type	Union, structure, array, etc.
Enumerated Data Type	Enums
Void Data Type	Empty Value
Bool Type	True or False

The basic data types are also known as the primary data types in C programming.

Primary Data Types in C

Here are the five primitive or primary data types that one can find in C programming language:

1. Integer – We use these for storing various whole numbers, such as 5, 8, 67, 2390, etc.

2. Character – It refers to all ASCII character sets as well as the single alphabets, such as 'x', 'Y', etc.

3. Double – These include all large types of numeric values that do not come under either floating-point data type or integer data type. Visit Double Data Type in C to know more.

4. Floating-point – These refer to all the real number values or decimal points, such as 40.1, 820.673, 5.9, etc.

5. Void – This term refers to no values at all. We mostly use this data type when defining the functions in a program.

Various keywords are used in a program for specifying the data types mentioned above. Here are the keywords that we use:

Keyword Used	Data Type
int	Integer

float	Floating-point
void	Void
char	Character
double	Double

The size of every data type gets defined in bytes/ bits. Also, these data types are capable of holding a very wide range of values.

Different Data Type Values

The size of any given data type in a program depends a lot on the type of processor, as well as the compiler. In simpler words, the size of the data type depends entirely on the computer on which we run C language along with the version of the C program compiler that we installed in the computer.

The int data type can be 4 bytes/ 2 bytes.

Remembering the size of the int data type is very easy. The given size is generally equal to the length of the word of the program's execution environment. In other words, int will be 2 bytes or 16 bits in the case of an environment that is 16-bit. However, int will be 4 bytes or 32 bits in case of an environment that is 32-bit.

The char data type is 1 byte.

The size of the char data type is basically 8 bits or 1 byte. No variation would occur with different compilers and interpreters. It means that the type of compiler or processor used will have no effect on its size whatsoever.

The double data type is 8 bytes.

The size of the double data type is basically 64 bits or 8 bytes. It is capable of storing values that are comparatively double the size of the bytes that the float data type can store. This is the reason why it is known as the double.

When looking at the 64 bits in total, the program has 1 bit for the sake of sign representation, the exponent uses 11 bits, and it uses the remaining 52 bits for the mantissa.

This data type is capable of holding about 15-17 digits, both after and before the decimal of the data type.

The float data type is 4 bytes.

The size of the float data type is basically 32 bits or 4 bytes. The float data type is single-precision in nature, and we use it for holding the decimal values. It helps in the storage of various large values,

but the float is comparatively faster than double. It is because double works with comparatively much larger data values. Thus, it is slower comparatively.

The void data type is 0 bytes.

Since the void data type has no meaning, it has no size at all.

There is a range of values that come under all of these data types. But before we look into that, let us take a look at the modifiers that are used in the data types.

Data Type Modifiers in C Programming Language

There are basically four types of modifiers for all data types used in C language. We use these along with all the basic data types for categorising them further.

For instance, if we say that there is a chocolate bar on the table, the person we are speaking to will know that a chocolate bar is present on the table. But if we get more specific and say that there is a dark chocolate bar on the table or a milk chocolate bar on the table, it will become much more clear and specific, to the person who is listening.

In a very similar manner, the modifiers in C language help in making the primary or primitive data types much more specific.

Here are a few modifiers:

- short
- long
- unsigned
- signed

Just like the names suggest here, we use the unsigned and signed modifiers for presenting the unsigned (only +) and signed (- and +) values in any given data type. Also, the short and long modifiers cause an effect on the value range of any given data type.

For instance, the long int, short int, unsigned int, signed int, etc., are all very valid data types in the C programming language.

Now, if we combine all the modifiers mentioned above with the five primitive or primary data types, then it will result in the formation of the following data types:

QUE- 19

SYNTAX OF FOLLOWING

ANS- 1- IF –ELSE STATEMENT –

Syntax

```
if (condition) {
  // block of code to be executed if the condition is true
}
```

Syntax

```
if (condition1) {
  // block of code to be executed if condition1 is true
} else if (condition2) {
  // block of code to be executed if the condition1 is false and
condition2 is true
} else {
  // block of code to be executed if the condition1 is false and
condition2 is false
}
```

The else Statement

Use the `else` statement to specify a block of code to be executed if the condition is `false`.

Syntax

```
if (condition) {
  // block of code to be executed if the condition is true
} else {
  // block of code to be executed if the condition is false
}
```

B- FOR LOOP SYNTAX-

for loop in C

The **for loop in C language** is used to iterate the statements or a part of the program several times. It is frequently used to traverse the data structures like the array and linked list.

Syntax of for loop in C

The syntax of for loop in c language is given below:

```
for(Expression 1; Expression 2; Expression 3){
//code to be executed
}
```

C- WHILE LOOP-

while loop in C

While loop is also known as a pre-tested loop. In general, a while loop allows a part of the code to be executed multiple times depending upon a given boolean condition. It can be viewed as a repeating if statement. The while loop is mostly used in the case where the number of iterations is not known in advance.

Syntax of while loop in C language

The syntax of while loop in c language is given below:

```
while(condition){
//code to be executed
}
```

D- DO WHILE LOOP-

do while loop in C

The do while loop is a post tested loop. Using the do-while loop, we can repeat the execution of several parts of the statements. The do-while loop is mainly used in the case where we need to execute the loop at least once. The do-while loop is mostly used in menu-driven programs where the termination condition depends upon the end user.

do while loop syntax

The syntax of the C language do-while loop is given below:

```
do{
```

```
2.  //code to be executed
3.  }while(condition);
```