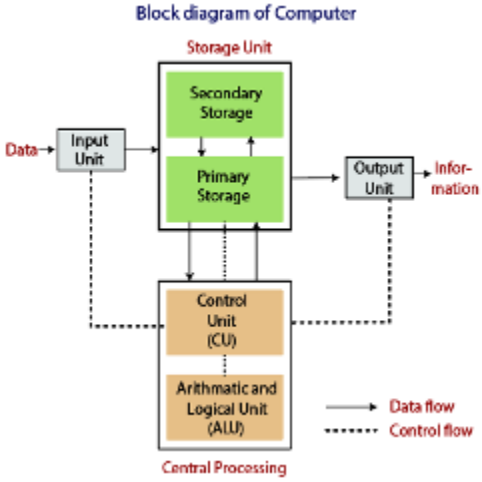
CCA-101: Fundamentals of IT & Programming
Assignment-1

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

Ans 1:- A computer has four main components: Input Units, the central processing unit or CPU, the Primary memory, and Output units. Input Unit - The devices to input information, such as a keyboard, and mouse. CPU - The CPU is further broken up into ALU, Control Unit, and Instruction Unit.



1. Input: This is the process of entering data and programs in to the computer system. You should know that computer is an electronic machine like any other machine which takes as inputs raw data and performs some processing giving out processed data. Therefore, the input unit takes data from us to the computer in an organized manner for processing.

2. Storage: The process of saving data and instructions permanently is known as storage. Data has to be fed into the system before the actual processing starts. It is because the processing speed of Central Processing Unit (CPU) is so fast that the data has to be provided to CPU with the same speed. Therefore the data is first stored in the storage unit for faster access and processing. This storage unit or the primary storage of the computer system is designed to do the above functionality. It provides space for storing data and instructions.

The storage unit performs the following major functions:

All data and instructions are stored here before and after processing.

• Intermediate results of processing are also stored here.

3. Processing: The task of performing operations like arithmetic and logical operations is called processing. The Central Processing Unit (CPU) takes data and instructions from the storage unit and makes all sorts of calculations based on the instructions given and the type of data provided. It is then sent back to the storage unit.

4. Output: This is the process of producing results from the data for getting useful information. Similarly the output produced by the computer after processing must also be kept somewhere inside the computer before being given to you in human readable form. Again the output is also stored inside the computer for further processing.

5. Control: The manner how instructions are executed and the above operations are performed. Controlling of all operations like input, processing and output are performed by control unit. It takes care of step by step processing of all operations inside the computer.

Functional Units

In order to carry out the operations mentioned in the previous section the computer allocates the task between its various functional units. The computer system is divided into three separate units for its operation. They are

Arithmetic Logical Unit (ALU)

Logical Unit :After you enter data through the input device it is stored in the primary storage unit. The actual processing of the data and instruction are performed by Arithmetic Logical Unit. The major operations performed by the ALU are addition, subtraction, multiplication, division, logic and comparison. Data is transferred to ALU from storage unit when required. After processing the output is returned back to storage unit for further processing or getting stored.

Control Unit (CU)

The next component of computer is the Control Unit, which acts like the supervisor seeing that things are done in proper fashion. Control Unit is responsible for coordinating various operations using time signal. The control unit determines the sequence in which computer programs and instructions are executed. Things like processing of programs stored in the main memory, interpretation of the instructions and issuing of signals for other units of the computer to execute them. It also acts as a switch board operator when several users access the computer simultaneously. Thereby it coordinates the activities of computer's peripheral equipment as they perform the input and output.

Central Processing Unit (CPU)

The ALU and the CU of a computer system are jointly known as the central processing unit. You may call CPU as the brain of any computer system. It is just like brain that takes all major decisions, makes all sorts of calculations and directs different parts of the computer functions by activating and controlling the operations.

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

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Ans 2:- Classification digital Computer based on size and Capability

Based on size and capability, computers are broadly classified into

Microcomputers(Personal Computer)

A microcomputer is the smallest general purpose processing system. The older pc started 8 bit processor with speed of 3.7MB and current pc 64 bit processor with speed of 4.66 GB.

Examples: - IBM PCs, APPLE computers

Microcomputer can be classified into 2 types :

1. Desktops
2. Portables

The difference is portables can be used while travelling whereas desktops computers cannot be carried around.

The different portable computers are: -

1) Laptop
2) Notebooks
3) Palmtop (hand held)
4) Wearable computers

Laptop: - this computer is similar to a desktop computers but the size is smaller. They are expensive than desktop. The weight of laptop is around 3 to 5 kg

Notebook: - These computers are as powerful as desktop but size of these computers are comparatively smaller than laptop and desktop. They weigh 2 to 3 kg. They are more costly than laptop.

Palmtop (Hand held): - They are also called as personal Digital Assistant (PDA). These computers are small in size. They can be held in hands. It is capable of doing word processing, spreadsheets and hand writing recognition, game playing, faxing and paging. These computers are not as powerful as desktop computers

Wearable computer: - The size of this computer is very small so that it can be worn on the body. It has smaller processing power. It is used in the field of medicine. For example pace maker to correct the heart beats. Insulin meter to find the levels of insulin in the blood.

Minicomputer: - A minicomputer is a medium-sized computer. That is more powerful than a microcomputer. These computers are usually designed to serve multiple users simultaneously (Parallel Processing). They are more expensive than microcomputers.

Mainframe computers: - Computers with large storage capacities and very high speed of processing (compared to mini- or microcomputers) are known as mainframe computers. They support a large number of terminals for simultaneous use by a number of users like ATM transactions. They are also used as central host computers in distributed data processing system.

Supercomputer:- Supercomputers have extremely large storage capacity and computing speeds which are many times faster than other computers. A supercomputer is measured in terms of tens of millions Instructions per second (mips), an operation is made up of numerous instructions. The supercomputer is mainly used for large scale numerical problems in scientific and engineering disciplines such as Weather analysis.

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

Ans:- 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 computer generations known till date.

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

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

Third Generation: Integrated Circuits (1964-1971)
The development of the integrated circuit was the hallmark of the third generation of computers. Transistors were miniaturized and placed on silicon chips, called semiconductors, which drastically increased the speed and efficiency of computers.
Instead of punched cards and printouts, users interacted with third generation computers through keyboards and monitors and interfaced with an operating system, which allowed the device to run many different applications at one time with a central program that monitored the memory. Computers for the first time became accessible to a mass audience because they were smaller and cheaper than their predecessors.
Fourth Generation: Microprocessors (1971-Present):
The microprocessor brought the fourth generation of computers, as thousands of integrated circuits were built onto a single silicon chip. What in the first generation filled an entire room could now fit in the palm of the hand. The Intel 4004 chip, developed in 1971, located all the components of the computer—from the unit and memory to input/output controls—on a single chip. In 1981 IBM introduced its first computer for the home user, and in 1984 Apple introduced the Macintosh. Microprocessors also moved out of the realm of desktop computers and into many areas of life as more and more everyday products began to use microprocessors. As these small computers became more powerful, they could be linked together to form networks, which eventually led to the development of the Internet. Fourth generation computers also saw the development of GUIs, the mouse and handheld devices.

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

of fifth-generation computing is to develop devices that respond to natural language input and are capable of learning and self-organization.

Q4: Differentiate between Volatile & Non- Volatile memories.

Ans:- **Volatile Memory**:
It is the memory hardware that fetches/stores data at a high-speed. It is also referred as temporary memory. The data within the volatile memory is stored till the system is capable of, but once the system is turned off the data within the volatile memory is deleted automatically**. RAM (Random Access Memory)** and **Cache Memory** are some common examples of volatile memory. Here, data fetch/store is fast and economical.

Non-Volatile Memory:
It is the type of memory in which data or information is not lost within the memory even power is shut-down**. ROM (Read Only Memory)** is the most common example of non-volatile memory. It's not economical and slow in fetch/store as compared to volatile memory however stores higher volume of data. All such information that needs to be stored for an extended amount of time is stored in non-volatile memory. Non-volatile memory has a huge impact on a system's storage capacity.

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 systems, compilers, editors and drivers etc., come under this category. A computer cannot function without the presence of these. 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 (OS): Operating system acts as manager of all the resources of computer, i.e. resource manager. It is system software that manages computer hardware and software resources and provides services. Thus operating system becomes an interface between user and machine

Utility Programs: These programs analyze and maintain a computer. These programs are focused on how OS works on that basis it perform task to enable 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.

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

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'.

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.

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

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:- CREATING A NEW DOCUMENT

To create a new document:

- Click the Microsoft Office button / File tab.
- Selec tNew. 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 **yourself** for the document.
- Click the Save button.

Q6 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 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

- 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 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".

- 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:- 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

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 **'ms_word'** for the document.
- Click the Save button.

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

Ans:- 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

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 **'equations'** for the document.
- Click the Save button.

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

Ans:- 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.

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

Ans:- 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

To insert a 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:-

- Left-click the Microsoft Office button.
- Select New. The New Workbook dialog box opens, and Blank Workbook is highlighted by default.
- Click Create. A new blank workbook appears in the window.
- When you first open Excel, the software opens to a new blank workbook as below.

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

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

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

Ans:- the sum of the marks using AutoSum in a range of cells (C2:C11)

Type =SUM in a cell, followed by an opening parenthesis (.

To enter the first formula range, which is called an argument (a piece of data the formula needs to run), type A2:A4 (or select cell A2 and drag through cell A6).

Type a comma (,) to separate the first argument from the next.

Type the second argument, C2:C3 (or drag to select the cells).

Type a closing parenthesis), and then press Enter.

Q13 a) Describe various steps involved in the following

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

Ans:- To modify column width of a worksheet

Position the **cursor** over the **column line** in the column heading, and a **double arrow** will appear.
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.
Release the mouse button.

- **To modify the row height of a worksheet**

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

- **To delete rows and columns of a worksheet**

Select the row or column you'd like to delete.
Click the Delete command in the Cells group on the Home tab.

Q13 b) Describe following terms in the worksheet

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

Ans:--

.**Absolute reference**

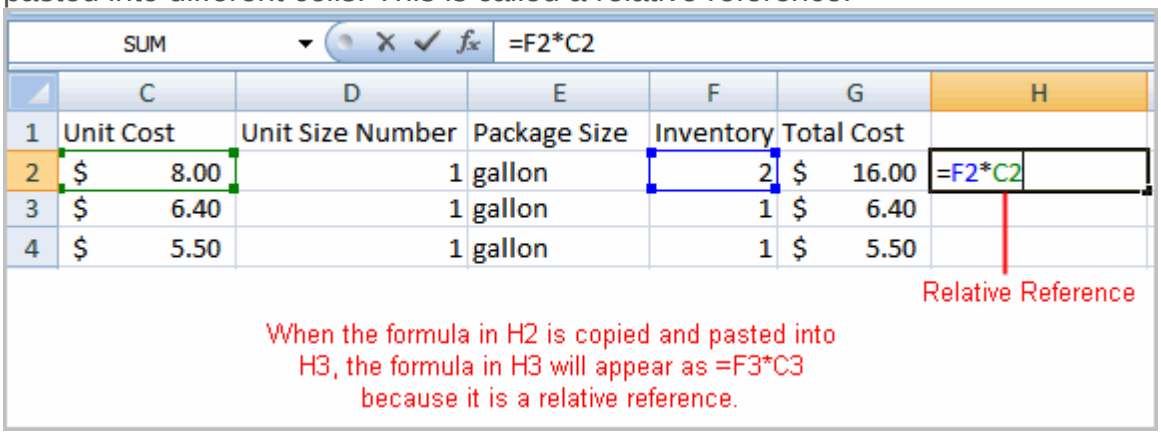
Absolute Reference; cell references in a formula always refer to the same cell or cell range . If a formula is copied to a different location, the absolute reference remains the same.

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:

A2:	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.

relative reference

Cell references in formula automatically adjust to new locations when the formula is pasted into different cells. This is called a relative reference.



Cell address

When a cell address is used as part of a formula, this is called a **cell reference**. It is called a **cell reference** because instead of entering specific numbers into a formula, the cell address refers to a specific cell.

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

Ans:-- Microsoft PowerPoint is an interesting and useful program that is widely used to prepare slideshows for Public Seminars and Presentations.

From an Artistic Perspective, individuals cannot easily understand theories alone for hours but can obtain much more within minutes or even seconds, with the use of Visual Presentations backing Theory.

PowerPoint can solve the Problem in terms of communication technology for everyone. There are complicated and sophisticated methods for such; however the simplest and most commonly used method which has being used almost everywhere and anywhere in the world during Public

Presentations & Seminars was the use of PowerPoint applications for seminars.

1. Open Microsoft PowerPoint.

2. Go to File at the top of the screen and click New.

3. In the “New Presentation” dialog box, click on “From Design Template.”
(When we start a new presentation PowerPoint, we have the opportunity to choose a theme or template. A theme is a slide design that contains matching colors, fonts, and special effects etc)

4. Step 4: Do Slide Design.(As per requirement) ...
5. Step 6: Adding Text. (As per requirement)
6. Step 7: Adding Pictures. . (As per requirement)..
7. Save your presentation

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:-- Open a Blank presentation:

Click the Microsoft PowerPoint Button, and then click New. In the New Presentation dialog box, do one of the following: Under Templates,double click **Blank presentation.**

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.

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

When you start PowerPoint, PowerPoint displays the title slide in the Slide pane. You can type the title of your presentation and a subtitle on this slide. To enter text:

- Click and type the title of your presentation in the "Click to add title" area. Write than.Name of college

Add a New Slide which has a Title and Content

Once you have selected a slide, **click Home > Slides > New Slide**. You'll notice that the **New Slide button** is in two halves. If you click the top half of the New Slide button, the default **Title and Content type slide will be added.**

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**

Title slide &bullet list

- Start Microsoft PowerPoint.
- Open arbitrary existing PowerPoint presentation.
- Click the New Slide button on the Formatting toolbar.
- The Slide Layout task pane appears as shown in the above figure. The Slide Layout task pane lets you select from numerous layouts that determine what you want pear on the new slide. We want to add a Bulleted List Slide.

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.

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

Clip art and Text

- Click in the slide where you want to insert a **clip art** file.
- On the Insert tab, in the Images group, click Online Pictures. (In PowerPoint 2007/2010, this option is called Clip Art.)

Adding **text** to a slide

- Please click on the Title, Subtitle, or **Text** placeholder.
- Type the **text** as you want.
- If necessary, press [Return] or **[Enter**] to move to a new line.
- Click anywhere on the slide outside of the placeholder to deselect it.

Q16. 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 and interprets. 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

High - level language: A **high-level language** is any programming language that enables development of a program in a much more user-friendly programming context.

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 – compiled or interpreted languages. Compiler and interpreter 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. Both compiler and interpreter perform the same task but there working is different. Compiler read the program at-a-time and searches the error and lists them. If the program is error free then it is converted into object program. When program size is large then compiler is preferred. Whereas interpreter read only one line of the source code and convert it to object code.

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

Ans:- DATA TYPES
Let's discuss about a very simple but very important concept available in almost all the programming languages which is called data types. As its name indicates, a data type represents a type of the data which you can process using your computer program. It can be numeric, alphanumeric, decimal, etc.

Let’s keep Computer Programming aside for a while and take an easy example of adding two whole numbers 10 & 20, which can be done simply as follows –

100 + 200

Let's take another problem where we want to add two decimal numbers 100.50 & 200.50, which will be written as follows –

100.50 + 200.50

The two examples are straight forward. Now let's take another example where we want to record student information in a notebook. Here we would like to record the information like Name, Class, Section: A and Age

Now, let's put one student record as per the given requirement –

Name: Ram Kumar
Class: 12th
Section: A
Age: 25

The first example dealt with whole numbers, the second example added two decimal numbers, whereas the third example is dealing with a mix of different data. Let's put it as follows –

- Student name "Ram Kumar" is a sequence of characters which is also called a string.

- Student class "12th" has been represented by a mix of whole number and a string of two characters. Such a mix is called alphanumeric.
- Student section has been represented by a single character which is 'A'.
- Student age has been represented by a whole number which is 25.

This way, we realized that in our day-to-day life, we deal with different types of data such as strings, characters, whole numbers (integers), and decimal numbers (floating point numbers).

Similarly, when we write a computer program to process different types of data, we need to specify its type clearly; otherwise the computer does not understand how different operations can be performed on that given data.

Different programming languages use different keywords to specify different data types. For example, C and Java programming languages use int to specify integer data, whereas char specifies a character data type

.

C and Java Data Types

C and Java support almost the same set of data types, though Java supports additional data types. For now, we are taking a few common data types supported by both the

These data types are called primitive data types and you 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.

Python Data Types

Python has five standard data types but this programming language does not make use of any keyword to specify a particular data type, rather Python is intelligent enough to understand a given data type automatically, like - number, string etc. Here, Number specifies all types of numbers including decimal numbers and string represents a sequence of characters with a lengthof 1 or more characters.

Q18. Find the output of the following expressions

a) X=20/5*2+30-5 b) Y=30 – (40/10+6) +10 c) Z= 40*2/10-2+10

Ans:-

X= 33 Y= 30 Z= 16

Q19. Describe the syntax of the following statements

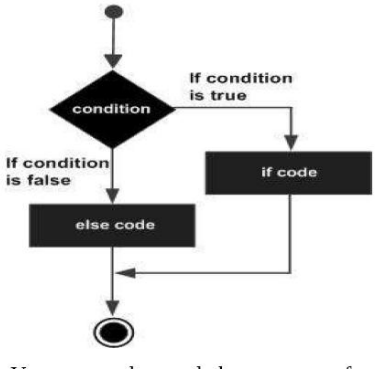
a) If – else statement b) for loop c) while loop d) do-while loop

Ans:-

IF … else satatement: if statement can be followed by an optional **else** statement, which executes when the Boolean expression is false. The syntax of an **if...else** statement in C programming language is −

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

else
{
Block of statements;
}
The above syntax can be represented in the form of a flow diagram as shown below –



for loop
for loop is similar to while, it's just written differently. for statements are often used to process lists such a range of numbers:
Basic syntax of for loop is as follows:

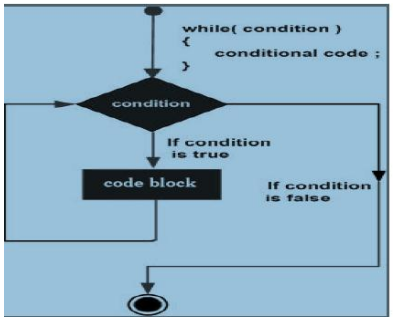
for(expression1; expression2; expression3)
{
Single statement
or
Block of statements;
}
In the above syntax:

- expression1 - Initializes variables.
- expression2 - Conditional expression, as long as this condition is true, loop will keep
- executing.
- expression3 - expression3 is the modifier which may be simple increment of a variable.

while loop
The most basic loop in C is the while loop. A while statement is like a repeating if statement. Like an If statement, if the test condition is true: the statements get executed. The difference is that after the statements have been executed, the test condition is checked again. If it is still true the statements get executed again. This cycle repeats until the test condition evaluates to false.

Basic syntax of while loop is as follows:

while (expression)
{
Single statement
or
Block of statements;
}
The above code can be represented in the form of a flow diagram as shown below –



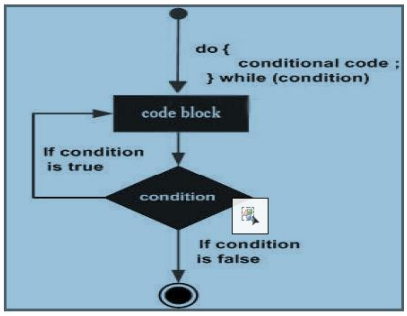
do...while loop

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 content of the loop are always executed at least once.

Basic syntax of do...while loop is as follows:

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

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



Q20. Find the output of the following program segments

a)

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

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”,
a);
else
printf( "Largest number is %d\n”,
b);
```

Ans:-

a]	b]	c]
Output	**Output**	**Output**

Hello 0 Hello 1 Hello 2 Hello 3 Hello 4	Hello 0 Hello 1 Hello 2 Hello 3 Hello 4	Hello 0 Hello 1 Hello 2 Hello 3 Hello 4