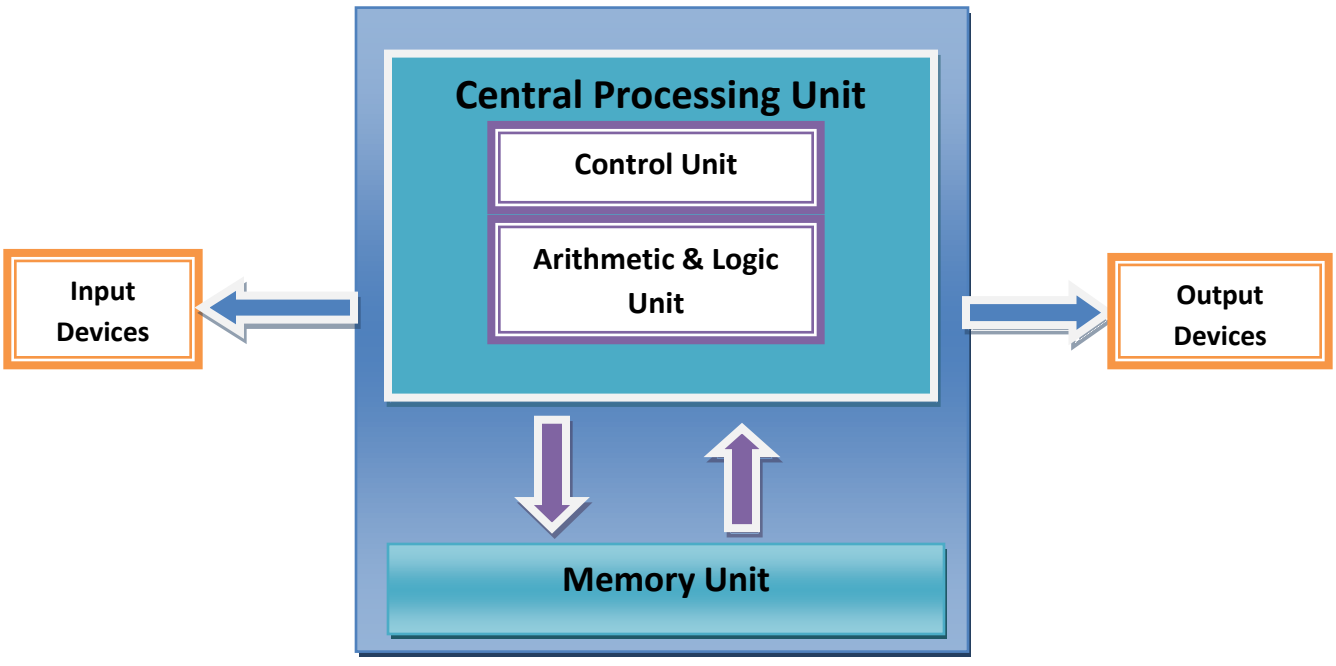
CCA-101: Fundamentals of IT & Programming

Assignment-1

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

Ans: Four fundamental parts of computer are as follows:-

1) **Input Devices:** These components are used for interpretation and communication between people and computer systems. Input devices include the mouse, input pen, touch screen, keyboard, joystick and microphone.
2) **Central Processing Unit (CPU):** It is the brain of the computer. Computer cannot process without it.
3) **Output Devices:** It is used to show the result of the instructions. Output devices include monitor, printer, headphones, etc.
4) **Memory Unit:** A memory unit is the collection of storage units or devices together. The memory unit stores the binary information in the form of bits.



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

Ans: Classification of computers based on size and capacity are as follows:-

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

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

3) **Minicomputers:** These are much smaller than mainframes. These computers are also less expensive. Sometimes referred to as Midrange Server or Midrange Computer. They are typically larger, more powerful and more expensive than desktop computers. Midrange computers are usually used by small and medium-sized businesses as their servers. Users connect to the server through a network by using desktop computers. Some examples are **Apple iPod, CDC 160A.**

4) **Microcomputers:** These are the most frequently used type of computer. It is also, known as Personal Computer **(PC).** A microcomputer is a small computer system designed to be used by one person at a time. Some examples are **desktop computer, 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 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 computer generations known till date. Each generation has been discussed in detail along with their time period

and characteristics. In the following table, approximate dates against each generation have been mentioned, which are normally accepted.

Following are the main five generations of computers.

S. No.	Generation & Description
1	First Generation The period of first generation: 1946-1959. **Vacuum tube** based.
2	Second Generation The period of second generation: 1959-1965. **Transistor** based.
3	Third Generation The period of third generation: 1965-1971. **Integrated Circuit** based.
4	Fourth Generation The period of fourth generation: 1971-1980. **VLSI microprocessor** based
5	Fifth Generation The period of fifth generation: 1980-onwards**. ULSI microprocessor** based.

Q4: Differentiate between Volatile & Non-Volatile memories.

Ans: 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.

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

Ans:

System Software	Application Software	Open Source Software
It is a type of software that is designed to run a computer's hardware and application programs.	It is software created for a specific purpose, used by end users. It can be called an application or simply an app.	Open source technology is defined as development of software for allowing end users and developers to not only see the source code of software, but modify it as well.

Software like operating systems, compilers, editors and drives etc., come under this category.	**Examples**: Word processor, accounting application, a web browser, an e-mail client, media player etc.	In this 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.
A computer cannot function without the presence of system software.		The Linux operating system **(OS)** is the best-known examples of open source software.
If we think of the computer system as a layered model, the system software is the interface between the hardware and user applications.		

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 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 be default.

- A new blank document appears in the Word window.
- Now write a paragraph about “yourself”.
- 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 the file name as “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

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

To change 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".

- Type the text "need to get IMS's address".
- Select the text.
- Click on the Text Highlight color in font group on the Home tab.
- Various colors will appears.
- Move your cursor over the various colors.
- Click on the yellow color.
- Then our highlighted text i.e. "need to get IMS's address" will change in the document.

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

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:

- Write the above given text in Microsoft office word.
- Select the text "MS Word" in the first row and click on **Bold** in the Home tab.
- Select the text "MS Word" in the second row and click on the font color box on the Home tab. Left click on the red font color.
- Select the text "word processor" in the second row and click on underline in the Home tab.
- Select the text "MS Word" in the third row and click on *Italic* in the Home tab.
- Select the text "creating" in the fourth row. Left click on the blue font color.
- Select the text "saving" in the sixth row. Left click on the red font color.
- Select the text "and" in the sixth row. Left click on the ~~strikethrough~~ option in the Home tab.
- Click on the office button. Select the print option to print the document.

Q8. 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:

- Write the above given equation in Microsoft office word.
- For the first row equation click on subscript option in the Home tab.
- For second row equation click on superscript option in the Home tab.
- For third row equation click on superscript & subscript simultaneously option in the Home tab.

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.

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

⇩

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

Ans:

- Type the above given text in MS office word.

- Select the given paragraph.
- Click on the Table option in the Insert tab.
- From the given options click on the text to table option
- Select the rows and columns according to the requirement.
- Click on the office button and click on the save as button.
- Save the file with the name 'Text_to_table'. Click on ok option.

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

Ans:

- Open a blank Word document.
- In the top ribbon, press insert.
- Click on the Table button.
- Either uses the diagram to select the number of columns and rows you need, or click insert table and a dialog box will appear where you can specify the number of columns and rows.
- The blank table will now appear on the page. Alter it as necessary. Standard features like bold, italics and underline are still available! These items may be helpful for creating headings or calling out certain items in the table.

Q13 a) Describe various steps involved in the following

- **To modify column width of a worksheet**

Ans:

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

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

➢ **to modify the row height of a worksheet**

- Select the rows whose height you want to change.
- To select an entire row, click on the row number on left. If you want to adjust a single row, click any cell in that row.
- To manually change the row height, position the mouse pointer on the bottom boundary of the row heading until it turns into a double-sided arrow. Drag until the row is the height that you want.
- To set a row height to a specific setting, choose Format- Row Height on the Home tab. Type the exact height you want in the Row Height dialog box; then click OK.

➢ **to delete rows and columns of a worksheet**

- Right-click in a table cell, row, or column you want to delete.
- On the menu, click Delete Cells.
- To delete one cell, choose Shift cells left or Shift cells up.
- To delete the row, click Delete entire row.
- To delete the column, click Delete entire column.

Q13 b) Describe following terms in the worksheet

➢ Absolute reference and relative reference in formula

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 formula is copied to another cell. Absolute references, on the other hand, remain constant no matter where they are copied.

➢ Cell address

A cell reference, or cell address, is an alphanumeric value used to identify a specific cell in a spreadsheet. Each cell reference contains one or more letters identify the column and the number represents the row

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

Ans: 1) Canva

Canva makes design easy -- even for marketers and salespeople who feel like they're design-challenged. The platform gives you a bunch of presentation templates to use right away, and it's very easy to customize them to your organization and presentation objective. Plus, they have a new iPad app that makes it easy to whip up a presentation on the go.

2) PowToon

Often, being different is what attracts prospects and PowToon can help you do that in your presentations PowToon's animation software lets you easily create animations with props, characters, and more -- which can help you differentiate your company when talking with prospects.

3**) PowerPoint**

For years, PowerPoint has been the standard in presentation software, but it hasn't remained static. PowerPoint is full of features to make sales and marketing presentations dynamic and engaging.

4) Oomfo

A PowerPoint add-in, Oomfo helps sales and marketing pros create those oh-so-important interactive charts for presentations. Specialized charts, live charts from multiple

files, data from cloud applications, interactive options, one-click conversions -- it’s all possible, and more, with Oomfo.

5) Keynote

Apple’s Keynote allows users to work between their Mac and iOS devices, as well as with people who use Microsoft PowerPoint. With easy-to-use visual tools, drag and drop functionality, interactive charts, and more, Keynote is a popular choice among sales and marketing professionals.Sometimes, sales and marketing professionals need help creating presentations. Enter, Slide Bureau. With templates tailored to various professions, a template boutique with ample designs, and the ability to create on your iPad and then present in any browser or on any device, Slide Bureau is a perfect choice.

7) Haiku Deck

Available for the web or iPad, Haiku Deck has become a favorite of sales and marketing pros. With Haiku Deck, professionals can quickly create presentations that can be "easily projected, shared, posted, embedded on a website or blog, or viewed on any web-enabled device." Though it's another tool that helps you create presentations from scratch, it's ease-of-use sets it apart from the rest.

8) Projeqt

Projeqt promotes “dynamic presentations for a real-time world,” because it lets you pull in feeds and create shortcuts to your favorite services, link and connect presentations, view on any device with a modern browser, and embed your presentation everywhere.

9) emaze
Busy sales and marketing pros choose emaze because it makes creating amazing presentations quick and easy. The options abound with emaze: Choose a professionally designed template and then create a slideshow, video presentation, or 3D presentation.

10) Camtasia
TechSmith's Camtasia is an amazing tool that helps you create professional videos. You can record screen movements, import HD video from another source, customize and edit the video, and then share the completed video presentation on practically any device.

11) SlideShare
SlideShare is a popular choice for sales and marketing professionals looking for a way to share their content publicly. Because it already has a built-in audience, you can easily distribute your presentation out to lots of people -- and those people can embed your Slide Shares on websites and blogs, or share them on LinkedIn, Twitter, Facebook, etc.

12) Slidedog
Sometimes, sales and marketing professionals need to be able to move between presentation tools, but it's not always possible because of their technical limitations. SlideDog is the solution, as it enables users to switch between PowerPoint, Prezi, PDF, web pages and others.

13) Presentation Assistant
Presentation Assistant lives up to its name: It assists professionals by enabling them to annotate, zoom, and more during a presentation. Sales and marketing professionals can

clarify and emphasize points more clearly to their audience with Presentation Assistant.

14) authorSTREAM
Sales and marketing pros choose authorSTREAM to make their presentations dynamic and engaging. authorSTREAM allows users to share their PowerPoint presentations publicly or privately, broadcast them, convert them to video, communicate and collaborate about them, and more.

15) Zentation
With Zentation, salespeople and marketers combine video and slides into a simulated live experience. Presentations created with Zentation become webinars, webcasts, and virtual events for prospects and customers -- all great collateral for marketing and sales.

16) Prezi
Sales and marketing professionals love Prezi because it is cloud-based. Prezi makes creating, editing, and presenting from your browser, desktop, iPad, or iPhone possible anywhere, any time.

17) Brainshark
Sales reps and marketers often choose Brainshark, a cloud-based presentation tool, because it allows them to create and deliver presentations live or on-demand (even using their iPad or iPhone), use on-demand video content, polls, or surveys for increased engagement, and embed presentations in websites and blogs.

18) Vcasmo

Vcasmo is a unique presentation tool -- it's a multimedia solution that enables users to synchronize a video and slideshow, side by side. Sales and marketing pros love Vcasmo because it supports playback in three forms: browser, mobile, and iPad.

19) ViewletBuilder

ViewletBuilder is a different presentation tool; it captures critical screen updates and cursor position changes so sales and marketing pros can create presentations detailing how their product or sites work. With a plethora of features, ViewletBuilder allows for editing and enhancing and includes a variety of publishing and sharing options, too.

20) Zoho Show

Zoho Show is a top pick for sales and marketing pros because it lives online, making it possible to create, access, present, and more from anywhere, any time. The simple, intuitive interface and collaboration features are just two of its beloved benefits.

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

Ans:

- **Open a Blank presentation**

1. Select the **File** tab to go to **backstage view**.
2. Select **New** on the left side of the window, then click **Blank Presentation** or choose a **theme**.
3. A new presentation will appear.

- **Save the presentation as Lab1.pptx**

Step 1 − Click on the **File** tab to launch the **Backstage** view and select **Save**.

Step 2 − In the **Save As** dialog, type in the file name and click "Save".

Step 3 − The default file format is **.pptx**. If you want to save the file with a different name, choose one of the file types from the "**Save as type**" dropdown list.

Step 4 - Save the file with the name “Lab1.pptx”.

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

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

Ans: **Step 1: Launch the PowerPoint Program**

When you launch the PowerPoint program, you may be prompted to pick what kind of document you want to create. Choose to create a blank presentation. If it does not ask you this, a blank presentation will automatically launch.

Step 2: Choosing a Design

The next thing you want to do is decide what design you want for the presentation. To do this, go to the 'Design' tab at the top of the page. Scroll through all the options and decide which one looks best for the presentation you want. To get a preview of what the design will look like before applying it to the presentation, hover over the design you want to preview. This design will be automatically continued throughout the rest of your presentation. Once you have more than one slide, you can add a different design for just one slide. To do this, select the slide you want to change the design on by clicking on it. It will pop-up as the big slide in the screen. Then you can right-click the design you want for this slide and select 'Apply to

Selected Slide'. It will appear on that slide, but will not change the design of the other slides.

Step 3: Create Title Page

Click the first box that says 'Click to add title' and add the title of your presentation. Click the bottom box to add your name, or any other subtitle that you choose. Once you have your text in the boxes, you can change their font, size, color, etc. with the toolbar options at the top. You can change the size of the text box by selecting it, and then dragging the corners of the box. To move the text boxes, select the box, and move your arrow over the border of the box. A four-arrow icon will appear, and clicking with this icon will allow you to move the text boxes wherever you choose.

Step 4: Add More Slides

Chances are, you are going to need more than one slide. There are a few ways you can add more slides. Notice that there is a separate area to the left of the screen where your first slide is located. The first way to add a slide is to right-click the area under where your first slide is located and select 'New Slide'. A new slide will appear. The second way to add another slide it to click 'New Slide' in the toolbar above the slides. This button is divided into two parts,. The top will insert a new slide with a default layout. You can also click the bottom half of this button, which will allow you to choose what type of layout you want. You can choose a slide with two text-boxes and a title, one text-box, only a title, and many other options. You will see your new slide appear to the left under the first, as well become the large slide that you can edit. The design you picked earlier will have carried over to this slide. The design will carry over for the rest of the slides you create

unless you decide to change just one, like described earlier. The guideline layout you chose will appear, and you can then add in your information.

Step 5: Add Charts, Pictures, Graphs, Etc.

If you want to insert a chart, picture, graph, or any other graphic, click on the 'Insert' tab at the top of the window. Here you will see buttons of all the options of what you can insert into your slide. Click the designated box and insert what it is you want to have on that slide. A second way you can insert pictures and graphs is when you have an empty text or image box. Little pictures of the same options you saw in the toolbox will show up in the middle of the box, and you can click any of these to insert as well. Once you have your chart or picture, you can add a border or edit it however you want in the 'Format' tab.

Step 6: Add Transitions

To add transitions in between your slides, click the 'Animations' tab at the top of the page. Here you can scroll through all the options of transitions, and hover over them to see a preview. Select the slide you want the transition applied to, and then click the transition you chose. You can do this for every slide, selecting the same or different transitions.

Step 7: Changing the Order

Once you have all your slides made, you can change the order of the slides. To do this, click and drag the slides from where they are to where you want them in the order. Another possibility, which is particularly useful if you presentation is longer, is to click the 'Outline' button. You can find this small button above the left area where all your slides are located

smaller, directly to the right of the 'Slides' button. Here you will see a list of all your slides and you can click and drag your slides to where you want them.

Step 8: Play the Presentation

Once you have all your slides completed and in the order you want, view your slideshow. Click the 'Slide Show' tab at the top of the page and select 'From Beginning'. You can go through your entire slideshow, and change slides by clicking or pressing the right arrow. A shortcut to this is pressing F5. Congratulations! You have now made a PowerPoint presentation.

Part -2

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

Ans: Machine language, or **machine code**, is the only language that is directly understood by the computer, and it does not need to be translated. All instructions use binary notation and are written as a string of 1s and 0s. A program instruction in machine language may look something like this:

```
1.    10010101100101001111101010011011100101
```

A **high-level language** is a programming language that uses English and mathematical symbols, like +, -, % and many others, in its instructions. When using the term 'programming languages,' most people are actually referring to high-level languages. High-level languages are the languages most often used by programmers to write programs. Examples of high-level languages are C++, Fortran, Java and Python.

To get a flavor of what a high-level language actually looks like, consider an ATM machine where someone wants to make a withdrawal of $100. This amount needs to be compared to the account balance to make sure there are enough funds. The instruction in a high-level computer language would look something like this:

```
1.    x = 100
2.    if balance x:
3.     print 'Insufficient balance'
4.    else:
5.     print 'Please take your money'
```

This is not exactly how real people communicate, but it is much easier to follow than a series of 1s and 0s in binary code.

There are a number of advantages to high-level languages.

The **first advantage** is that high-level languages are much closer to the logic of a human language.

The **second advantage** is that the code of most high-level languages is portable and the same code can run on different hardware

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

Ans: Data types specify how we enter data into our programs and what type of data we enter. C language has some predefined set of data types to handle various kinds of data that we can use in our program. These datatypes have different storage capacities.

C language supports 2 different type of data types:

1. **Primary data types**:

These are fundamental data types in C namely integer(`int`), floating point(`float`), character(`char`) and `void`.

2. **Derived data types**:

Derived data types are nothing but primary datatypes but a little twisted or grouped together
like **array**, **stucture**, **union** and **pointer**.

Q18. Find the output of the following expressions

Ans.

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

Output = 33

b) b) Y=30 – (40/10+6) +10

Output=30

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

Output=16

Q19. Describe the syntax of the following statements

a) If – else statement

Ans:

```
if(condition) {
   // Statements inside body of if
}
else {
   //Statements inside body of else
}
```

If condition returns true then the statements inside the body of “if” are executed and the statements inside body of “else” are skipped.

If condition returns false then the statements inside the body of “if” are skipped and the statements in “else” are executed.

b) For loop

Ans: `for (initialization statement; test expression; update statement) {`

```
1.  // statements
2. }
```

The for loop starts with a for statement followed by a set of parameters inside the parenthesis. The for statement is in lower case. Please note that this is case sensitive, which means the for command always has to be in lower case in C programming language. The initialization statement describes the starting point of the loop, where the loop variable is initialized with a starting value. A loop variable or counter is simply a variable that controls the flow of the loop. The test expression is the condition until when the loop is repeated. Update statement is usually the number by which the loop variable is incremented.

c) While loop

Ans: The syntax of a **while** loop in C programming language is –

```
while(condition) {
   statement(s);
}
```

Here, **statement(s)** may be a single statement or a block of statements. The **condition** may be any expression, and true is any nonzero value. The loop iterates while the condition is true.

When the condition becomes false, the program control passes to the line immediately following the loop.

d) Do-while loop

Ans: The syntax of a **do...while** loop in C programming language is −

```
do {
   statement(s);
} while( condition );
```

Notice that the conditional expression appears at the end of the loop, so the statement(s) in the loop executes once before the condition is tested.

If the condition is true, the flow of control jumps back up to do, and the statement(s) in the loop executes again. This process repeats until the given condition becomes false.

Q20

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

Ans:a) IMS Ghaziabad

b) IMS GhaziabadIMS GhaziabadIMS Ghaziabad

c) Largest number is b