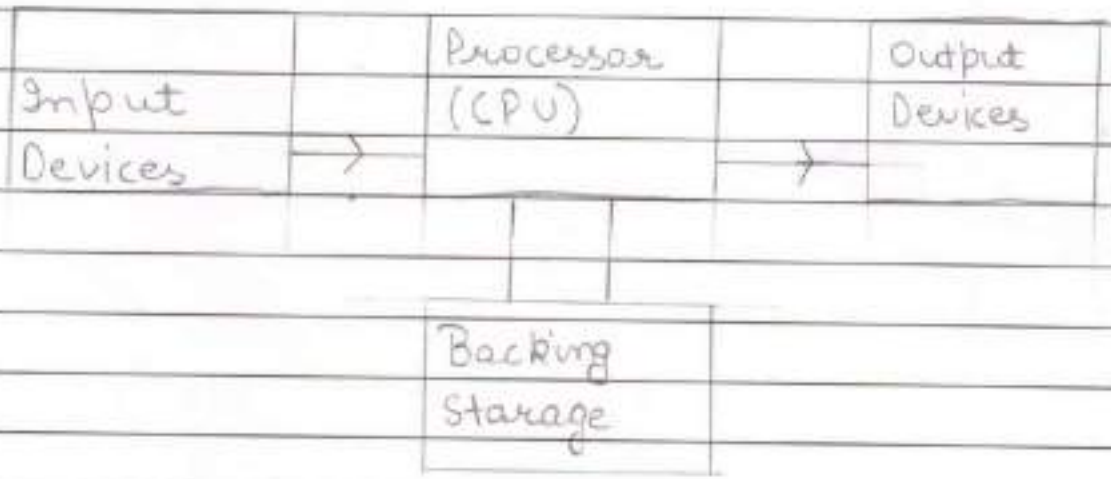
CCA - 101 : Fundamentals of IT & Programming Assignment

Q1) What are the four fundamental parts of the Computer? Explain it with the help of diagram.

Ans The four fundamental parts of Computer are:

A Computer has four main components: Input Units, the Central processing unit or CPU, the Primary memory, 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.



- **Input Units**

Input Units are all the devices you used to feed information to the computer, such as 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 devices has its own hardware controller that connects to the CPU and primary memory, and it has a set of instructio that tells the CPU how to use it.

- 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 windo or playing music or video.

- 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 monitors 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.

- Primary Storage

Once the CPU converts a specific set of Computer program instruction into machine code, it stores that machine code in primary storage or memory.

The machine code will be treated as either data or instructio
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.

Q2 Discuss about the classification of Computer based on size and Capacity?

Ans Introduction

Classification of Computer are based on their architecture, speed of executing commands or instructions peripheral used and also their uses. Microcomputers are usually used in the 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.

Computer's Classification

Computers are classified on different parameters, such as storage capacity, processing speed and Component (CPU) used in Computers. Depending up on 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 catgorized as the desktop, programmable and workstation. The microprocessor based Computers are called third generation Computers. They are the backbones of the modern Computer era. The first and second generation Computer are based on vaccum tubes and bipolar junction transistors.

Mini Computers

Minicomputers were introduced in early 1960s. They were faster than micro computers. Basically these Computers were mainly multiuser system, where many users work on the system. Generally these types of Computers had larger memories and greater storage capacity. They had large instruction set and address field. These kind of Computer have efficient storage for handling of text, in Comparison to lower bit machines. Due to more efficient processor, speed and memory etc sizes minicomputer were used in variety of applications and could support business applications along with the scientific applications. Minicomputers was a multi-user system.

Comparison of Micro and Mini Computer

Features	Micro Computer	Mini Computer
Primary memory	Shall memory	Larger memory
Word length	Small ward length	Larger ward length
Cost low	Low	High
Processor	Low	High

Mainframe Computers

Mainframe Computers are large and expensive machines. The word length of mainframe Computer may be 48, 60 or 64 bits, memory capacity being in some megabytes and storage capacity in some trabytes. 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 faster computer in current era. The processing capabilities of super Computer lies in the range of GIPS 2, word length 64-128 or may be in 256 or so. The memory capacity of this type of Computer is in exabytes.

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

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

There are five Computer generations known till date. Each

generation has been discussed in detail along with their time period. Following are the main five generation of Computer.

- First Generation Computer

The period of first generation was from 1946-1959. The Computer of first generation used vaccum tubes as the basic Component for memory and circuit for CPU (Central Processing Unit). These tubes, like electric bulbs, produced a lot of heat and the installation used to fuse frequently. Therefore, they were very expensive and only large organizations were able to afford it.

In this generation, mainly batch processing operating system was used. Punch Cards, paper tape and magnetic tape was used as input and output devices. The Computer in this generation used machine code as the programming language.

- Second Generation Computers

The period of second generation was from 1959 - 1965. In this generation, transistors were used than were cheaper, Consumed less power, more compact in size, more reliable and faster than the first-generation machines made of vaccum tubes. In this generation, magnetic cores were used as the primary memory and magnetic tape and magnetic disks as

secondary storage devices.

In this generation, assembly language and high-level programming like FORTAN, COBOL are used. The Computer used batch processing and multiprogramming operating system.

- Third Generation Computers

The period of third generation was from 1965-1971. The computers of third generation used Integrated Circuits (ICs) in place of transistors. A single IC has many transistors, resistors, and capacitors along with the associated circuity.

The IC was invented by Jack Kilby. This development made computers smaller in size, reliable, and efficient. In this generation remote processing, time-sharing, multi-programming operating system were used. High-level languages (FORTRAN-II TO IV, COBOL, PASCAL, PL/1, BASIC, ALGOL-68 etc) were used during this generation.

- Fourth Generation Computers

The period of fourth generation was from 1971-1980. Computers of fourth generation used Very Large Scale Integrated (VLSI) circuits. VLSI circuits having about 5000 transistors and other circuit elements with their associated circuits on a single chip made it possible to have microcomputers of fourth generations.

Fourth generation Computers became more powerful, compact, reliable, and affordable. As a result, it gave rise to Personal Computer (PC) revolution. In this generation, time sharing, real time networks, distributed operating system were used. All the high-level languages like C, C++, DBASE etc. were used in this generation.

- Fifth Generation Computers

The period of fifth generation is 1980- till date. In the fifth generation, VLSI technology became ULSI (Ultra Large Scale Integration) technology, resulting in the production of microprocessor chips having ten million electronic components.

This generation is based on parallel processing hardware and AI (Artificial Intelligence) software. AI is an emerging branch in Computer science, which interprets the mean and method of making Computers think like human beings. All the high-level languages like C and C++, Java, .Net etc., are used in this generation.

Q4) Differentiate between Volatile Memory and Non-Volatile memories.

Ans

Volatile Memory	Non-Volatile Memory
1. Volatile memory is the type of memory in which data is lost as it is powered-off.	1. Non-volatile memory is the type of memory in which data remains stored even if it is powered-off.

Volatile Memory	Non-Volatile Memory
2. Contents of Volatile memory is stored temporarily.	2. Contents of Non-Volatile memory is stored permanently.
3. It is faster than non-volatile memory.	3. It is slower than volatile memory.
4. RAM (Random Access Memory) is an example of volatile memory.	4. ROM (Read Only Memory) is an example of non-volatile memory.
5. Volatile memory generally has less storage capacity.	5. Non-volatile memory generally has more storage capacity than volatile memory.
6. In volatile memory, process can read and write.	6. In non-volatile memory, process can only read.
7. Volatile memory is more costly per unit size.	7. Non-volatile memory is less costly per unit size.
8. In volatile memory, processor has direct access to data.	8. In ~~v~~ non-volatile memory, processor has not direct access to data.
9. Volatile memory chips are generally kept on the memory slot.	9. Non-volatile memory chips are embedded on the motherboard.

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

Ans Software is of two types namely system software and application software. They both differ in term of their purpose and design. System software is meant to administer the system resources. It also serves as a kind of platform for running the application software. On the other hand, application software is meant to enable the user to carry out some specific set of tasks or functions.

Difference between System Software and Application Software

System Software	Application Software
1. System software is meant to manage the system resources. It serves as the platform to run application software.	1. Application software helps perform a specific set of functions for which they have been designed.
2. System software is developed in a low level language (assembly language for example).	2. Application software is developed in a high-level language such as Java, C++, .net and VB.
3. System software are automatically starts running once the system is turned on and stop when the system is shut down.	3. Application software runs as and when the user request it.

System Software	Application Software
4. A system ~~software~~ cannot even start without system software.	4. Application software is user specific and it is not needed to run the system on the whole.
5. System software is endowed with a general purpose.	5. Application software carries a specific purpose.
6. A typical example for a system software is window Operating System.	6. Some characteristic examples for application software is MS office, Photoshop and CorelDraw.

Q6(a) Create a file in MS word to insert a paragraph about yourself and save it with file name 'yourself'. Describe all steps involve in it.

Ans Step 1: Open MS Word on ~~the~~ your system.

Step 2: Click on the new file when you open the word file when the dialoug 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 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 colour, or the text and many other things in the docs, and save the file using Ctrl+S.

Q6(b) Write steps regarding followings:

- To change the font style

Ans The basic steps to change the font of a text in a document are given below:

Select the text you want to modify

Select the home tab and locate the Font group

Click the drop-down arrow next to font style box

Font style menu appears

With a left click select the desired font style

If you want to change the font to bold or italic, click the 'B' or 'I' icons on the format Bar.

- To change the font size

Ans Select the text you want to modify.

Click the drop-down arrow next to the Font Size on the Home

involved in it?

Ans To create a new document:

- Click the 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.

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

Equations

$Y_2 + Y_5 = 30$

$Z^3 + Q^4 = 50$

$A_2 + B^8 = X_2 + Y_8$

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 equation

$Y_2 + Y_5 = 30$

$z^3 + Q^4 = 50$

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

Click the save button.

Finally save your document.

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.

Here set numbers 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. here set number of Columns.	Click on convert text to table, a new dialog box appears. 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 The steps to insert table are given below:

Open a blank word document.

In the top ribbon, press insert.

Place the cursor where you want to insert the table.

Select the Insert tab.

In Table group click the Table command.

It displays different option to insert the table.

Select the desired option to insert the table.

Q11 Create a following marksheet in MS-excel and save it with name 'book 1'.

	A	B	C
1	ROLL NO	Name	Marks
2	1	n1	60
3	2	n2	70
4	3	n3	80
5	4	n4	90
6	5	n5	40
7	6	n6	50
8	7	n7	77
9	8	n8	44
10	9	n9	88
11	10	n10	55
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			

Student / Sheet2 / Sheet

Right - click the worksheet name tab.

Click select Move or copy.

Page

Click on the Move selected sheets to Books drop-down menu. Select (new book).

Click OK. Your new ~~network~~ workbook opens with your moved worksheet.....

Click File > Save in your new workbook.

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 Auto Sum in a range of cells (C2:C11).

Ans To Calculate the sum of a range of data using Auto Sum:

Select the Cell where you want to appear function.

Select the drop down arrow next to the Auto Sum command on home tab.

Select Sum. A formula will appear in the selected cell, C11.

This formula = SUM (C2:C11) is called a function. The Auto Sum command automatically select the range of cells from ~~B7~~ C2 to C11, based on where you inserted the function. You can alter the cell range if necessary.

Press the Enter Key. The total will appear.

= SUM (C_2:C11) = 115

- average of the marks in a range of cells (C2:C11).

Ans To calculate the average of a range of data:

Click on the first cell to be included in the formula.

Left-click and drag the mouse to define a cell range (C2 through cell C11)

Click the drop down arrow next to the Auto Sum Command.

Select Average.

- highest marks in the range (C2:C11).

Ans Highest marks in the range (C2:C11) is (A5:C5) i,e 90.

- minimum marks in a range of cells (C2:C11).

Ans Minimum marks in a range of cell (C2:C11) is (A6:C6) i,e 40.

Q13(a) Describe various steps involved in the following

- To modify Colpumn of width of a worksheet.

Ans To modify colpumn width.

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.

Ans 2 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.

Ans 2 To delete rows and columns:

Select the rows or columns you want to delete.

Click the Delete Command in the Cells group on the Home Tab.

Selected Columns or rows deleted.

Q13(b) Describe following terms in a worksheet

- Absolute references and relative references in formula

Ans 2 There are two types of cell references: relative and absolute.....
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.

- Cell Address

Ans A reference is a cell's address. It identifies a cell or range of cells by referring of the column letter and row number of the cell(s). For example, A1 refers to the cells at the intersection of Column A and row 1.

Q14(a) What tools are available to customize our Power Point presentation?

Ans Tools are available to customize our Power Point Presentation:

Home

The Home tab holds the Cut and Paste features, Font and Paragraph options, and what you need to add and organize slides.

Insert

Click insert to add something to a slide. This include pictures shapes, charts, links, text boxes, videos and more.

Design

On the Design tab, you can add a theme or colour scheme, or format the slide background.

Transistors

Set up how your slides change from one to the next on the Transitions tab. Find a gallery of the possible transistors in the Transition to This Slide group - click More ▼ at the side of the

of the gallery to see all of them.

Animations

Use the Animations tab to choreograph the movement of things on your slides. Note that you can see many possible animations in the gallery in the Animation group, and see more of them by clicking More [▾].

Slide Show

On the Slide Show tab, set up the way that you want to show your presentation to others.

Review

The Review tab lets you add comments, run spell-check, or compare one presentation with another (such as an earlier version).

View

View allows you to look at your presentation in different ways, depending on where you are in the creation or delivery process.

Tool Tabs

When you click some parts of your slides, such as pictures, shapes, SmartArt or text boxes, you might see a colourful new tab appear.

In the example above, the Drawing Tools Tab appears when

you click a shape or text book. When you click a picture, the Picture Tools tab appears. Other such tabs include Smart Art Tools, Chart Tools, Table Tools and Video Tools. These tabs disappear or change when you click something else in your presentation.

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

- Open a Blank Presentation

Ans Power point files are called presentations. Whenever you start a new project in Power Point, you'll need to create a new presentation, which can either be blank or from a template. You'll also need to know how to open an existing presentation.

To create a new presentation.

Select the File tab to go to Backstage view.

Select New on the left side of the window, then click Blank Presentation or choose a theme.

A new presentation will appear.

- Save the presentation as Labs 1 . pptx.

Ans Locate and select the Save Command on the Quick Access Toolbar.

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

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

Save as dialog box will appear.

- Add a Title for the first slide: the name of your College.

Ans Select the slide whose layout you will change so that it can have a title.

Click Home > Layout.

Slect Title Slide for a standalone title page or select Title and Content for a slide that contains a title and a bull slide text box....

Select the click to add title text box.

- Type your first name and last name in the subtitle section

Ans Open Power Point Presentation and scroll to the slide to add the signature.

Click a text box on the slide or add one by clicking the 'Insert' tab, clicking the text box button and dragging the mouse to form the text box.

Type the phrase "Created by" in the text box. Proceed to either

"With Graphic" or "By Hand" section.

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

Ans Select the slide whose layout you will change so that it can have a title.

Click Home > Layout.

Select Title Slide for a standalone title page or select Title and Content for a slide that contains a title and bull slide text box....

Select the click to add title text box.

Q15 Write steps for creation of a set of Power Point slides that demonstrates your skills to use the tools of Power Point, It should include the following things

- Title slides and bullet list.

Ans

- Inserting Excel sheet.
- Clip art and Text.
- Show Slide effects.

Ans Creating a Power Point Slide.

Step 1: Open Microsoft Power Point.

Step 2: Go to File at the top of the screen and click New. A box that says "New Presentation" should appear on the right side of your screen.

Step 3: In the "New Presentation" dialog box, click on "From Design Template". You may then scan through templates and choose one that you like.

Step4: Slide Design

Select a design template by clicking on the template that you like. You may choose a different Colour for your template by clicking on "Colour Schemes" in the "New Presentation" dialog box.

Step5: Slide Layout

Change the Slide Layout. You may change the slide layout by going to the top of the Screen and clicking on "Format" - Slide Layout". A box will appear on the right side of your screen labeled "Slide Layout." You may select a design by clicking on it.

Step6 : Adding Text

Enter your text by clicking and then typing in the box titled "click to Add Text" or "click to Add title.

Step7 : Adding Pictures

You may add pictures by clicking on

the box that says "Click to add Content". Inside that box, there will be a smaller box with six icons. Click on the icon that looks like a photograph of a mountain. A new window will open, allowing you to browse for a picture on your computer or a CD. Once you find your picture, click on it and then click "Insert".

Step 8 : Resizing Pictures

You may change the size of your picture by clicking on the picture. The picture will then have black lines around it with small bubbles or boxes in the corners. Place your mouse over the bubbles or boxes and click. Holding the mouse pointer down, drag the picture to the size you want.

Part 2

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

Ans We will now understand the differences between High-Level and ~~Low-level~~ Machine languages -

High Level Languages	Machine Language
1) It can be considered as a programmer-friendly language.	It is considered as a low-level language.
2) It is easy to debug.	It is difficult to debug.

High Level Language	Machine Language
3) It requires a compiler / interpreter to be translate into machine code.	It requires an assembler that would translate instruction.
4) It can be ported from one location to another.	It is not portable.
5) It is easy to understand.	It is difficult to understand.
6) It is less memory efficient i,e. it consumes more memory in comparison to machine language.	It consumes less memory.

Q17 Discuss about different types of C programming Language.

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

Char

The most basic data type in C. It stores a single character and requires a single byte of memory in almost all.

int

As the name suggests, an int variable is used to store an integer.

float

It is used to store decimal numbers (numbers with floating point value).

double

It is used to store decimal numbers (numbers with floating point value but it range of values is high in comparison to float).

Type	Keyward	Value range which can be represented by this data type
Character	Char	128 to 127 or 0 to 255
Number	int	-32,768 to 32,767 or 2,147,483,648 to 2,147,483,647
Small Number	short	-32,768 to 32,767
Long Number	long	-2,147,483,648 to 2,147,483,647
Decimal Number	float	1.2E-38 to 3.4E+38 till 6 decimal places

Q18 Find the output of the following expressions

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

Ans 33

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

Ans 30

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

Ans 16

Q19 Describe the syntax of the following statements

a) if - else statement

Ans The syntax of an if... else statement in C programming language is -

```
if (boolean - expression) {

/* statement (s) will execute if the boolean expression is true
*/ } else {

/* statement (s) will execute if the boolean expression is false
*/ }
```

b) for loop

Ans for(initialization statement; test expression; update statement)

```
{
// statements

}
```

c) while loop

Ans
```
while (condition) {
        statements;
}
```

d) do - while loop

Ans
```
do {
    statements
} while (expression);
```

Q20 Find the output of the following program segments

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

Ans
IMS Ghaziabad

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

Ans
IMS Ghaziabad
IMS Ghaziabad

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

Ans
Largest number is 100.