CCA- 101: FUNDAMENTALS OF IT & PROGRAMMING

ASSIGNMENT – 1

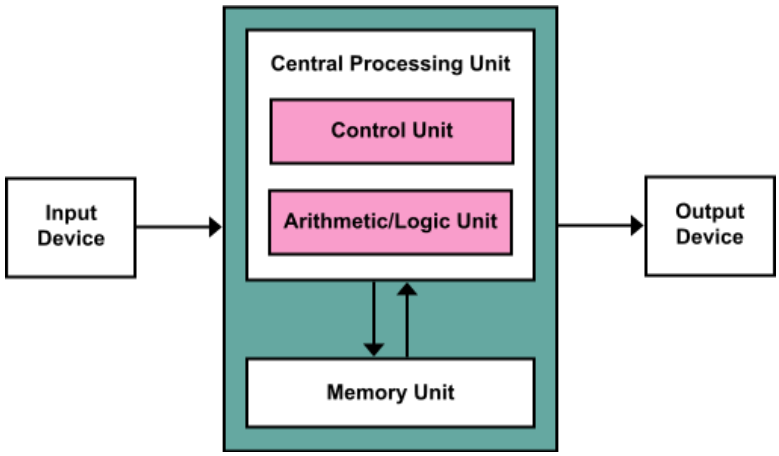
1. What are the four fundamentals parts of computer? Explain it with the help of diagram.

There are four fundamental parts of computer

- CPU (central processing unit)
- Monitor
- Keyboard &
- Mouse

CPU

A central processing unit (CPU) is the electronic circuitry within a computer that carries out the instructions of a computer program by performing the basic arithmetic, logical, control and input/output (I/O) operations specified by the instructions.



MONITER

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

KEYBOARD

A **computer keyboard** is an input device that allows a person to enter letters, numbers, and other symbols (these are called characters in a keyboard) into a computer. It is one of the most used input devices for computers.

MOUSE

A **computer mouse** is a hand-held pointing device that detects two-dimensional motion relative to a surface. This motion is typically translated into the motion of a pointer on a display, which allows a smooth control of the graphical user interface of a computer.

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

Based on size and capacity, computers are classified as follows:

- Super Computers
- Mainframe Computers
- Mini Computers
- Micro Computers

SUPER COMPUTERS

- Supercomputers are the most powerful and physically the largest by size.
- These are systems designed to process huge amounts of data.
- The fastest supercomputers can perform¬ over one trillion calculations in 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.
- Example: JAGUAR, ROADRUNNER etc.

MAINFRAME COMPUTERS

- Mainframe computers 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, reservations and ticketing for an airline etc. Example: IBM mainframes Z13, IBM System z9 mainframe.

MINI COMPUTERS

- Minicomputers 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. Example: Apple iPod, CDC 160A.

MICRO COMPUTERS

- Microcomputers 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. Example: Desktop computers, laptops.

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

MEANING OF COMPUTER GENERATION:

Generation in computer terminology is a change in technology a computer is/was being used. Initially, the generation term was used to distinguish between varying hardware technologies. Nowadays, generation includes both hardware and software, which together make up an entire computer system**.** There are five computer generations known till date.

FIRST GENERATION:

The period of first generation was from 1946-1959. The computers of first generation used vacuum tubes as the basic components for memory and circuitry for CPU (Central Processing Unit).

SECOND GENERATION:

The period of second generation was from 1959-1965. In this generation, transistors were used.

THIRD GENERATION:

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 circuitry.

FOURTH GENERATION:

The period of fourth generation was from 1971-1980. Computers of fourth generation used Very Large Scale Integrated (VLSI) circuits.

FIFTH GENERATION:

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.

4. Differentiate between Volatile & Non- Volatile memories.

TYPES OF MEMORIES:

Computer memory is of two basic types:

- Primary memory / Volatile memory
- Secondary Memory / Non volatile memory

1) Primary memory / Volatile memory:

Volatile memory is a computer storage that only maintains its data while the device is powered Example: RAM (Random access memory) is volatile. When we are working on a document, it is kept in RAM, and if the computer loses power, your work will be lost**.**

Random Access Memory (RAM):

- It is also called as read write memory or the main memory or the primary memory.
- The programs and data that the CPU requires during execution of a program are stored in this memory.
- It is a volatile memory as the data loses when the power is turned off.
- RAM is further classified into two types SRAM (Static Random Access Memory) and DRAM (Dynamic Random Access Memory).

2) Secondary memory/ non-volatile memory:

Nonvolatile memory is a type of computer memory that has the capability to hold saved data even if the power is turned off. Example: Read-only memory (ROM), Hard disk, floppy disk etc.

Read Only Memory (ROM):

- Stores crucial information essential to operate the system, like the program essential to boot the computer.
- It is non volatile.
- Always retains its data.
- Used in embedded systems or where the programming needs no change.
- Used in calculators and peripheral devices.

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

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 system software**.**

OPRATING SYSTEM:

- It is system software that manages computer hardware and software resources and provides services.
- Operating system acts as manager of all the resources of computer i.e. resource manager

OPEN SOURCE SYSTEM:

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

6. 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.

Yourself

I am Thenmozhi, coming from Dharmapuri in the state of Tamilnadu. My father name is M.Marappan, he is working at TNEB as a Account Supervisor and my mother name Is Sivagami. She is a house keeper and I have two brothers and a sister. Reading books is my Hobby when I have a free time. Now I am studying in DR. Ambedkar Government Law College, at Chennai.

Steps involved in this document:

- First, to create a new word document you click on file and select a new blank document. Then you can write in your document.
- If you want to save your document you can access it later or send it to someone else.
- If you are used to saving files in other windows programs then it is the same process with word. And there is a save menu to save your document. You can also get to the save option from the file menu. If you want to save a copy of your document with different name then you can choose a Save As option in the file menu. In the yourself document you will type the name of your document.

6. B) Write steps regarding followings

- To change the font style
- To change the font size
- To change the font color
- To highlight (in yellow) the line that reads "need to get IMS s address.

TO CHANGE THE FONT STYLE:

- First, select the text you want to modify.
- Click on font style box on the Home tab. The font style drop-down menu appears.
- Then 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 THE FONT COLOUR:

- 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:

Need to get IMS's address

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

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**

STEPS INVOLVED IN THIS DOCUMENT:

- First you select the text want to modify.
- Click on the font color command on the home tab.
- After that move your cursor over the different colors.
- Then you choose color what you want and click on color as you select.
- Finally the text color will change.
- To underline the text, select the text you want to modify and click on the underline command in the font group.
- Then the text will change as you want.
- To strikethrough the text, first you select the text want to modify.
- Click on the strikethrough command. Then it will change as a Strikethrough.
- To change the text as a bold form, select the text you want to modify.
- Click on the bold command in the font group on the home tab. Then text will change as bold letters.

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

EQUATIONS

$X_2 + Y_5 = 30$

$Z^3 + Q^4 = 50$

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

TO CHANGE A TEXT AS SUBSCRIPT

- First you select the text want to modify.
- If you want to create small letters below the text baseline, then click on the subscript command on the home tab.
- Then it will change as a subscript in the document or text.
- If you want to create a small letter just above the baseline of text, again you just click on the subscript command on the home tab, finally it will change as a subscript.

9. 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.

Text to 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.
here set number of columns.	Click on ok finally selected text convert in a table.

Steps involved in the document

- ✓ If you want to change a text as a table, first you have to select the text you want to modify or convert as a table.
- ✓ Then select the insert tab, click on the table command.

- ✓ Then the dialog box will appears.
- ✓ Then click on the convert text to table after that click your left, a new dialog box will appears there.
- ✓ Then you have to set a number how many columns you want.
- ✓ After finishing that step click OK.

- ✓ Finally the selected text will convert as a table.

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

To insert a new table in your work sheet follow these steps

- First place your insertion point in your document where you want to insert the table,
- Then select the insert tab click on the table command, then drag your mouse over the diagram to select the number of columns and rows as you need,
- Finally left click your mouse table will appears in your document then you can text inside of the table as you want.

11. Create a following worksheet in MS- excel and save it with name 'book1'.

This is home page if excel where you can click on blank workbook and the screen that appears is nothing is but your excel workbook. First thing to notice is the name of the worksheet. Excel by default save it as book 1.

Roll no	Name	Marks
1	n1	60
2	n2	70
3	n3	80
4	n4	90
5	n5	40
6	n6	50
7	n7	77
8	n8	44
9	n9	88

10	n10	55

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

1 The sum of the marks using AutoSum in a range of cells (C2:C11)

Select Cells and type formula in =SUM (C2:C11)

2. Average of the marks in a range of cells (C2:C11)

Select cells marks and select target cell formula = AVG (C2:C11)

3. Highest marks in a range of cells

Select range and select target cell =Max (C2:C11)

4. Minimum marks in a range of cells (C2:C11)

Select range and select target =Min (C2:C11)

13 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

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 want to delete.
- Click the Delete command in the Cells group on the' Home tab.
- Selected column or row deleted.

13 b) Describe following terms in the worksheet

- Absolute reference and relative reference in formula

  Absolute reference

  Absolute references do not change when copied or filled. You can use an absolute reference to keep a row and/or column **constant**.

  Relative reference

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

- **Cell address**

A cell reference in Excel refers to the value of a different cell or cell range on the current worksheet or a different worksheet within the spreadsheet. A cell reference can be used as a variable in a formula.

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

I. Crop pictures to fit shapes of pictures
II. You can play music in the background of your presentation
III. Combine shapes to create a custom shape
IV. You can add sound effects to Animations
V. Remove the background from a picture
VI. You can insert a screenshot or screen clipping to presentation
VII. You can also embed other videos

14 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

OPEN A BLANK PRESENTATION

I. Select the File tab to go to Back Stage view.
II. Select **New** on the left side of the window, click **Blank Presentation**.
III. A **new presentation** will appear.

SAVE THE PRESENTATION AS LAB1. PPTX

I. Click on the **File** tab to launch the **Backstage** view and select **Save**

II. In the **Save As** dialog, type in the file name and click "Save".

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.

ADD A TITLE TO THE FIRST SLIDE: THE NAME OF YOUR COLLEGE

I. Select the **slide** whose layout you will change so that it can have a **title**.
II. Click Home > Layout.
III. Select **Title Slide** for a standalone **title** page or select **Title** and Content for a **slide** that contains a **title** and a full **slide** text box. ...
IV. Select the Click to **add title** text box.
V. And after that I type name of my college that is Dr. Ambedkar govt law college.

TYPE YOUR FIRST NAME AND LAST NAME IN THE SUBTITLE SECTION

I. Right-click between slides and select Add Section. An Untitled Section is added in the thumbnail pane.
II. Right-click the Untitled Section and then select Rename Section.
III. **Type** a name as my name is Thenmozhi Marappan in the Section name box.
IV. Select Rename.
V. To collapse a section, click the triangle next to the section name.

ADD A NEW SLIDE WHICH HAS A TITLE AND CONTENT

I. Right-click between slides and select Add Section. An Untitled Section is added in the thumbnail pane.
II. Right-click the Untitled Section and then select Rename Section.
III. **Type** a name in the Section name box.
IV. Select Rename.
V. To collapse a section, click the triangle next to the section name.

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

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

TITLE SLIDE & BULLET LIST

- Click on new slide from the home tab. A list of thumbnails appears, outlining your various slide content options to choose from.
- Click once on the appropriate thumbnail to bring up the next slide.

To enter bullets:

- Bullets appear automatically on each line.
- Press Enter to bring a next bullet.
- To erase an unwanted bullet, click next to the bullet and press the Backspace key.
- TO indent a bullet (to make a sub point), press tab
- To undo an indent, press together with the shift key.

INSERTING EXCEL SHEET

- Click once anywhere inside the chart to select it. This launches a chart tools contextual command tab that doesn't appear on the normal editing screen.
- Make sure the design tab under the chart tools is selected and then click on edit data from the group.

CLICK ART AND TEXT

- Right-mouse click inside the shape.
- Select edit text
- Right Enter your text.
- Click on the insert tab and choose clip art from illustrations group.

SLIDE SHOW EFFECTS

- Click on the animation tab.
- Glide your mouse over each of the transition effects located in the transition to this slide group to preview them on your slide.
- Note the vertical scroll bar to the right, there are more effects to preview than are currently in the view.
- Click once on effect to select it.

- To apply the transition to the entire presentation, click on apply to all.

Part- 2

16. What is the difference between Machine Language and High Level Language?

Machine Language	High Level Language
1. Machine language is very difficult to understood by the human beings	It is easy to understand
2. It does not need to be translated.	It is needs to be translated into machine code.
3. It is the only language that is directly understood by computer	High level language cannot be understood directly by a computer.
4. All instructions use binary notation and are written as a string of 1s and 0s.	It is a programming language that uses English and mathematical symbols, like +, -, % and many others, in its instructions.

5. A program instruction in machine language may look something like this:
10010101100101001111101010011011100101
	The instruction in a high-level computer language would look something like this:
	x = 100
	if balance x:
	print 'Insufficient balance'
	else:
	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.

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

Data types in C Language

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

II. Derived data types:

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

18. Find output of the following expressions

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

=4*2+30- 5

=8+ 30- 5

=38-5

X=33

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

=30- (4+6)+10

=30- 10+ 10

=20+10

Y =30

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

=80/10-2+10

=8-2+10 =6+10

Z= 16

19. Describe the syntax of the following statements

a) If – else statement

An **if** statement can be followed by an optional **else** statement, which executes when the Boolean expression is false.

Syntax

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 */
}
```

If the Boolean expression evaluates to **true**, then the **if block** will be executed, otherwise, the **else block** will be executed.

C programming language assumes any **non-zero** and **non-null** values as **true**, and if it is either **zero** or **null**, then it is assumed as **false** value.

b) For loop

A **for** loop is a repetition control structure that allows you to efficiently write a loop that needs to execute a specific number of times.

Syntax

The syntax of a **for** loop in C programming language is −

```
for ( init; condition; increment ) {
  statement(s);
}
```

c) While loop

A **while** loop in C programming repeatedly executes a target statement as long as a given condition is true.

Syntax

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

Unlike **for** and **while** loops, which test the loop condition at the top of the loop, the **do...while** loop in C programming checks its condition at the bottom of the loop.

A **do...while** loop is similar to a while loop, except the fact that it is guaranteed to execute at least one time.

Syntax

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

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

20. 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");
  }
```

```
}
```
Output: IMS Ghaziabad

b)

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

Getchar();
Return 0;
}
```

Output:

IMS Ghaziabad

IMS Ghaziabad

IMS Ghaziabad

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);
}
```

Output : Largest number is 100