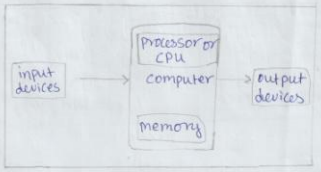
ON ASSIGNMENT OF

FUNDAMENTALS OF IT AND PROGRAMMING 101

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

Ans. The four fundamental parts of computer are :-

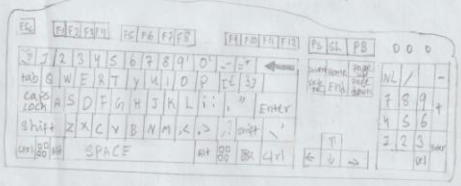
1) Input unit
2) processing unit
3) memory unit
4) output unit



1) Input unit:

Input is the data or set of instruction given to a computer. The input unit receives the data or instruction through input devices and sends it to the main memory of the computer for processing. Some common input devices are keyboard, mouse, light pen, OCR, BCR, MICR, trackball, scanner, microphone, digital camera.

keyboard: A keyboard is used to feed data into the computer. It is used to types letters and number. It is main input device for most of the computer. A keyboard usually has character printed or engraved on the keys each press of the keys correspond to a single written symbols.



mouse: A mouse is the most popular pointing device. It is has one or more button on top and a scroll wheel in the middle. The scroll wheel allows you to scroll up and down the page.

2) processing unit :

The central processing unit (CPU) is the most important component of a component of a computer. It is used for carrying out calculations and processing data. As it is responsible for execution of instructions, arithmetic and logical calculations, storing and controlling the input and output devices, it is rightly called the brain of the computer.

3). memory unit:

The memory unit stores programs and data received through the input unit. It is an area where all the instructions are stored. It is classified into following two types

> primary memory
> secondary memory

> Primary memory :- primary memory is the main memory of a computer. It is the area in a computer system wherein the data is stored for quick and direct access by computer's cpu.

> Secondary memory :- secondary memory is the cheapest from of computer memory In comparison to the main memory, it is very slow. It is stored in secondary storage devices like hard disk, CD-ROM, DVD and floppy disk, It is permanent in nature.

4) Output unit :-

The ouput unit of the computer system consist of different output devices attached to the computer. It yields the information that the computer processes based on your input. some of the common output devices are discussed in Table.

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

Ans: Based on size and capacity, computer are classified as follows :-

- Super computers
- mainframe computers
- mini computers
- micro computers

super computer

> super computers - They 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 process ors.

> Because of their extraordinary sheed, accuracy and processing power, supercomputers are well suited for solving highly complex problems and huge amounts of calculation

example: Jaguar, Roadrunner etc.

mainframe computer:

> mainframe computer are very large often filling an entire room and can process thousand of millions of instructions per second

> In a frame mainframe emvisonment users concep connect to the mainframe through the many terminals wired to the mainframe

> mainframes a much smaller than mainframes

mini computers

> 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 computer

Example: Apple ipod, CDC 160A

micro computers:

> micro computers are the most frequently used type of computer

> It is also, known as personal computer (PC).

> A micro computer is a small computer system designed to be used by one person at a time.

Example :- Desktop computers, laptops.

Q3. what is the meaning of computer generation? How many computer Generations are dejined? what technologies were/are used?

Ans The computer generation is the meaning of the evolution of digital computing is gten divided into generations. Each generation is characterized by dramatic improvement over the previous generations in the technology used to build computers, in terms of the internal organization of computer and programming languages.

There are five of computer Generation are :-

1) First Generation
2) second Generation
3) Third Generation
4) fourth Generation
5) Five Generation

First Generation is totally based an vacuum tubes (1946 - 1956):

- The first computer systems used vacuum tubes for circuitry and magnetic drums for memory
- These computers were very expensive to operate.
- computers of this generation consumed a lot of electricity
- first generation computers relied on machine language, the lowest - level programming language understood by computers to perform operations
- 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 were used and paper tape, and output

was displayed on printouts were used.

- First computers generation a lot of heat, which often the cause of malfunctions.

Example:

> The UNIVAC (universal Automatic computer)

The UNIVAC was the first commercial computer delivered to a business client, the U.S. census Bureaue in 1951

> ENIAC (Electronic Numerical Integrator and computer) computers

Second Generation: were based on Transistors: (1956 - 1963):

- Transistors replaced vacuum tubes in the second generations of computers.
- 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.
- second generation computers still relied on punched cards for input

and printouts for output

- second generation computers moved from binary machine, to language to symbolic, or assembly language.

Third generation: more based on integrate ~~ctrd~~ circuits (1964-1971)

- The development of the integrated circuits was the hall mark of the third generation of computers.
- Transistors were replaced by ~~integrate~~ integrate circuits, 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
- computers for the first time became accessible to a mass audience because they were smaller and cheaper than their predecessors.

Fourth Generation: were based on microprocessors (1971 - present).

- The microprocessor brought the fourth generation of computer as thousands of integrated circuits were built into a single silicon chip
- what in the first generation filled an entire room could now fit in the palm of the hand.
- In 198 IBM introduced its first computer for the home user.
- In 1984, Apple introduced the macintosh.
- microprocessors also moved out to the desktop computers.
- fourth generation computer also covered the development of Graphical user interface (GUI) mouse and ~~handled~~ handheld devices

Five Generation: Artificial Intelligence (present and Beyon)

- Fifth generation computing devices, based on artifial intelligence, are still in development

- There are some applications such as voice recognition, that are being use today.
- The use of parallel processing and superconductors is helping to make artificial intelligence a reality
- Quantum computation and manotechnology 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 and non-volatile memories.

Ans
- Volatile memories :- volatile memories is a computer storage that only maintains its data while the device is powered E.g 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.

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

Q5. Distinguish among system software, application software and basis of their features.

Ans 1) System software
- It is a type of software that is designed to run a computer's hardware and application programs.
- Software like operating system, compliters editors and drivers etc, come under this category.
- A computer cannot function without the present of system software.

∴ If we think of the computer system as a layers model the system software is the key interface between the hardware and user applications.

2) Application Software
- It is software created for a specific purposed 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.

3) open source ~~soff~~ software (OOS)
- 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 linuse operating system (OS) is the best-known examples of open sources software - freely available in the market.

Q6 a) Create a file in ms-word to insert a paragraph about yourself and save it with file name "yourself". Discribe all steps involved in it.

Ans you can also insert a paragraph mask as a special character into the text of your document. Click the "insert" tab, The Symbol button in the Symbols group and then "more symbols".. Click on the "special characters" tab, select "paragraph" under character, click "insert" and then "close".

A paragraph has four element-as : atopic sentence, supporting sentences a concluding sentence and transitional sentences. The first three are the essential elements or major structural parts, while the last, an additional element, which provides a smooth transition between different set of ideas.

Q.6b) write step regarding followings:
1) TO change the font style
2) to change the font size
3) TO change the font colour
4) TO heightlight (in yellow) the line that read "need to get ims's address".

Ans 1) TOchange the font style :-
- select the cell or cells you want to format
- left-click the drop-down arrow next to the font style box on the home tab.
- select a font style from the list.
As you move over the font list, the live preview feature previews the font for you in the spreadsheet

2) TO change the font size:
- ~~To~~ select the cell or cells you want to format
- left-click the drop-down arrow next to the font size box on the home tab.
- select a font size from the list.

3) TO change the text color:
- select the cell or cells you want to format
- left-click the drop-down arrow next to the text color command. A color palette will appear.
- select a color from the palette.

4) TO highligh (in yellow) the line that read "need to get ims's address"-
-> select the text.
-> click on the text highligh color in font group on the home tab.
-> various colors will appears
-> move your cursor over the various colours
-> click on colors you want to use
-> Then text highlight color will change in the document.

Q.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 caple of
- Creating
- editing
- saving and
- printing any type of document

Ans Creating and saving a new document (show me).

Step:
1) Click on the start button.
2) point the mouse to all programs
3) click microsoft office.
4) Click microsoft office word 2007
5) click on the office button and select save
6) choose the location and folder
7) write file name in the file name combo box.
8) select the type of document from the save as type dropdown list.
9) Click Save.

MS-word.

ms-word is a widely used commercial word processor develop by microsoft

ms-word is applications software, which is capable of: creating
-> creating
-> editing
- saving and
-> printing anytype of document.

Creating a new document:
-> click the microsoft office button
-> select new. the new document dialog box appears.
-> select blank document under the blank and resent section. It will be highlighted by default.
-> click Create. A new blank document appears in the word window.

Editing a document
-> open the file that you want to edit.
-> choose from the following tasks. Task step. Edit text click the edit tab. select the text that you want to edit. using the tools in the edit toolbar, change the required formatting including. font style, Paragraph alignment, list

formatting, and indentation options. Insert images.

Saving a document:

-> Left-click the microsoft office button
-> select save or save as.
-> save as allows you to name the file and choose save as if you'd like to save the file for the first time or if you'd like to save the file as a different name.
-> select save if the file has already been named.

printing anytype of document:

-> click on file tab, menu appears.
-> Then click on print and a print window will pop up on the screen.
-> finally click on OK for your document start printing.

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

Equations

$x^2 + y^5 = 30$

$z^3 + G^4 = 50$

$a_2 + b^8 = y_2 + y^8$

Ans. TO calculate and save a file in ms-word:

-> click on the start button and
-> click the ms-word
-> select the equation and click the insert. new equations
-> select script (e*)
-> select different script option
-> select the office button.
-> select save/save as.
-> type 'equation' in the file name combo box.
-> click save.

Q.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. Discribe all steps involved in it.

Ans TO convert existing text to table:

> select the tex you want to convert
> select the insert tab.
> click the table command.
> select the convert text to table from the menu. A dialog box appears.
> choose one of the options in the seperate at section. This is how word knows what text to put in each column
> . click OK. the text appears in a table.

Q10 Create a file in ms-word to insert a table in the document. Discribe all steps involved in it.

Ans Here's how to make a table from the insert table dialogue box:

1 Click on table from the menu bar. select Insert, and then table.
2. Enter the desired numbers of rows and columns
3. Choose Autofit behaviour if you want the table's cells to automatically expand to fit the text inside them.
4. Click OK to insert your table.

Q.11 Create a following worksheet in MS-excel and save it with name "book 1".

Ans Create and save a worksheet in MS. excel.

1) Click on the start button.
2) Point the mouse to all programs
3) Click microsoft office
4) Click microsoft office excel 2007
5) Click on the insert worksheet tab at the end of the sheet tabs.
6) Double-Click the sheet 1 tab.
7) Type the desired name for sheet 1.
8) Click on the office button and Sheet save
9) Choose the location and folder.
10) Write file name in the file name combo box.
11) Select the type of the workbook from the save as type dropdown list.
12) Click Save.

Q.12 Calculate the following thing 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 cell (C2:C11)
> average of the marks in a range of cell (C2:C11)
> highest marks in a range of cells (C2:C11)
> minimum marks in a range of cells (C2:C11)

Ans 1) The sum of the marks using Autosum in a range of cell (C2:C11):

- Select the cell where you want to appear function. In this example, select cell C2
- Select the drop-down arrow next to the Autosum command on home tab.
- Select sum. A formula will appear in the selected all, cell C2.
- i) The formula, =sum(C2:C11), is called a function. The Autosum command automatically selects the range of cell from C2 to C11, based on where you inserted the function. you can alter the cell range if ness necessary.

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

- Click on the first cell (in this example, C2) to be included in the formula.
- left-click and drag the mouse to define a cells range (b C2 through cell C11, in this example).
- Click the drop-down arrow next to the auto sum command.
- Select Average.

> highest marks in a range of cells (C2:C11): Indentifies the largest number in a range of cells.

> minimum marks in a range of cells (C2:C11): Identifies the smallest number in a range of cells.

Q.13a) Discribe various step involved in the following
1) To modify column width of a worksheed
2) To modify the row height of a worksheed
3) To delete row and column of a worksheed.

Ans 1) To modify column width of a worksheed:
a) position the curror over the column line in the column heading
b) and a double arrow will appears
c) left-Click the mouse, then drag the curror to the right to increase
d) The column width or to the left to decrease the column width
e) Release the column mouse button.
Another way to modify column width.
f) left-Click the column heading of a column you want to modify. The entire column will appear highlighted.
g) Click the format command in the cells group on the home tab. A new will appear.
h) Select column width to enter a specific column measurement
i) Select autofit column width to adjust the column so all the text will fit.

2) To modify the row height of a worksheet:
a) position the cursor over the row line you want to modify, and a double arrow will appear
b) left-Click the mouse, then drag the cursor

upward to decrease the row height or ~~da~~ downward to increase the row height

e) Release the mouse button

9) TO Delete row and column of a worksheet

a) select the row or ~~q~~ column you want to delete

b) click the delete command in the cells group on the home tab.

c) selected column or row delete.

Q13b) Discribe following term in the worksheet

1) Absolute reference and relative reference in formula

2) Cell Address

Ans 1) Absolute reference and relative reference in formula:

a) ~~@~~ An absolute reference solve this problem

b) Absolute reference, cell references in a formula always refer to the same cell or cell range. If a formula is copied to a difference location, the absolute reference ramain the same.

c) Absolute reference: An Absolute reference is disignated in the formula by the addition of a dollar sign ($). It can precede the column reference or the row reference, or both.

d) Relay Relative reference: cell reference in formula automatically adjust to new locations when the formula is pasted into different cell. This is called the relative reference.

e) Sometimes when you copy and paste a formula, you don't want one or more cell reference to change

2) Cell Address :

Examples of absolute reference include:

A2: The column and the row do not change when copied

A $2: The row does not change. when copied

2) Cell Address : Each rectangle in a workbook is called a cell.

Each rectangle in the worksheet is called a cell. Each cell as a name, or a cell address, based on the column and row where it is located. In below diagram name of selected cell in C3 because column head is C and row head is 3.

Q14a. what tools are available to customize our powerpoint presentation?

Ans customize presentatin option and views

1) In slide ~~mas~~ master view

2) Click on Slide side

3) select from of one of the two options

4) four more chaces, click, custom

5) select one of the options.

Q14 b) write the steps for the following action for creation of powerpoint presentation

1) open a blank presentation

2) Save the presentation as Lab1.pptx

3) Add a Title to first slide: The name of your college

4) Type your first name and last name in the subtitle section

5) Add a new slide which has a Title and content

Ans 1) Open a blank presentation: when begining a new project in powerpoint, you'll often want to start with a new blank presentation.

- Select file tab to go to Backstage view.
- Select New on the left side of the window, then Click Blank presentation.

•. A new presentation will appear.

2. Save the presentation as Lap1.pptx ÷ It is 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 crashkeep saving it. At the time of creation of new presentation (1st time) please save it with the help of following steps;

•. 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 appears in backstage view

• you'll them need to choose when to save the file and give it a file name.

• The save as dialog box will appears.

3) Add a title to first slide. The name of your college ÷ The first slide in a presentation is called the title slide. The title slide usually contains the no title of the presentation and the full name of the person presenting the show. & The name of your college is the wikipedia.

4) Type your first name and last name in the subtitle section ÷ Institution affiliation

5) Add a new slide which has a title and content ÷ To insert a new slide that contains a "Title and te content" slide layout click the "Home" tab in the Ribbon. Then click the "New slide" button in the "Slide" button group. To insert a new slide and choose the slide layout, click the drop-down part of this button.

& 15) write steps for creation of a set of power point slides that demonstrates your skill to use the tools of powerpoint. It should include the following things

> Title slide and bullet list
> Inserting Excel sheet
> Clip art and text
> Slide show effects.

Ans> Title slide and bullet list ÷

- start microsoft powerpoint
- open arbitrary existing powerpoint presentation
- click the new slide button on the formatting toolbar.
- click the bullet list layout as shown in the above figure.
- click the title placeholder

An insertion point (|) appears in the placeholder, indicating that you add text to the place holder.

> Inserting Excel sheet ÷ The great thing about the microsoft office suite is the fluid interaction of each application type. By embedding the exel document into your presentations or document you can use it to make a point more

effectively with numbers or even graphs.

1) In powerpoint, select the Insert tab and click the Insert tab.

2) click the object command in the text group

3) A dialog box will appear.

4) locate and select the desired excel file, then click insert.

It is shown in the following slide view.

> clip art and text ÷ microsoft killed clip art and replaced it with Bing image search, which in office filters for creative common images. It's one of many resources and you can still find clip art elsewhere

> slide show effects ÷ Slide effect is a presentation tool providing enhanced transitions and effects. Using a standard presentation software user interface, people can create slide presentation with movies and images in a simpler way than using a video editing software.

Q16. what is the difference between machine language and high level language

Ans Machine language:

1) A Computer programming language consisting of binary instructions which a computer can respond to directly
2) 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.
3) A computer cannot directly understand the programming languages used to create computer program, so the program code must be compiled.

Example: 01001000, 01100101, 01101100, 01101100 etc

Advantages:

1) This language makes fast and efficient use use of the computer.
2) It requires no translator to translate the code. It is directly understood by the computer.

Disadvantage:

1) All memory addresses have to be remembered
2) All operation codes have to be remembered

High-level languages:

1) A high-level languages is a programming language that enables development of a program in a much more user-friendly programming context
2) This language is a programming language with strong abstraction about the details of the computer in contrast to low-level programming language (Assembley language).
3) Ex: C, C++, Java.
4) High level languages are grouped in two categories based on execution model compiled or interpretend language
5) Complier 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 levele language program is called as object program.
6) compiler read the program at a time and searches the error free then it is converted into object program.
7) when program size is large then compiler is preferred where as inter preter read only one line of the source code and convert it to object code.

Advantages of high-level languages:

1) high-level languages are programmer friendly. they are easy to write, debug and maintain.
2) It provides higher level of abstraction from machine language
3) It is machine independent language
4) Easy to learn
5) less error phone, easy to find and debug errors
6) high level programming results in better programming productivity.

Disadvantages of high-level languages:

1) It takes additional translation times to translate the source code to machine code.
2) High level program are comparatively slower than low level programs.
3) compares to low level program, they are generally less memory efficient.
4) It cannot communicate directly to the hardware.

Q17. Discuss about different data types of C programming language

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

Following are the examples of some very common data types used in C:

1) char: The most basic data type in C. It stores a singles character and requires a single byte of memory in almost all compilers.
2) int: As the name suggests, an int variable is used to stored an integer.
3) float: It is used to store decimal numbers (numbers with floating point value).
4) double: It is used to store decimal numbers (numbers with floating point value but its range of values is high in comparison to float.

Q.18 Find the output of the following expressions
a) x = 25/5*2+30-5 b) y = 30-(40/10+6)+10
c) z = 40*2/10-2+10

Ans a) x = 25/5*2+30-5

```
#include <stdio.h>
void main () {
  int x;
  x = 25/5*2+30-5
  Printf ["x = %d", x]; // it displays the value of x
}
```

output
27

---

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

```
#include <stdio.h>
void main () {
  int y;
  y = 30-(40/10+6)+10
  Printf ("y = %d", y); // it displays of value of x
}
```

output
30

---

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

```
#include <stdio.h>
void main () {
  int z
  z = 40*2/10-2+10
  Printf ("z = %d", z); // it displays of value of x
}
```

output
38

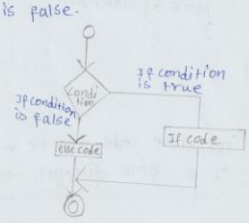
Q.19 Discribe the syntax of the following statement
a) if-else statement b) for loop c) while loop
d) do while loop

Ans a) If-else statements:

If statement can be followed by an optical else, block of statement, which excecutes when the boolean expression is false.

Syntax

```
if (expression)
{
true Block of statement;
}
else
{
else Block of statements;
}
```



b) for loop:
for loop is similar to while. Basic syntax of for loop is as follows:

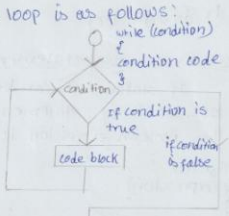
```
for (expression 1; expression2; expression3)
{
Block of statements;
}
```

In the above syntax:
1) Expression 1 - initialis variables
2) Expression 2 - conditional expression, as long as this condition is true, loop will keep executing
3) Expression 3 - Expression 3 is the modifier which

will increase or decrease the value of the variable

c) while loop:
Basic syntax of while loop is as follows:

```
while (condition)
  single statement;
OR
while (condition)
{
block of statement
}
```



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

Q.20 Find out the following program segment

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

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

output
Hello
Hello
Hello
Hello

---

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

```
i=i+1;
  }
}
```

Ans

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

Output

```
Hello
Hello
Hello
Hello
```

---

c

```
#include <stdio.h>
void main ()
{
 int a = 10, b = 100
 if (a>b)
Print f("largest number is % d\n");
else
  printf ("largest number is %d\n");
}
```


Ans

```
# include <stdio.h>
 void main ()
 {
  int a = 10 b=100
  if (a>b)
print f(" largest number is %d\n");
else
  priny (largest number is %d\n");
 }
```

when the above program is excuted, it produces the following result -

largest number is $100.