

"Good education makes a man perfect"

## Lesson - 1

### Introduction to Computer

Answer these following question :-

Ques - 1

What is Computer? Explain its different characters.

Or

Explain different strengths of Computer.

Ans - 1

Computer is an electronic device which can perform a variety of operations according to human instructions called program.

User inputs data into computer system, computer processes that data and finally gives beneficial result as output.

Computer comes from the word 'compute' which means calculation.

Charles Babbage known as 'father of computer'. Modern computer is based on Analytical Engine (developed by Charles Babbage). Ada Augusta known as world's first computer programmer.

Character of Computer

① Speed - Computer are much faster as compared to human beings. It can perform any type of task (job) in a single second which can perform any intelligent scientist in his whole life. Some factors affects the speed of the computer.

(i) Type of Task - If given work is easy than computer perform that task with high speed. In other hand, if the given task is difficult than computer perform that job with less speed.

(ii) Type of Technology - If computer system is based on latest technology than it perform the given task with high speed otherwise it take much time.

② Accuracy - Computer can perform all the calculations with a high level of accuracy.

③ High Storage Capacity - Computer can store a large amount of information in a very small space. It can store millions of data and instructions, which can be recalled even after a number of years.

④ Reliability - Computers are more reliable than human beings.

⑤ Versatility -

Computer is a very versatile machine. It means that, use of computer is not restricted to any single application on a single machine.

⑥ No Feelings -

Computers have no feelings or emotions. Therefore the decisions taken by the computer system are free of emotions.

⑦ Diligence -

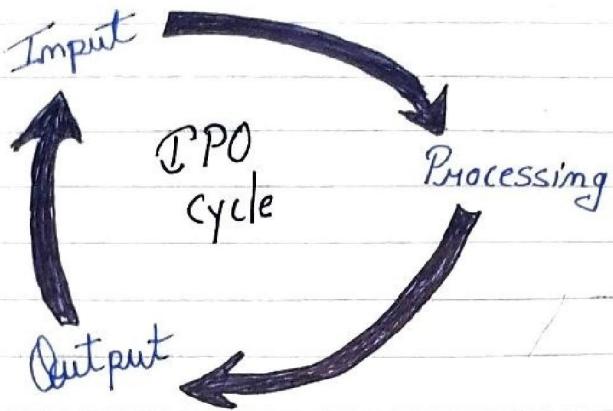
Man may be tired or bored while doing millions of calculations but computer system perform any given task without any sign of tiredness and boredom.

Ques-2

Explain the working of computer system.

Ans-2

The working of computer system is based on a cycle known as IPO cycle. In which I means 'Input', P means 'processing' and O means 'output'.



The working of human beings is also based on this cycle.

E.g.-

~~Consider a case when your mother asked you to bring a cake and toffee from the market. You go to the market and purchase both the things and finally give it to your mother.~~

In the above example, mother ordered of purchasing cake and toffee is input process. Going to market and purchasing both the things is processing and finally purchased cake and toffee are output.

Ans-3

Explain different operations function of the computer system.

Ans-3

## 1- Data Inputting -

In this step, computer system inputs data or information inside the computer, using some input devices like - keyboard, mouse, joystick, barcode reader, touch screen, light-fun etc.

## 2- Data Storing -

~~In this step, computer system stores data or information for the further use. Using some memory devices like - hard disk, RAM, ROM, cache memory etc.~~

## 3- Data Processing -

~~In this step, computer system process input data using central processing unit (C.P.U)~~

## 4- Data Controlling -

~~In this step, computer system controls all the activities.~~

## 5- Data Outputting -

~~In this step, computer provides result or output using some output devices like, printer, monitor, speaker, projector etc.~~

Explain the different generations of computer system.

Ans - 4

The development of the computer system divided into five different parts. Each part is known as generation. There are five different generations.

### I- First generation (1946 - 1955)

The first generation computer used vacuum tubes technology. Machine language was used for giving instructions. The first generation computer used the concept of "stored program" that was given by Dr. John Von Neumann.

Some other character of this generation are as follows:-

- (i) Computer were very large in size and perform operations at low speed.
- (ii) Large air conditioners were necessary because the computers generates a lot of heat when used.
- (iii) Identification and Rectification of error was very difficult.
- (iv) Computers were very expensive.
- (v) Programming in machine level language

Some computers of the first generation are ENIAC, EDVAC, UNIVAC-1 etc.

## 2- Second generation (1956-1965) -

The second generation computer used Transistor. Transistor was developed by Bardeen, Brattain, Shockley in 1946. These computer covers less space and required only 1/10 of the power used by vacuum tubes. Major event during this period was the invention of Magnetic core memory.

Some key features of Second generation are as follows :-

- (i) Transistor replaced vacuum tubes
- (ii) Generated less heat
- (iii) Core Memory developed
- (iv) First computer operating system developed.
- (v) Programming in machine language as well as in assembly language.

## 3- Third generation (1966-1971) -

The third generation computer replaced transistors with integrated circuit (IC). The integrated circuit was invented by Jack Kilby at Texas University in 1958.

Some key features of third generation are as follows :-

- (i) Integrated circuits developed.
- (ii) Computers were small, faster and reliable.

- (ii) Power consumption was low
- (iv) High level language appeared

#### 4- Fourth Generation (1972 - 1984) -

The development of the microprocessor chip marked the beginning of fourth generation computer. During this period large scale integrated circuit technology developed into very large scale integrated circuit technology. VLSI is also known as microprocessor.

~~Semi-conductor memory, replaced magnetic core memory. Computer costs came down so rapidly.~~

Some key features of fourth-generation computer are as follows :-

- (i) Portable computer developed
- (ii) Great development in the field of data communication
- (iii) The speed of micro-processor and size of main memory (RAM) as well as the size of hard disk rapidly increase.
- (iv) Different types of secondary storage devices with fast data access method developed.

(5)

Fifth Generation (1985 - present time) -

Fifth Generation computing devices based on artificial intelligence (AI), which are still in development.

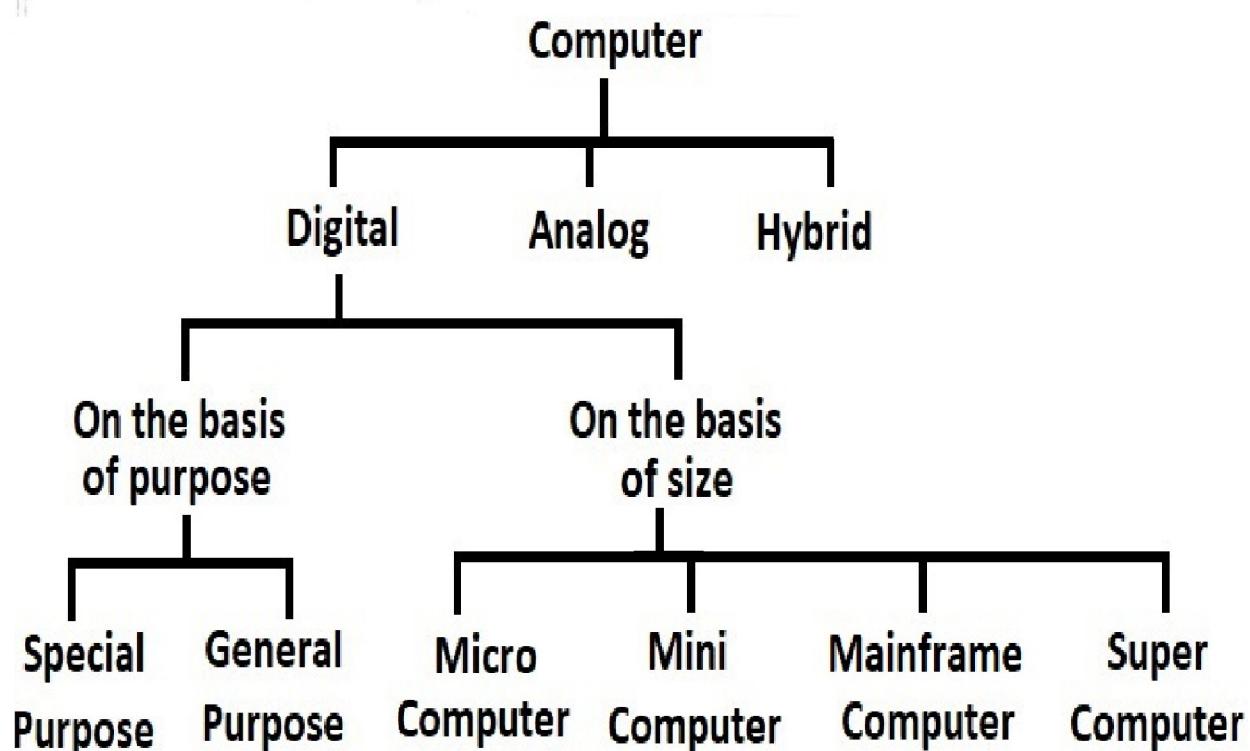
Intelligent Robots are examples of Fifth Generation computers that could see their environment and could be programmed to carry out certain tasks without step by step instructions.

Intelligent systems that could control the route of a missile and defense systems.

Ques-5

Write about the different types of Computers.

Ans-5



The computers are classified into following categories -

1-

## Digital Computer -

The Digital Computer worked upon discrete quantities (0,1). They convert data into binary digits. These computer only understand 0 and 1. These computer are much faster and more accurate than other computers. Computer used for business and scientific applications are digital computer.

Digital computer can be sub-divided into following categories :-

On the basis of size computer are of following types -

a-

### Micro Computer -

A micro-computer is a computer whose C.P.U is microprocessor. These computers are mainly used in offices, homes, schools, shops etc. Some popular computer of this range are - Desktop computer, Laptop computer, Palmtop computer, Tablet PC, etc.

Dr.

### Mini Computer -

Mini computers are also known as mid-range server, these computers are more powerful than micro-computers in terms of processing power and capabilities. Mini computers are mainly multiuser systems where many user work on the system at a single time. Some popular mini computers are PDP-II, Magnum, Vax 7500 etc.

c-

### Mainframe Computer -

These computers are designed to handle huge volume of data and information. These can support more than 100 users at the same time. Mainframe computers have great processing speed and very large storage capacity as compared to micro and mini computers. These computers are multi-user and multiprocessor system. We can say these computers work with more than one processor at the same time. Some mainframe computers are - ICL-39, CDC 6600, VAX-8842, IBM-4381 etc.

d-

### Super Computer -

Super computer are the most powerful among digital computers. These computers are capable of handling large volume of data. These computer can perform millions of instructions per-second. Some of the today's super computer has the computing capability, equal to that of 40,000's micro-computers.

These computers are mainly used in applications like weather forecasting, nuclear-science-research, Aerodynamic modeling etc. Some super computers are CDC-205, PACE, PARAM, ANURAG etc.

On the purpose computers are of following types -

a- Special purpose Computer -

It is designed to perform a specific task, these computers work efficiently but such computer are not versatile.

b- General purpose Computer -

These computers are very versatile. We can work on different types of programs using general purpose computer.

2- Analog Computer -

Those computers in which data can be performed using analog signals are known as analog Computer. In these computers computations are carried out with physical quantities such as voltage, length, current, temperature, humidity etc.

Analog computers operate by measuring rather than counting. These computers are faster but their accuracy is poor as compared to digital computer. Analog computers are mostly used in engineering and scientific application.

### 3- Hybrid Computer -

Hybrid Computer utilises the best quality of both the digital and Analog computer. In these computers some calculation takes place like analog computer and remaining computations takes place like digital computer. These computers are used in Hospitals, weather forecasting department etc.

### Ans-6

Write a short note on evolution of Computer.

### Ans-5

Present day computer is the result of hard work and research done by man. In olden days, people used stones for counting or made sketches, scratches on a wall or tied knots in a rope to record information but all these were manual computing techniques. Attempts had been going on for developing faster computing devices and the first achievement was Abacus.

### 1- Abacus -

This was the first mechanical device developed by Chinese around 3000 years before B.C. It is a rectangular wooden frame which is divided into two segments

Each segment has rods with moving beads on them. Addition and Subtraction were performed by the movement of beads.

### 2- Napier's Logs and Bones -

John Napier

developed the idea of logarithm. He used logs to perform multiplication problems. Using Napier's bones both multiplication and division is also performed.

### 3- Pascal's Adding Machine -

A French Mathematician

Blaise Pascal invented a machine in 1642 known as pascal's adding machine. This machine is also known as pascaline. This machine is used for performing arithmetic.

### 4- Jacquard Loom -

Joseph Jacquard was a French man who was a loom designer. He developed a loom in 1804, that used punched card for producing huge number of design and patterns for the fabrics.

### 5- Difference Engine -

In 1812, an English Mathematician Charles Babbage developed a machine which is known as difference engine. This difference engine could evaluate the mathematical

algebraic equation and at the same time it could calculate logarithm table.

### 6- Analytical Engine -

This machine was an advanced form of Difference engine and it was developed by Charles Babbage in 1833. The unique feature of this machine was — it was controlled by computer programs. This machine was divided in four parts — input unit, output unit, mill and storage unit. Modern day computer is also based on analytical engine.

### 7- Mark-I -

Professor Harvard Aiken, in USA, constructed the first electromechanical machine named as mark-I. in 1943. This machine could multiply two digits in 5 seconds. A second at that time. This was the first machine which can controlled by computer programs without any manual interference.

### 8- ENIAC -

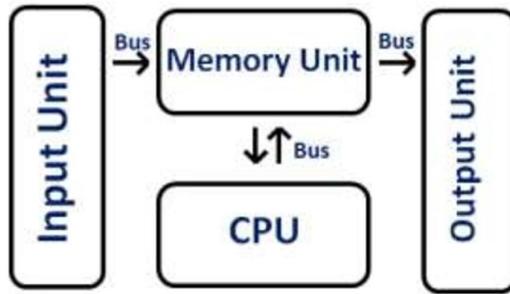
This was the first electronic computer developed by Presper Eckert and John W. Mauchley in 1945. ENIAC stands for electronic numeric integrator and calculator. This machine can perform 5000 addition and 350 subtractions in 1 minute.

~~It stands for electronic discrete variable automatic computer. This was developed by Professor Maurice Wilkes in 1950, at Cambridge University in UK.~~

Q7 Define the different functional units of Computer System.

Ans: – Following are some of the important functional units of Computer System –

- 1) **Input Unit:** – That unit through which we can input data inside computer system using some input devices like Keyboard, Mouse, Light Pen, Joy Stick, Track Ball, Web Camera etc. is called Input Unit.
- 2) **Memory Unit:** – That unit through which we can store data inside computer system using some storage devices like HD, CD, PD, DVD, Memory Card etc. is called Memory Unit.



Block Diagram of Computer System

- 3) **Central Processing Unit (CPU):** – CPU Stands for Central Processing Unit. It processes data and produces output. CPU is also known as brain of computer system.
- 4) **Output Unit:** – That unit through which we can obtain result from computer system using some output devices like Monitor, Speaker, Plotter, Printer etc. is called Output Unit.

Q8 What is Data? Explain its different types.

Ans: – Computer data is information. This information may be in the form of text documents, images, audio clips, software programs or other types of data. Computer data may be non-meaningful which becomes meaningful after processing. Computer data may be processed by the computer's CPU and is stored in files and folders on the computer's hard disk.

Following are some important types of data –

- 1) **Alphabetic or Text Type Data:** – That data which is used in the form of alphabets (A-Z or a-z) called Alphabetic or Text Type Data. Example – Student's name, Student's father name etc.
- 2) **Numeric Data:** – That data which is used in the form of digits (0-9) called Numeric Data. Example – Students DOB

- 3) **Alphanumeric Data:** – It is the combination of Alphabetic and Numeric Data. Example – Students address
  - 4) **Sound Data:** – That data which is used in the form of audio called Sound Data. Example – mp3 songs
  - 5) **Image Data:** – That data which is used in the form of image called Image Data. Example – Student's Photo, Chart, Graph etc.
  - 6) **Video Data:** – It is the combination of Sound and Image Data. Example – Video songs
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Q9 Classify Data.

Ans: – Data can be classified into following categories –

- 1) **Input Data:** – Whenever we enter data into our computer system, it is referred to as input data.
  - 2) **Output Data:** – Whenever we obtain result from computer system, it is referred to as output data. Output may be true or false.
  - 3) **Information:** – That accurate (true) result which we obtain from computer system through Output Data called Information.
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Q10 What is similarity and difference between Output and Information?

Ans: – **Similarity:** – Output and Information both are results.

**Difference:** – Output may be true or false but Information always true.

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Q11 Write the different drawbacks of Computer.

Or

Write the different limitations of Computer.

Ans: – Despite its various features, a computer does have the following limitations –

- 1) **No self-intelligence:** – Today, a computer is able to do a work which is impossible for man. Computers are used to do risky and dangerous work and where sharp actually is needed. But it does not have any intelligence of its own. It works according to the instruction only.
- 2) **No decision making power:** – Computer cannot take any decision of its own. It does only those tasks which are already instructed to it.

- 3) **No learning power:** – Computer has no learning power. Once we give instructions to a computer how to perform a task, the very task is cannot perform if we do not give it any instructions for the next time. For example, when we are taught how to solve a problem and if same type of problem is given us to solve, then we can do it.
- 4) **Emotionless:** – Computers are emotionless. They do not have emotion, like dislike feelings. They are simply machines which work as per the instruction given to them.
- 5) **Caution:** – Excessive use of computers is causing various types of health injuries such as cervical and back pain, pain in eye etc.

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