Grade-IX INF (9)

Computer Definition:-

A computer is an electronic device that accepts raw data as input, processes and store it, and produces useful information as output quickly and accurately.

The word "computer" is derived from the Latin word "computare" which means to calculate.

Computer system is an integrated set of hardware and software designed to perform variety of tasks. Computer system typically have input/output (I/O) unit, a central processing unit (CPU), and a memory unit.

features of Computer system

i. speed
ii. Accuracy
iii. Automation
iv. Diligence
v. versatile
vi. Storage
vii. Reliability.. etc.

Explanation of features of computer system

① speed:-

Data processing speed of computer is very high. Computer can process billions of instructions in a second. speed of computer is measured in hertz(Hz).

frequency calculated as:- $Hz = \frac{1}{second}$ | $MHz = \frac{1}{microsecond}$

Time speed measuring units

Second = 1×10^{0} sec
mili second (ms) = 1×10^{-3} sec
Micro second (μs) = 1×10^{-6} sec
nano second (ns) = 1×10^{-9} sec
pico second (ps) = 1×10^{-12} sec
femto second (fs) = 1×10^{-15} sec
Atto second .. = 1×10^{-18} sec

In terms of speed, A computer works very fast.

ii) **Accuracy :-**

A Computer gives 100% correct and accurate results if the input and instructions are correct. wrong output usually happens because of wrong data given. (Garbage in, Garbage out) GIGO. (wrong data given, wrong information is generated).

iii) **Automation :-**

Automation is the ability of a computer to perform tasks automatically after receiving instructions. once the instructions are provided, Computer performs tasks automatically without intervention of the human/user.

iv) **Diligence :-**

Computer can perform the same task repeatedly with the same speed and accuracy without getting tired or bored. A computer never gets tired.

v) **versatile :-** A computer can perform many different types of tasks. A computer has wide range of application Areas.

vi) **Storage :-** A computer can store huge / large amount of data. It can stores photos, videos, documents, and Software.

vii) **Reliability :-** A computer gives consistent and trustworthy results. computer performs the same task accurately every time.

viii) **No Intelligence or feelings :-** A computer cannot think or make decisions by itself. It follows the instructions given by the user. It has no emotions or common sense.

Points to Remember

Speed	Performs tasks very quickly.
Accuracy	Give correct results.
Diligence	Never gets tired
Storage	Store a large amount of data
Automation	works automatically after instructions
versatility	Performs many different tasks
Reliability	Gives consistent results
NoIntelligence	cannot think or decide by itself

Application Areas of Computer system.

Application Areas of Computer system means where the Computer systems are used. In recent days, computers are used everywhere to make work faster, easier and more accurate.

1. Education
2. Business
3. Banking
4. Hospitals (Healthcare)
5. Communication
6. Science and Research
7. entertainment
8. Transportation
9. Government offices
10. Industry and manufacturing
11. Aviation
12. Robotics
13. Computer-Aided Design (CAD)

(1) Education :- Computers are used for teaching and learning. Students use computers for online classes, assignments, and exams.

(2) Business :- Computers help keep business records and accounts. Computers are used to prepare bills and manage sales.

(3) Banking :- Computers store customer account information, computers are used for ATM services and online banking.

(4). Hospital (Healthcare) :- Computers store patient records and medical reports. Doctors use computers to diagnose disease and prepare prescriptions.

(5) Communication :- Computers help people to exchange information quickly. Computers are used for email, video calls, and messaging.

(6) Science and Research :- Computers help scientists to perform research and experiments. Computers are used to analyze data and make accurate calculations.

(7) Entertainment :- Computers are used to watch movies and listen to music. People also use them to play games and create videos.

(8) Transportation :- Computers are used for ticket booking and reservations. Computers also help to manage traffic and to track vehicles.

(9) Government :- Computers store citizen records safely. Computers are used to provide online government services.

(10) Industry :- Computers control machines and increase production. Computers help design products and improve quality.

11) Aviation (Airplanes & Helicopters):-
Computers are used to control and monitor aircraft systems. Computers help in flight navigation and ticket booking.

12) Robotics:
Computers control robots to perform different tasks. Robots are used in factories, hospitals and in dangerous tasks.

13) Computer-Aided Design (CAD):-
CAD is used to create and edit designs on a computer. Engineers and architects use CAD to design machines, buildings, and products.

Block Diagram of Computer System / functions of a Computer system:

⇒ functions of computer system is based on IPOS (input, process, output and storage)

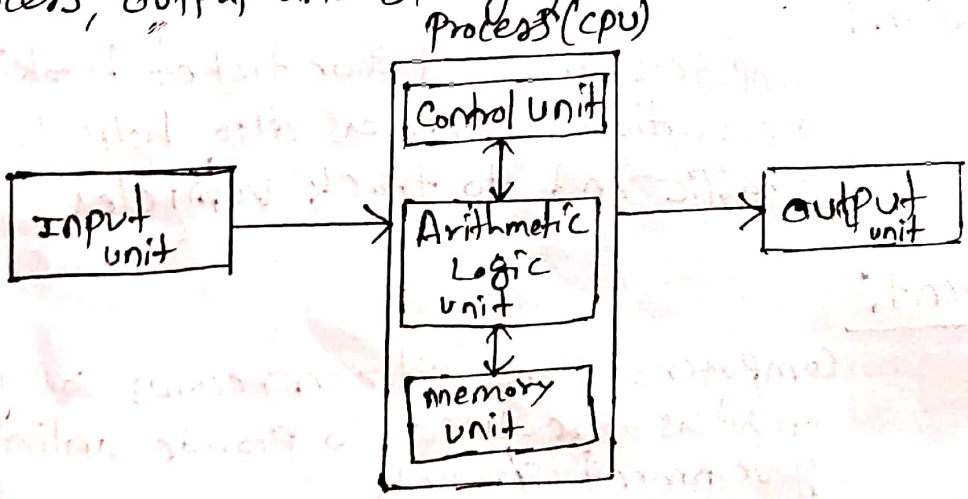

figure:- Input-process-output-Storage / Block diagram of computer system.

1. Input unit :-

Input unit receives data and instructions from the user and sends them to the cpu.
eg keyboard, mouse, scanner, microphone etc.

2. CPU (central processing unit) :-

CPU processes data and controls all activities of the computer. It is called the brain of the computer. CPU has different components :-

① Control unit :- CU controls and coordinates all the parts of the computer.

② ALU :- ALU stands for Arithmetic Logic unit. ALU performs arithmetic and logical operations.

(i) Arithmetic :- Addition (+), subtraction (-), multiplication (*), Division (/), Remainder (%).

(ii) Logical :- compare numbers (>, <, ==).

③ Memory unit :- MU stores data, instructions and processed data/results. eg RAM, ROM, SSD, Hard Disk, Registers, cache etc

3. output unit :-

output unit displays or produces the processed information for the user.

eg Monitor, printer, speaker, Projector, Headphones, Earphone, Plotter, etc.

Summary (Points to know)

Ipo cycle / working of a computer

Input	Users enters data using an input devices.
processing	cpu processes the data with the help of ALU etc.
Storage	processed data can be stored in memory
output	final result is displayed through an output devices.