COMPUTER   SCIENCE
GRADE: XI

Why you choose Computer Science ????

Information & Communication Technology

ICT Future is Bright

- ❖ Nearly every business uses business system - and that need is expanding

- ❖ All large corporations rely heavily in IT

- ❖ Business need Business system and people to design, develop and manage them

- ❖ Becoming more fundamental to many fields

- ❖ Very broad in scope and applicability

ICT and COVID

..... interaction .....

Course Outline

Theory : 75 Marks

Practical : 25 mark

Text Book :   Computer Science –I ,Sulav Publication

Chapter -1 Computer System

1.1 Introduction of computer

1.1.1 Definition, characteristics and
application of computer

1.1.2 Evolution of computer technology

1.1.3 Measurement unit of processing speed
and storage unit

1.1.4 Super, Mainframe, Mini and
Microcomputers

1.1.5 Mobile Computing and its Application

What is Computer ?

❖ Derive from the Greek word "Computare" which means to calculate

❖ A computer is an **electronic device** which **accept data from input device** process it into useful information ,display result on output device and store it upon requirement .

❖ It has the ability to accept data (input), process it, and then produce outputs.

❖ Computers can also store data for later uses in appropriate storage devices, and retrieve whenever it is necessary.

What is Computer ?

❖ Takes data   from Input unit

❖ Process data in Processing Unit

❖ Display output   through   Output Unit

❖ Store result in Storage Unit

❖ Used for a variety of purposes ranging from simple task to   complex browsing the web, writing documents, editing videos, creating applications, playing video games, etc.

❖ Size varies   from small   to large

Some Basic Term

Data :

❖ Raw fact and figures about person ,place and things that don't provide any meaningful result

❖ Can be in the form of text ,number ,sound,image

❖ Need to convert to get meaningful information

❖ For Example : 2 ,Ram, Male

Information:

❖ Processed data which gives meaningful result

❖ Process of converting data to Information is called data Processing

❖ For Example : Roll No: 2 ,Name :Ram, Gender: Male

Some Basic Term

Instruction :

❖ Command given to the computer to perform specific task

❖ For Example : Ctrl + P

❖ Component of program

❖ Collection of instruction form Program

Program :

❖ Set of instruction to perform specific task in a computer

❖ Component of Software

❖ Collection of program form Software

Some Basic Term

Hardware

❖ Physical or Tangible part of computer

❖ For example Keyboard , Mouse ,CPU ,Monitor

Software:
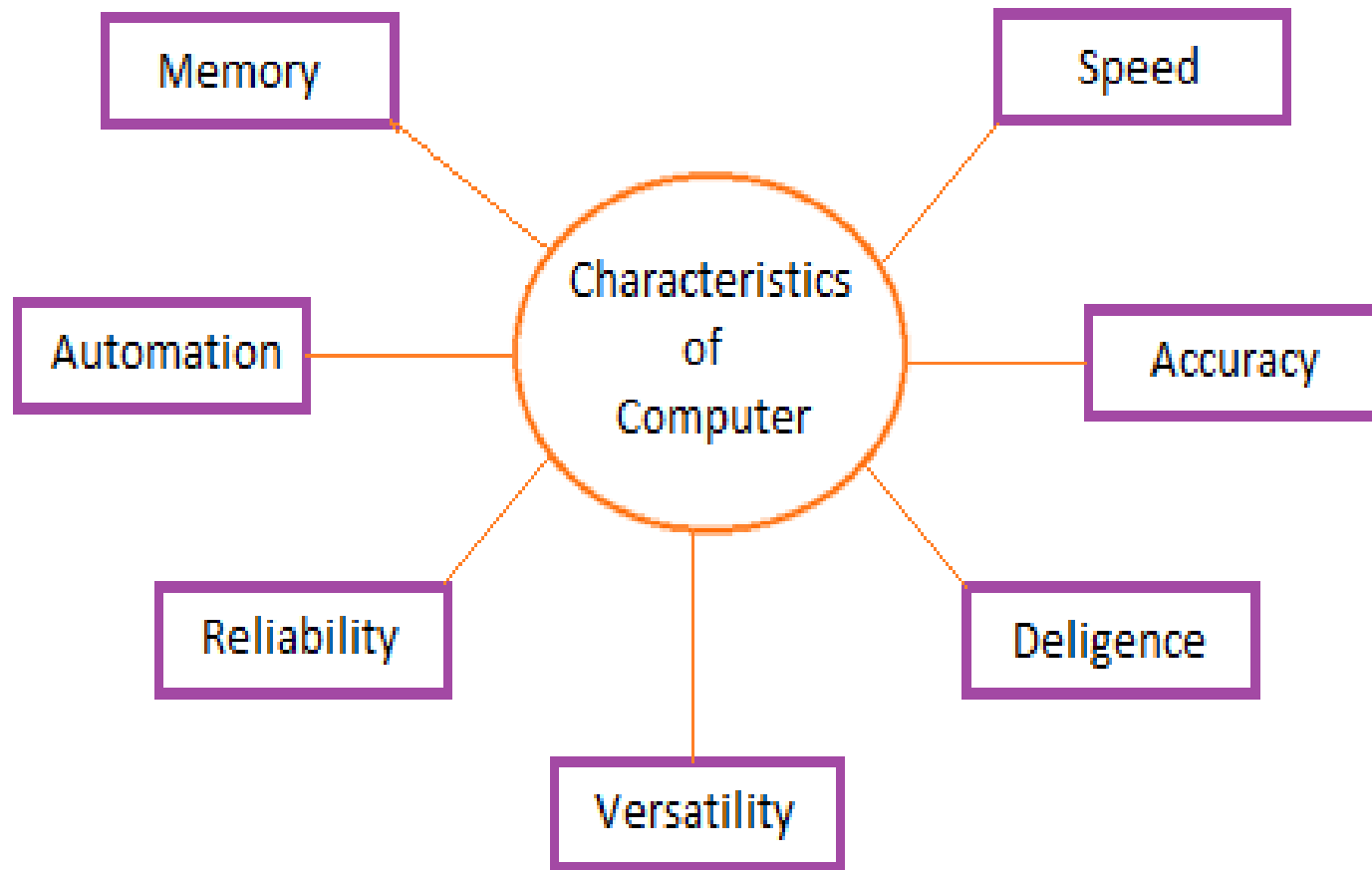
❖ Collection of program to perform specific task

❖ Intangible part of computer

❖ Written by the programmer based on the requirement

❖ May be different types like System Software ,Application software

❖ For example MS word , Photoshop,Linux ,Windows

Some Basic Term

Firmware :

❖ Set of micro instruction stored in a chip

❖ software program permanently written into a hardware device such as a keyboards, hard drive, BIOS, or video cards.

❖ It is programmed to give permanent instructions to communicate with other devices and perform functions like basic input/output tasks

❖ For example : BIOS

Characteristics of Computer

Characteristics of Computer

Electronic :

❖ Perform Operation with the help of electricity

❖ Most of the computer's parts are electronic made of semiconductor chip

High Speed :

❖ Can perform task at very high speed

❖ Speed is measure in terms of fraction of second like milli second ,micro second ,Pico second

❖ Time used by computer to perform an operation is called Processing speed

❖ The speed at which a CPU executes instructions is called the clock rate

Characteristics of Computer

Accuracy :

❖ Provide result without any   error

❖ If any error occurs that is due to wrong input or hardware error known as Garbage in Garbage out(**GIGO**) or **Bug**

❖ Can perform large   number of calculation without any error

Versatility

❖ A computer is a very versatile machine.

❖ A computer is very flexible in performing the jobs to be done.

❖ This machine can be used to solve the problems related to various fields.

❖ At one instance, it may be solving a complex scientific problem and the very next moment it may be playing a card game

Characteristics of Computer

Storage Capability

❖ Memory is a very important characteristic of computers.

❖ A computer has much more storage capacity than human beings.

❖ It can store large amount of data.

❖ It can store any type of data such as images, videos, text, audio, etc.

Diligence

❖ Unlike human beings, a computer is free from monotony, tiredness, and lack of concentration.

❖ It can work continuously without any error and boredom.

❖ It can perform repeated tasks with the same speed and accuracy

Characteristics of Computer

Reliability

❖ A computer is a reliable machine.

❖ Modern electronic components have long lives.

❖ Computers are designed to make maintenance easy.

Automation

❖ Computer is an automatic machine.

❖ Automation is the ability to perform a given task automatically.

❖ Once the computer receives a program i.e., the program is stored in the computer memory, then the program and instruction can control the program execution without human interaction

Limitations of Computer

No I.Q.

❖ A computer is a machine that has no intelligence to perform any task.

❖ Each instruction has to be given to the computer.

❖ A computer cannot take any decision on its own.

Dependency

❖ It functions as per the user's instruction, thus it is fully dependent on humans.

No Feeling

❖ Computers have no feelings or emotions.

❖ It cannot make judgment based on feeling, taste, experience, and knowledge unlike humans

Application Area of Computer

Banking

- ❖ Today, banking is almost totally dependent on computers.

- ❖ Banks provide the following facilities –

- ❖ Online accounting facility, which includes checking current balance, making deposits and overdrafts, checking interest charges, shares, and trustee records.

- ❖ ATM machines which are completely automated are making it even easier for customers to deal with banks

- ❖ Used to provide various service like Mobile Banking ,Internet Banking

Application Area of Computer

Insurance

- ❖ Insurance companies are keeping all records up-to-date with the help of computers.
- ❖ Insurance companies, finance houses, and stock broking firms are widely using computers for their concerns.
- ❖ Insurance companies are maintaining a database of all clients with information showing –
- ❖ Procedure to continue with policies
- ❖ Starting date of the policies
- ❖ Next due installment of a policy
- ❖ Maturity date
- ❖ Interests due
- ❖ Survival benefits
- ❖ Bonus

Application Area of Computer

Education

❖ The computer helps in providing a lot of facilities in the education system.

❖ The computer provides a tool in the education system known as CBE (Computer Based Education).

❖ CBE involves control, delivery, and evaluation of learning.

❖ Computer education is rapidly increasing the graph of number of computer students.

❖ There are a number of methods in which educational institutions can use a computer to educate the students.

❖ It is used to prepare a database about performance of a student and analysis is carried out on this basis.

Application Area of Computer

Marketing

❖In marketing, uses of the computer are following –

❖**Advertising** – With computers, advertising professionals create art and graphics, write and revise copy, and print and disseminate ads with the goal of selling more products.

❖**Home Shopping** – Home shopping has been made possible through the use of computerized catalogues that provide access to product information and permit direct entry of orders to be filled by the customers

Application Area of Computer

Healthcare

❖ Computers have become an important part in hospitals, labs, and dispensaries.

❖ They are being used in hospitals to keep the record of patients and medicines.

❖ It is also used in scanning and diagnosing different diseases.

❖ ECG, EEG, ultrasounds and CT scans, etc. are also done by computerized machines.

❖ Following are some major fields of health care in which computers are used.

❖ **Diagnostic System** – Computers are used to collect data and identify the cause of illness.

❖ **Lab-diagnostic System** – All tests can be done and the reports are prepared by computer.

❖ **Patient Monitoring System** – These are used to check the patient's signs for abnormality such as in Cardiac Arrest, ECG, etc.

❖ **Pharma Information System** – Computer is used to check drug labels, expiry dates, harmful side effects, etc.

❖ **Surgery** – Nowadays, computers are also used in performing surgery.

Application Area of Computer

Engineering Design

❖ Computers are widely used for Engineering purpose.

❖ One of the major areas is CAD (Computer Aided Design) that provides creation and modification of images. Some of the fields are –

❖ **Structural Engineering** – Requires stress and strain analysis for design of ships, buildings, budgets, airplanes, etc.

❖ **Industrial Engineering** – Computers deal with design, implementation, and improvement of integrated systems of people, materials, and equipment.

❖ **Architectural Engineering** – Computers help in planning towns, designing buildings, determining a range of buildings on a site using both 2D and 3D drawings

Application Area of Computer

Military

❖Computers are largely used in defence. Modern tanks, missiles, weapons, etc.

❖Military also employs computerized control systems. Some military areas where a computer has been used are –

❖Missile Control

❖Military Communication

❖Military Operation and Planning

❖Smart Weapons

Application Area of Computer

Communication

❖ Communication is a way to convey a message, an idea, a picture, or speech that is received and understood clearly and correctly by the person for whom it is meant.

❖ Some main areas in this category are –

❖ E-mail

❖ Chatting

❖ Usenet

❖ FTP

❖ Telnet

❖ Video-conferencing

Application Area of Computer

Government

❖Computers play an important role in government services. Some major fields in this category are –

❖Budgets

❖Sales tax department

❖Income tax department

❖Computation of male/female ratio

❖Computerization of voters lists

❖Computerization of PAN card

❖Weather forecasting