-:- Computer Fundamental -:- Top - 20

(C.A).

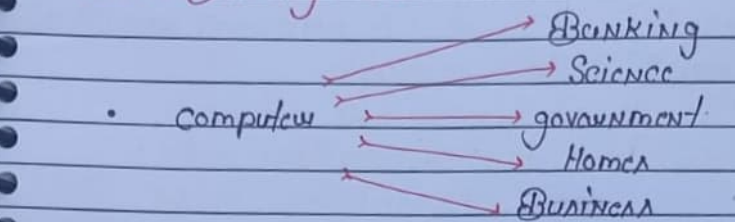
Q1 -> Explain computer and describe the uses of computer.
Q2 -> what is an operating system ?
Q3 -> Explain the Types of computer.
Q4 -> what is mail merge ? Explain mail merge in word.
Q5 -> Difference between Primary memory & secondary memory
Q6 -> Describe Alu, cpu, cu.
Q7 -> Explain Algorithms & Flowchart with Example.
Q8 -> Explain input and output device's with suitable Example.
Q9 -> Explain Programming Language's.
Q10 -> what is Number system ? Explain with Example.
Q11 -> what is cryptographic ?
Q12 -> Describe software & Hardware with suitable Example.
Q13 -> Solve the following :-

- $(80)_{10}$ -> $(\quad)_2$
- $(1011)_2$ -> $(\quad)_{10}$
- $(1010)_2 + (0101)_2$ -> $(\quad)_2$
- $(00110)_2 - (00011)_2$ -> $(\quad)_2$

Q14 -> Explain topology's in computer.
Q15 -> Explain LAN, MAN, WAN.
Q16 -> Explain internal & External command in dos.
Q17 -> Explain Total Phase in software developing.

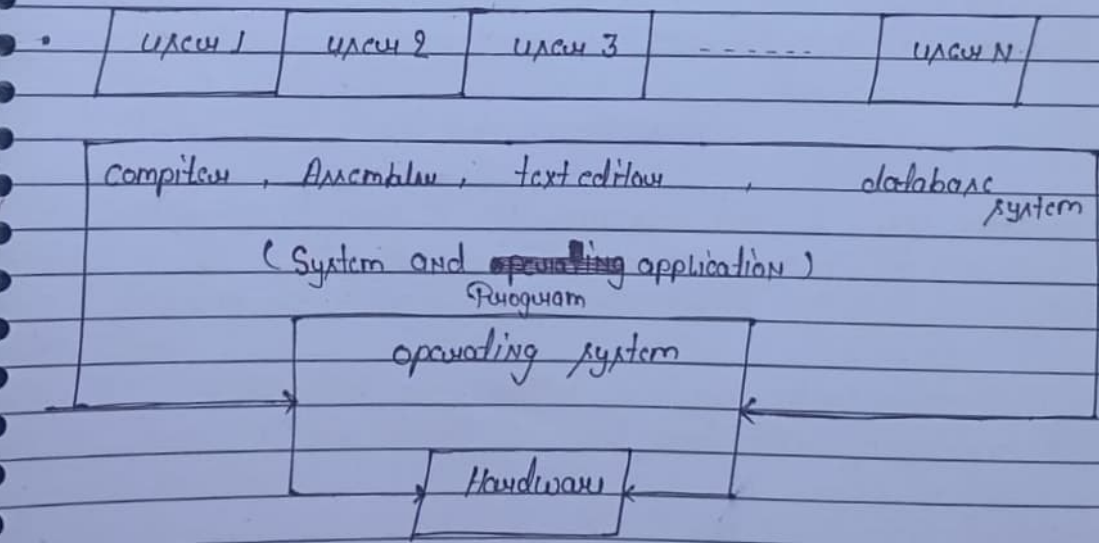
1=> A computer is an electronic machine that manipulates information, or data it has the ability to store, retrieve, and process data.

Computer use in business, science, government, Homes, Banking etc.



2=> An operating system (OS) is a collection of software that manages computer Hardware resources and provides common services for computer.

operating system is the interface between user and Hardware: it is the most important type of system software in a computer system.



=> Linux, UNIX, mac os, windows, MS-dos etc.

3.) mini computer -> mini computer are smaller, less expensive, and less powerful, then main frame or super computer. but powerful then personal computer.

- Super computer -> in 1976, "Roger cray" was the first discoverer of a "Super computer" These computer can be used in scientific research areas for analyzing data obtained from Exploring the solar system, satalites etc.

- workstation -> workstation are computer that are designed to serve a single user and may include unique hardware.
  designed for technical or scientific application.

- micro computer -> A micro computer is also known as a personal computer. These devices can be described as general-purpose computer. micro computer have a microprocessor as a "cpu", an input unit storage area and output unit.

- mainFrame -> main-frame computer have a large amount of memory and processors and can perform billions of transaction and simple calculation in real-time.
  Computer also ~~called~~ control other system. such as air-traffic control and military defence system.

4 -> Mail merge let's you create both documents that are personalized for each recipient for example from letter might be personalized to address each recipient by name a data source like a list spreadsheet our database is associated with the documents place-holder - called merge-fields - tell word where in the document to include information from the data source.

5 ->

Primary	<->	Secondary
• Primary memory is main memory and storage data temporary.		• Secondary memory is the external memory and storage data permanently.
• The cpu can direct access the data.		• The cpu can not direct access the data.
• Primary memory is a volatile memory it loose the data when computer power off.		• Secondary memory is a non-volatile memory so it save data when the computer power off.

6 -> ALU -> "Airthmatic logic unit" An ALU is a digital circuit used to perform airthmatic and logic operations.

CPU -> "central processing unit" The cpu is the primary component of a computer that acts as a its control center.

The cpu also referred to as the central or main processor is a complex set of electronic circuitry that runs the machine's operating system and apps.

- CU => "control unit" A CU is circuitry within a computer's processor that direct's operation's it instructs the memory, logic unit, and both output and input devices of computer.

7.) Algorithms => An Algorithms is a set of instruction for solving a problem or accomplishing a task. One common example of an algorithms is a recipe. which consists of specific instruction for preparing a dish or meal.

Flowchart :> A Flowchart is a picture of the separate step of a process in sequential order.

8.) input devices :>

- mouse :> A mouse is a hand-held pointing device that moves a cursor around a computer screen and enables interaction with object on the screen.

- keyboard :> A keyboard is an input device featuring a standard qwerty keyboard that enables users to input text, numbers or special characters.

- camera :> A camera captures visual images and streams them to the computer or through a computer to a network device.

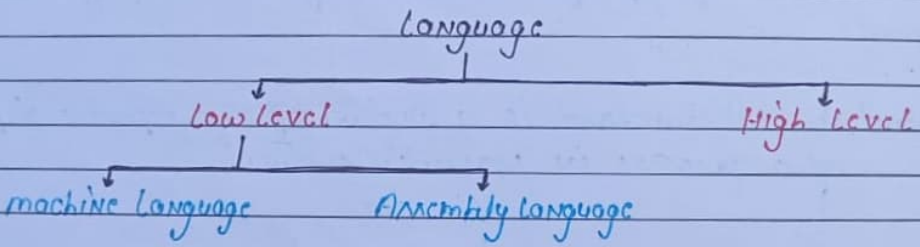
-> output devices ->

- monitor -> A monitor is an output device similar to a TV screen that displays information.
- Printer -> Printer writes electronic data from a computer into printed material.

9-> Programming Languages :

There are Two Types of Language.

- Low Level Languages.
- High Level Languages.



- machine language :- it contains the string of binary number (0's and 1's) and is machine dependent.

An instructions prepared in any machine language has two part format, as shown below:

opcode	operand
(operation code)	Address.

- The First part is the operation which tells the computer what function to perform.
- The second part of the instruction is the operand and it tells the computer where to store data.

- Assembly language :- in this type of language we placed the string the binary numbers with short acronyms corresponding to the fundamental function that the computer processor is able to perform.

- High level languages :- To overcome the difficulties of low level languages, the High level language was developed.

Some Examples of High level languges.

:- C++ .
:- Java .
:- Python .
:- PHP .
:- Android .
:- Dot.Net .

Io -> Number system => The language we use to communicate with each other is comprised of words and characters.

We understand numbers, characters and words But this type of data is not suitable for computers. Computers only understand the numbers.

So. when we enter data, the data is convert into electronics pulse. each pulse is identified as code and the code is converted into numeric format by Ascii it gives each number, character and symbol a numeric value (number) that a computer understand.

- The number system used in computer -

- Binary
- Decimal
- octal
- Hexadecimal

- Binary Number system => It has only two digits '0' and '1' so its base is 2. Accordingly. in this Number system, there are only two types of electronic pulses; absence of pulse which represent '0' and presence of pulse which represent '1' Each digit is called a bit.

- octal Number system => It Has eight digits (0,1,2,3,4,5,6,7) so its base is 8. Each digit in an octal Number represent a specific power of its base (8).

- Decimal Number system => This Number system has ten digits (0,1,2,3,4,5,6,7,8,9) so its base is 10. in this Number system. the maximum value of a digit is 9 and the minimum value of a digit is 0.

- Hexadecimal Number system => This Number system has 16 digits that range from 0 to 9 and A to F. so its base is 16. The A to F alphabets represent 10 to 15 decimal Number.

-:- Conversion -:-

- 111001_2 =>

=> $1.2^5 + 1.2^4 + 1.2^3 + 0.2^2 + 0.2^1 + 1.2^0$

=> $32 + 16 + 8 + 0 + 0 + 1$

=> 57_{10}

=> $(57)_{10}$ Ans

- Decimal to binary :-

⇒ 13_{10} →

2	13	
2	6	1
2	3	0
	1	1

→ $(1101)_2$ Ans

- Binary to octal :-

101101_2 →

$= 1.2^6 + 0.2^5 + 1.2^4 + 0.2^3 + 1.2^2 + 0.2^1 + 1.2^0$

$= 64 + 0 + 16 + 0 + 4 + 0 + 1$

→ 85

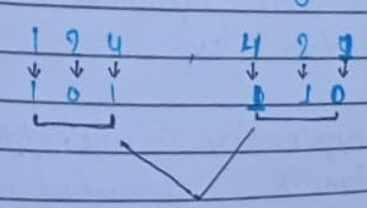
8	85	
8	10	5
8	1	2
	0	1

→ 125_8 Ans

- octal to binary :-

56_8 ⇒

⇒ 5 6



$(101110)_2$ Ans

• Binary to Hexa => using 4 bits grouping.

=> 1010101101001_2 =>

we have 8421 series.

0001 0101 0110 1001

1 5 6 9

=> $(1569)_{16}$ Ans

11 -> Cryptographic -> Cryptography is the process of hiding or coding information so that only the person a message was intended for can read it.

The art of cryptography has been used to code messages for thousands of year and continues to be used in bank cards, computer passwords, and e-commerce.

12 -> Software :- Software is a set of instruction, data or program used to operate computer and execute specific tasks. it is the opposite of Hardware, which describe the physical aspects of a computer.

- There are two type of software -

- Application software
- System software.

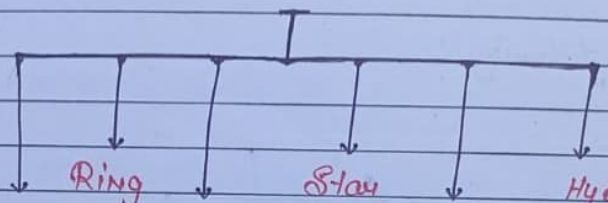
Ex -> Application => MS-office, Excel, VLC, Etc.
System -> operating system.

=> $(00110)_2 - (00011)_2$ =>

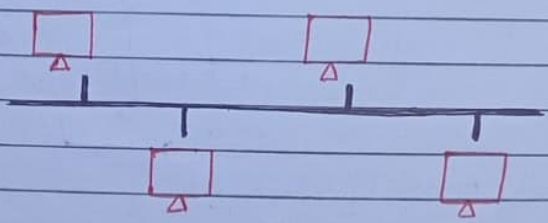
=> $(011)_2$ => Ans

14 => Topology => Topology defines the structure of the network of how all the component are interconnected to each other.

- Types of network Topology -



- Bus =>

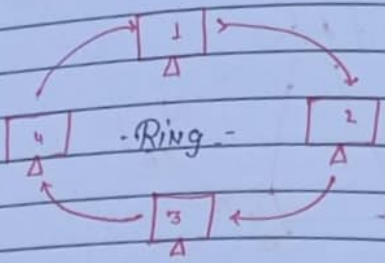


- The bus topology is designed in such a way that all the stations are connected through a single cable known as a backbone cable.

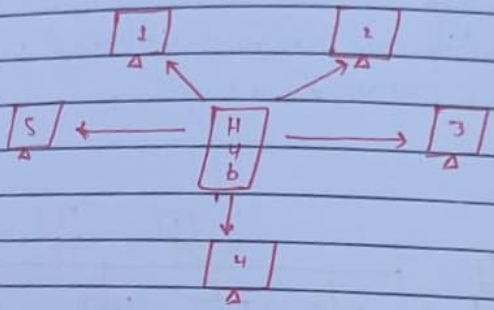
- Ring => Ring topology is like a bus topology, but with connected ends.

→ The node that receives the message from the previous computer will retransmit to the next node.

->

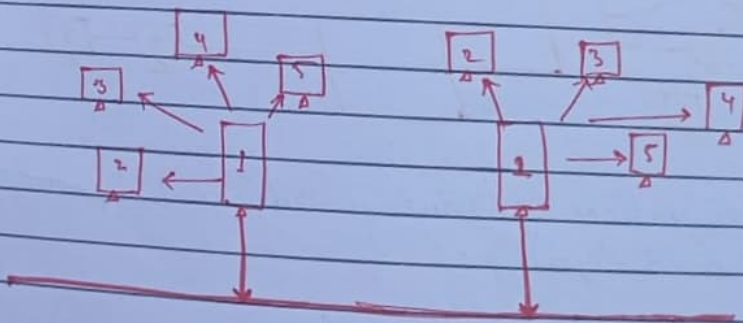


-> Star ->



- Star topology is an arrangement of the network in which every node is connected to the central Hub.

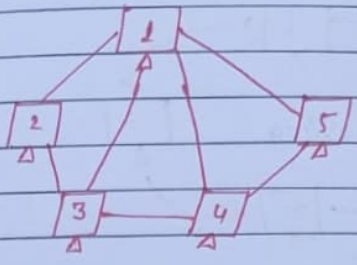
-> Tree ->



- Tree topology combines the characteristics of bus topology and star topology.

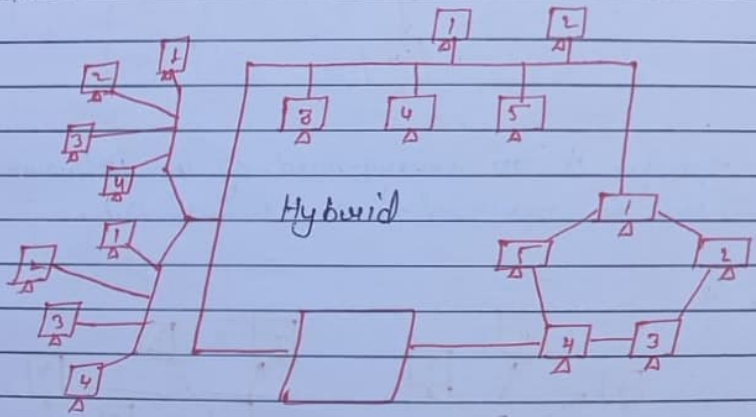
- A tree topology is a type of structure in which all the computers are connected with each other in hierarchical fashion.

=> mesh =>



- mesh technology is an arrangement of the network in which computers are interconnected with each other through various connection.

=> Hybrid =>

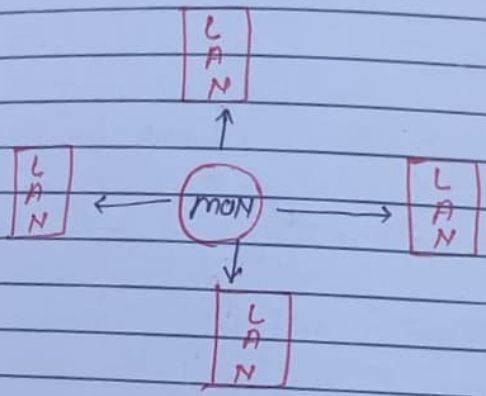


- The combination of various different topologies is known as Hybrid topology.

- ~~Hightbrid~~ Hybrid topology is a connection between different links and nodes to transfer the data.

IS -> LAN -> the local area network that operate in a small area. it connects computers in a small geographical area like within a office, company, school etc.

MAN -> metropolitan area network - it's a high-speed network that spread over a large geographical area such as a metro city or town.
The network range of MAN is 5 to 50 km.



WAN -> wide area network - extends over a large geographical area, it is not confined within an office school, city or town and is mainly set up by telephone lines, fibre optic, or satellite links, it is mainly used by big organization like bank, company, communicate with each other.
it covers 50 km to 1000 km more.