

Analog Computer	Digital Computer.
i. These computers work with natural or physical values.	ii) These computers work with digits.
ii. It works upon continuous data.	ii) It works upon discrete data.
iii. It operates by measuring and comparing.	iii) It operates by counting and adding, i.e. it calculates.
iv. Its accuracy is low.	iv) Its accuracy is high.
v. It is a special purpose computer.	v) It is general purpose in nature.
vi. No or smaller storage capacity.	vi) Large storage capacity (memory).
vii. Lower cost compared to digital computers.	vii) Higher cost compared to analog computers.
viii. Normally, it cannot be reprogrammed.	viii) It can be reprogrammed.

The disadvantages of Computer network are given below:

1. Expensive → For connecting computers, some extra devices and resources like NIC, Hub, cables are required, which increases the cost of operation.
2. Security Problem → Data are shared in a public medium so extra precaution is needed for the secure transmission and storage. In addition, due to the connected computers, there is increase of computer crimes like sending viruses, software piracy, hacking, pornography, spoofing.
3. Needs special technical knowledge → Skilled manpower is required to establish, maintain and operate a networking system.
4. Network Failure → Failure of network may hamper the day to day operation of the organization. For example, network failure in a bank may affect the transaction.
5. Complex → Network itself is difficult to establish, manage and operate.

14. Explain about input devices and explain any two.

An input device is a term for a physical piece of hardware that connects to a primary device, such as a computer, in order to provide user inputs. Input devices are generally a class of peripheral devices that connect to the primary device. An input device converts input data into suitable form acceptable to a computer.

The two input devices are listed below:-

- i. Scanner → The scanner is an input device which is used to enter text, images, and graphs printed on paper directly into the computer. It provides faster and more accurate data entry. It digitizes an image by dividing it into a small grid of boxes and representing each box with either zero or one, whether the box is filled or not. Some of the popular scanners are compact desktop scanners and flatbed scanners. The compact desktop scanner is popular, due to its low cost and easy to use with PC. Flatbed scanner is expensive but flatbed provides high resolution color scanning and is more accurate.

4. Microcomputer → A computer, which is based on a microprocessor, is called a microcomputer. It is a small, low cost digital computer. It requires small space, can be placed on a table or even kept inside a briefcase. This computer has a central processing unit on a single chip. It is mainly used in office, house, school, shop and store. The smallest of this category are laptop, notebook, palmtop and PDA.

#### \* On the Basis of Working Principle

1. Analog Computer → The computer which can process analog quantities (continuous data) is called an analog computer. Analog computer operates by measuring rather than counting. It is a special purpose computer and is mainly used in scientific work and not for commercial or personal purposes. Generally, it has less storage capacity and its accuracy is poor compared to digital computers. It is specially designed to complete to compute physical forces such as temperature, pressure,

5. Fifth Generation (Coming Generation) → The fifth-generation computer was based on Artificial Intelligence (AI) and that is still in the developing process, but not yet a reality i.e. this computer is incomplete. Scientists are going on the development of this computer. The aim to bring us machines with genuine I.Q., the ability to reason logically, and with real knowledge of the world. These computers will be able to converse with people and will be to mimic human sense, manual skills, and intelligence.

#### \* On the Basis of Size

1. Super Computer → The super computer is the most powerful and fastest computer among digital computers. This computer is special purpose and is capable of handling huge amount of calculations that are beyond human capabilities. It can perform at billions of instructions per second (BIPS) and more. Some of today's super computer has the computing capability equal to that of 40,000 micro-computers. This computer is the most expensive computer (cost about 15-20 million dollar range). They can recover automatically from failures such feature is called Fault-tolerant computer.

ii. MAN → Metropolitan Area Network (MAN) is extended up to a city or a larger geographical area than LAN. MAN can connect several LANs. It is used to connect multiple systems or networks within a single city. It can use either wired or wireless transmission media. This network mostly uses bridges, repeaters, routers, switches. A cable TV network is an example of MAN.

iii. WAN → Wide Area Network (WAN) is used to interconnect computers spread to a larger geographical area like in separate cities or countries. It is also known as Long Haul Networks (LHNs). It often connects multiple smaller networks such as local area networks (LAN) or metropolitan area networks (MANs). Communication is usually done through satellite, microwave system or optical fibers. It uses devices like routers, gateways, switches etc. These devices are much more expensive than used in LAN. However, the transmission speed is usually slower and maintaining security is comparatively complex. Key technologies often found in WANs include SONET, Frame Relay and ATM.

The different types of network topologies with diagram are:-

1. Bus topology or linear topology.
2. star topology.
3. Ring topology.
4. Tree topology.
5. Mesh topology.
6. Hybrid topology.

1. Bus Topology → A bus topology connects each computer to a segment called trunk (bus). Coaxial cables are mostly used. It consists of a main cable with terminators at the both ends. Terminator absorbs the signal, so it doesn't reflect back across the bus.

2. Star topology → The star topology is the most common network topology found in most offices and home networks. In a star topology each computer or node is connected to the central device such as hub.

3. Ring topology → In the ring topology each station is attached with nearby computers on the point to point basis so that the entire system is in the form of ring. That is, all the computer are connected in a closed loop. The method by which the data is transmitted around ring is called token passing.

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