

CT: 01

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01. (a) Draw the flowchart that shows the different categories of the crosspoint technology?
- (b) Draw the circuit switching diagram
- (c) Write down the advantages and disadvantages of a multistage network?
02. (a) What is dial tone? List five subscriber related signaling functions that are to be performed by the operator?
- (b) Which switching method reduces traffic congestion?
- (c) What are the disadvantages of message switching?
03. (a) What is direct control switching system and what are the benefits of automatic switching system?
- (b) What are the differences between circuit switching and packet switching?

① List four types of connection in a telecommunication network?

4. (a) What are the two approaches packet switching?

(b) What are the differences between circuit switching and message switching?

(c) List the three traditional switching methods. What are the most common today?

(d) Describe the needs for switching and Define switch?

5. (a) What is the need for touch tone?

(b) How does the touch tone dial phone operator?

(c) What points are considered while designing of the touch tone dial phone?

(d) Draw the internal mechanism of touch tone dial telephone.

6. (a) What is crosspoint technology? What are the challenges of this technology?
- (b) Categorize the crosspoint technology?
- (c) Write down the call processing in crossbar exchange?
- (d) What information does a process control block (PCB) contain?

7. (a) Classify and explain different data networks.

(b) Draw the data network hierarchy.

(c) Differentiate between voice and data traffic.

(d) What is circuit switching? Classify store and forward switching. What functions are performed by the node when a message is transmitted?

⑧ (a) Define these keywords: system, subsystem, Layer, Entity.

(b) Write down the link-to-link entity layers.

(c) What measures used in assessing the performance of a routing algorithm?

(d) Write down the quality of service parameter.

(e) Give some example of LAN networks. What are the advantages?

Ans to the question no. 1 (a)

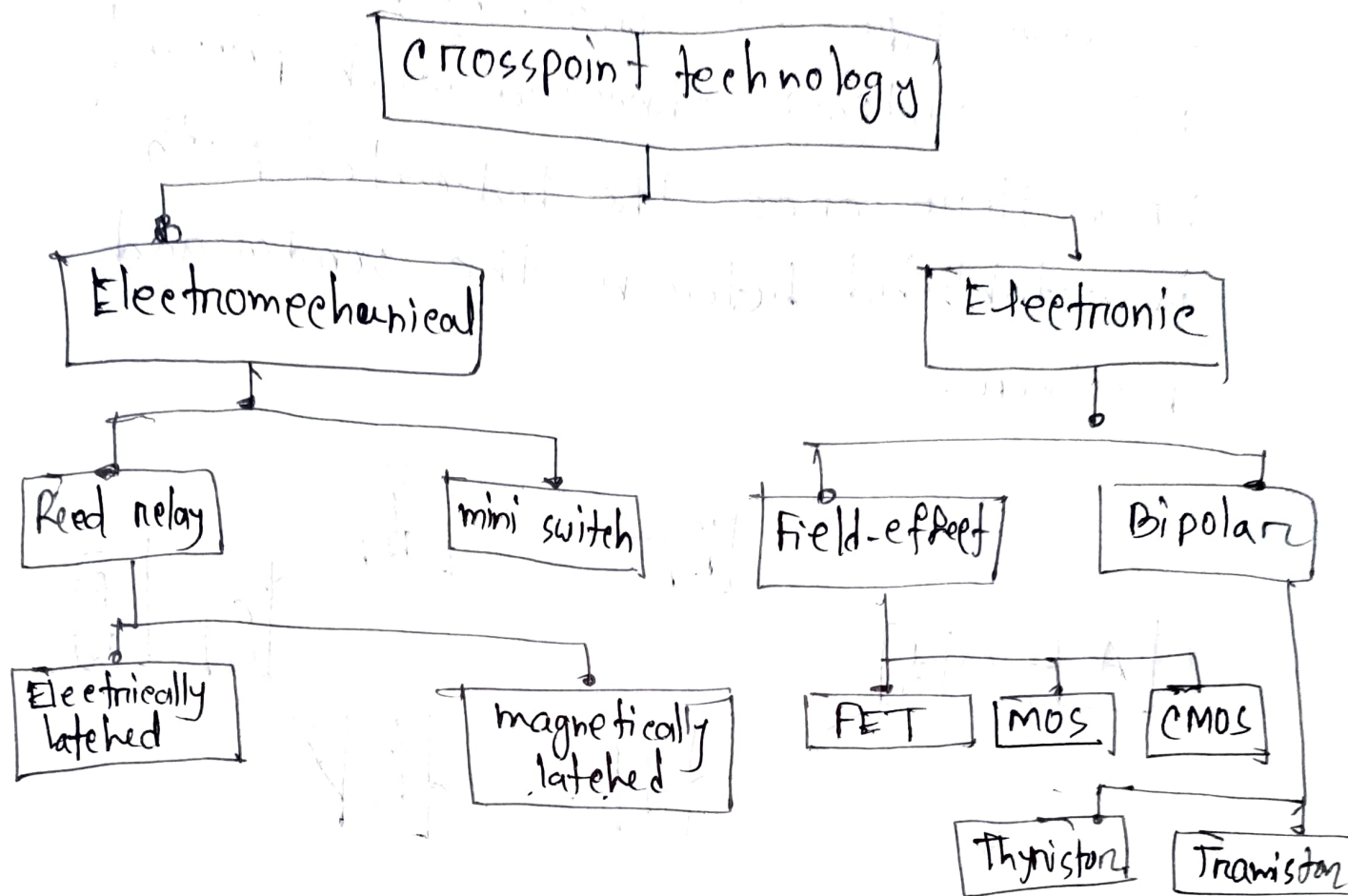


Fig - Different categories of the crosspoint technology.

Ans to the Q. No. 1(b)

In this type of switching, there is a set of switches connected with physical links. Here once the dedicated path is established between the sender and receiver.

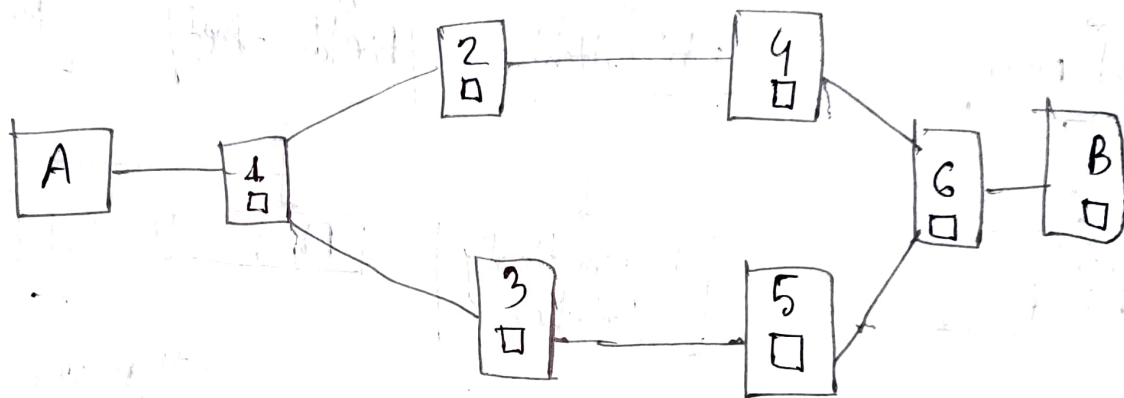


Fig- Circuit switching

Ans to the ques no. 1(c)

The advantages of a multistages network are as follows:

- ① The number of crossbars are reduced.
- ② The number of paths of connection can be more.

The disadvantages of a multistages network are as follows:

- ① Multistages switches may be cause of blocking.
- ② The number of size of the intermediate switches if increased can solve this problem. but the cost increase with this.

Ans to the Q. No. 12(a)

- (i) Respond to the calling subscriber that system is ready to receive the identification of the called party.
- (ii) Inform the calling subscriber that the call is being established.
- (iii) Ring the bell the called party.
- (iv) Inform the calling subscriber if the called party is busy.
- (v) Inform the calling subscriber if the called party line is unobtainable for some reason.

Ans to the Q. No. 2(b)

Congestion is a system of an overloaded network. packet switching is more efficient than circuit switching because it ensures that more of the bandwidth of all cables are fully utilized. As it makes better use of resources, packet switching is more likely to reduce congestion than circuit switching.

Ans to the Q. No. 2(c)

- ① This switching type is not compatible for interactive application such as voice and video.
- ② This method is costly as store and forward devices are expensive.
- ③ It can lead to security issues if hacked by intruders.
- ④ As the system is complex.
- ⑤ Message switching type does not establish dedicated path between the devices.

Ans to the Que. No. 3(a)

The switching systems where the control subsystem from an integral part of the network are called the direct control switching system.

- Language barriers will not affect the request for connection.
- Higher degree of privacy is maintained.
- Faster establishment and release of calls is done.
- Number of calls made in a given period can be increased.
- calls can be made irrespective of the load on the system or the time of the day.

Ans to the Q. No. 3(b)

Feature	circuit switching	packet switching
path formation	path dedicated for one conversation.	Route is established on per packet switching basis on the conversation diagram.
Dedicated path	yes	no
Delay	call setup delay	packet transmission delay.
Bandwidth type	Fixed bandwidth	Dynamic bandwidth
Overload effect	stops call establishments.	Increase in packet delay.

. Ans to the Que. No. 3(c)

- ① Local call connection between two subscribers in the system.
- ② Outgoing call connection between a subscriber and an outgoing trunk.
- ③ Incoming call connection between an incoming trunk and a local subscriber.
- ④ Transit call connection between an incoming trunk and an outgoing trunk.