IT-17008
MD. ARAFAT ISLAM

CT-01

(a) Describe the need for switching and define a swith

(b) List the three traditionals switching methods.

(c) what are the difference between circuit switching and message switching.

(d) what are the two approces packet switching

02. List four major compo a packet swith and. their function

(c) what are the drawbacks of circuit — switching.

(3) (a) List four types of connection in a telecommunication network

(b) what are the difference between switching and packeting switching

(c) what is the direct control switching system and what are the benefits of automatic

switching system.

Q4 (a) What is Lata? What are Intra Lata and inter Lata services.

(b) What are the determining the design of a switching system

(c) What are the disadvantages of message switching.

06(a) what are the features of crossbar switches.

(b) Define Electromechanical crosspoint technology.

(c) Define circuit switching what are benefits of circuit switching.

07 (a) Draw the Circuit.
Switching diagram.

(b) write down the advantages.
and disadvantages of.
a multistage network.

(c) what do you mean.
by Lan within.
some examples.

(d) write down the.
application Layer.

Ans to the ques no: 01

(a)

(a) Need for switching provides a practical solution to the problem of connecting multiple device in a network.

(b) IT is more practical than using a bus topology.

(c) IT is more efficient than using star topology and a central hub

Defination of a switch:

Switches are devices capable of creating temporary connections between two or more devices linked to the switches.

Ans to ques no: 1

(b)

Switching method:-

The three traditional switching methods are:

(i) Circuit Switching
(ii) Packet "
(iii) Message "

the most common today are. Circuit and packet switching

Ans to the ques no 1

(c)

Circuit switching

(1) Data is not stored. Data is first stored then forwarded to the next note.

(2) Needs dedicated physical not need dedicati physical path.

(3) A Geographical Address.

A Hierarchical Addressing

(4) Routing is manual type Routing.

Message Switching.

Data is first stored. then forwarded to the next note.

Not need dedicated physical. Path.

A Hierarchical addressing

Routing is not manual type. routing.

Charge is based on the. number of bytes and. distance.

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1 (d)

There are two approces of Packet sweitcing

(i) Datagram approch
(ii) virtual Circuit approch.

Ans to the ques no: 2(

A packet sweitching has four components.

(i) Input ports (ii) outpul port
(iii) Routing Processor (iv) sweitcing Fabric.

2(b)

Ans to the ques no: 2

(b)

the switching offers various benefits compared to circuit switching. and they are listed below:

- It delivers the data to a desitanation by finding their own paths, circuit switching has a dedicated and predifin channel.
- It was lesser bandwidth as packets are quickly routed. Circuit Switching should have dedicated bandwidth.

- The packet switching is available for other transmission as soon as packets are routed.
- It is cost effective and easier to implement.

Ans to the ques no: 2 (c)

Drawback / disadvantage of Circuit

- Circuit switching establishes a dedicated connection between the end parties.
- There is underutilization of System Resources.

[4] Time reqvirred to established. a connection.

Ans to the qvues no: 3
(a)

There are four types of connection:

(i) Local all connection between two. Subscriber in the system.

(ii) outgoing call connection between a subscriber. and outgoing trunk

(iii) Incoming call connection between. in coming trunk

and outgoing trunk.

Ans to the ques no: 3(b)

Feature	Circuit Switching	Packet Switching
Dedicated Path	Path dedicated for one conversation.	Route is established on here. Packet basis of the conversation using datagram
Delay	call setup delay.	Dynamic bandwidth

overload effects.

stops call establishment.

Increases Packet today.

Ans to the ques no: 3

(C).

- Switching systems where the control sub system from an Integral part of the network are called the direct control switching system.

Advantage of switching system

→ Language barrier will not affect request for connec

→ Higher degree of privacy maintained.

→ Faster establishment and relea 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.

Ans to the quesno: 4 (a).

A Lata is small or large. metro politan. that according to the divestiture of 1984. was under the control. of a single. telephone. Service provider.

Ans to the ques no: 4

(b)

A number of criteria must be determined and considered by the operator.

Traffic intensity of the busy hour:

Perhaps the most important factor traffic intensity of the busy hour is simply the Calling Rate. (t) plus. Average holding time.

Calling Rate:

This is the average number of Reauests for connetion of per unit of time:

Holding time:-

This is the mean amou Of time that a call lasts.

Building Maintaing and ingrovin Switch:

In order to build, maintain and improve a switch that will supply quality of service

A network operatios must. Monitor their network harder constantly. and efficienfly. and be ready to repair. Replace or odd any parts that are required.

Ans to the ques no. 4

(c)

(i) Finger plate and Spring.

(ii) Shaft gear and pinion. wheel.

(iii) Paul and ratchat mechanism.

(iv) Impulsing cam and Suppressor cam or a trigger. mechanism.

(v) Impulsing contact.

(vi) centrifugal governor and worm gear.

(vii) Transmitter, Receiver and bell by pass circuits.

Ans to the ques no: 5.

(a)

congestion is a symptom of an overloaded network.

Packet switching is more effic than circuit switching beca 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 a swich

Ans to the ques no: 5.

(b)

Dial tone: The dial tone is the signaling tone, which indicated that the exchange is is ready to accept the dialed digits from the subscriber

(i) Respond to the Calling Subscriber that system is ready to Receive the identification of the called party.

(ii) Inform the Calling Subscriber that called being established

(iii) Ring the bell of called par

(iv) Inform the calling Subsc if the called party is busy

(v) Inform the calling Subs-criber, called party is for some reason.

Ans to the ques no: 5(c)

(i). this switching type is not compatible for interactive application such as voice. and video.

(ii) this method is costly as Store and forward. devices.

(iii) It can lead to security issues. hacked by Intro duces.

(iv) As the system is Complex

Ans to the quesno: 6(

In this section we will discuss the Crossbar switches.

(i) while processing a call the common control syste helps in the sharing. Resources.

(ii) The specific route for of call processing are hardwired because of the logic computer.

(iv) Fewer moving parts ease the maintaince of crossbar switching system.

Ans to the ques no: 6

(c)

Circuit Switching: This method of switcing establishes a dedicated communication path the sender and Receiver. →

(i) It uses a fixed bandwidth

(ii) A dedicated communicatio

channel increases. the quantity of a communicati

(iii) Data is transmitted at fixed data rate.

(iv) No waiting at switche

(v) Suitable for long continuous communicati

Ans to the ques no: 7

(a)

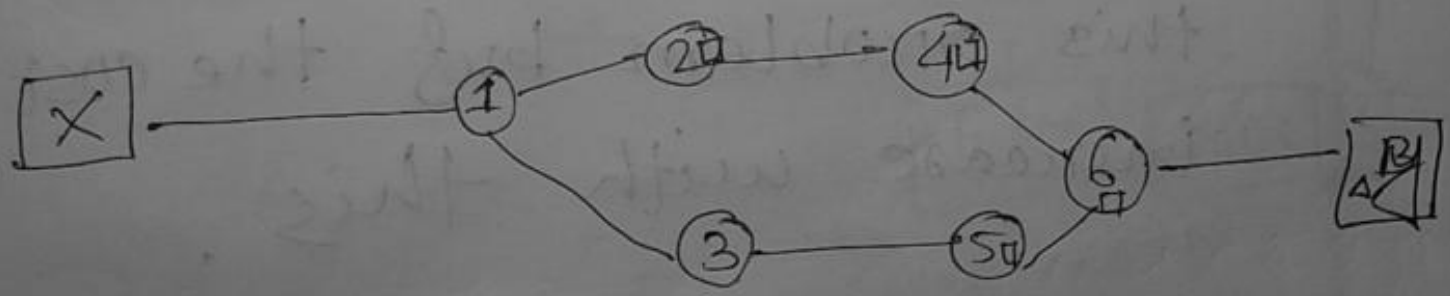
In this type of switching, there is a set of swiches connected with physical link. Here. once dedicated path is established between the sender and Receiver. it stays the same until one of the user transmites the connection.

There are phase in the.

(i) establishment of a circuit.

(ii) Data transfer

(iii) circuit disconnect.



Ans to the ques no: 7

(b)

The advantages of a multistage network are as follow :↓

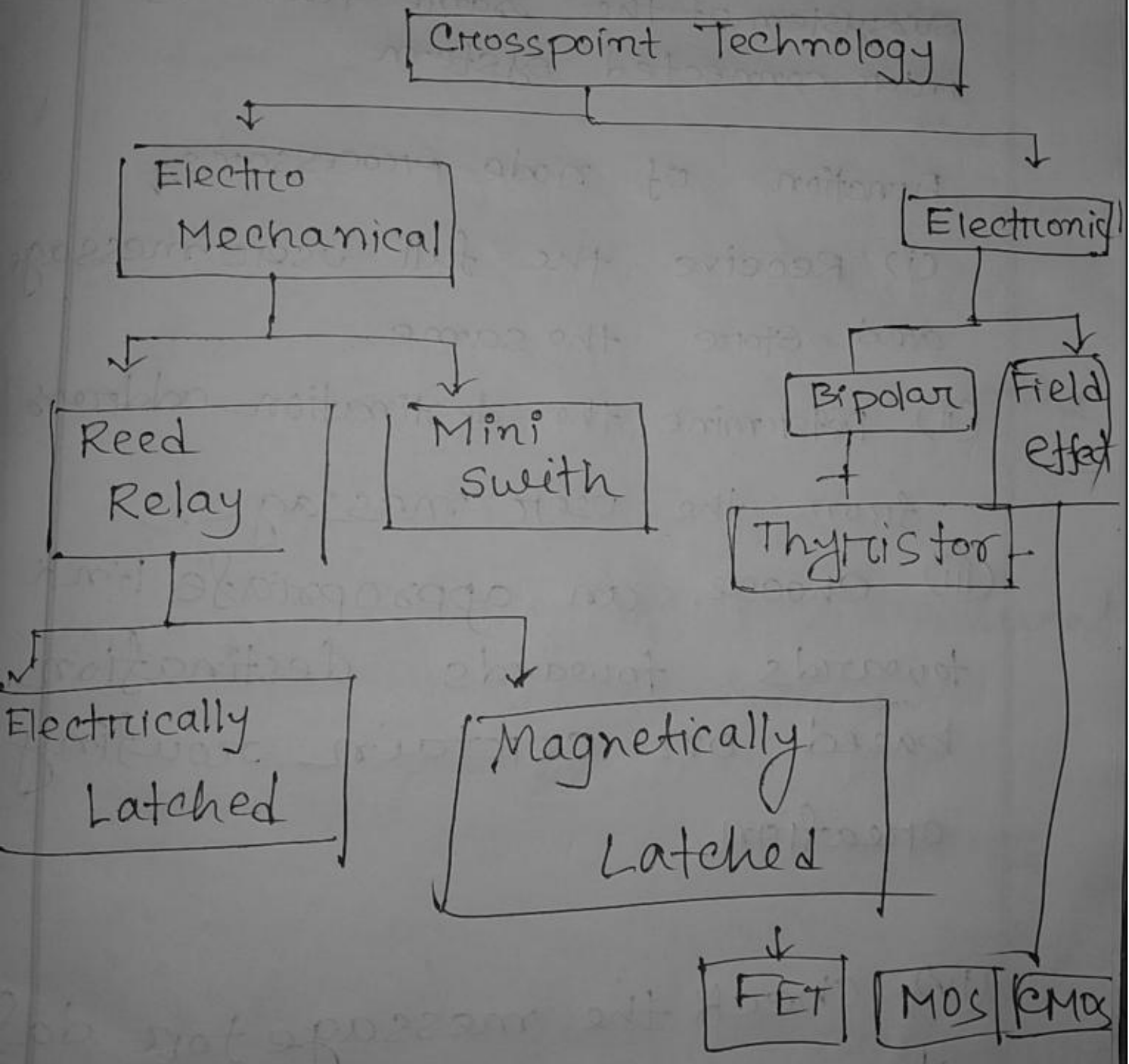
(i) the number of crossbars are redu

(ii) the number of a path. connection can be more

- Multistage switches may be cause blocking
- the number or size of the intermidiate can solve this problem buf the cost increase with this.

Ans to the ques no: 7(c)

(c)



Ans to the ques no: 8(a)

Layer : A Layer is composed of subsystem of the same rank of all inter-connected system

Function of node processor: ↓

(i) Receive the full user message and store the same

(ii) Determine the destination address from the user message.

(iii) Choose an appropriate link towards towards destination. based on certain routing creation

(iv) Check the message for data trans ission

Ans to the ques no: 8 (b)

Network Layer:-

The Highest link to link layer in the OSI model is the network Layer. it is concerned with transmission of packets from the source node to the

(I) Minimum delay

(II) Signaling capacity required

(III) Processing complexity.

(IV) intermediate notes or hops

(V) The rate of adaption in the case of adaptive algorithm

(VI) Fairness of all types of traffic

As
Ans to the ques no: 8
(a)

LAN: A local area network (LAN) typifies a distributed environment and finds application in a number of areas.

Some examples are:-

(1) office automation
2. Factory automation
(3) Process control
(4) Document distribution

Ans to ques no : 8

(d)

Benefits of Application layer:

(1) Directory services.

(2) cost allocation.

(3) File transfer and management

(4) Editors and terminal support services.

(5) Telemale services like videotex.