CT – 02

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Ans to the Q: N :- 1(a)

There are five types of topology in computer network :-

1. Mesh Topology.
2. Star Topology.
3. Bus Topology
4. Ring Topology.
5. Hybrid Topology.

pitfalls of Mesh Topology

1. Amount of wires required to connect each system is tedious and headache.
2. stability issues because a device can't be connected with large number of device with a dedicated point lin

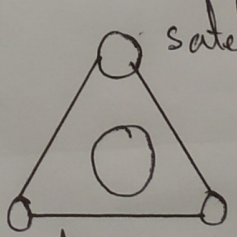
1.b) Differentiate between Terrestrial and satellite Microwave transmission system.

Ans to the Q:N:- 1(b).

Terrestial Microwave	satellite microwave
1. The frequency range needed is from 4 GHz to 6 GHz.	1. The frequency range needed between 11 GHz to 14 GHz.
2. In this system, attenuation mainly depends on frequency and signal strength.	2. Attenuation is generally affected by the frequency and power.
3. It requires focus signal and line of sight as physical path.	3. It requires the proper allignment of earth station antennas.

1.c) what do you mean by Geostationary satellite system?

Ans to the Q:N:- 1(c)



Geostationar satellite.

Geostationary satellite :-

The satellites were placed in low earth orbit. As a result the satellite at a such high speed that is visible to the ground only for a short time. At each day, the satellite operated below the horizon and dies appear below the opposite horizon.

2. a) what are the disadvantages of message switching ?

Ans to the Q:N:- 2(a)

The disadvantages are given below :-

i) This switching types is not compatible for interactive applications such as voice and video.

ii) The method is costly as store and forword devices are expensive.

iii) It can lead to security issues

iv) The system is complex.

b) Define dial tone. List five subscriber signaling function that are to be performed.

Ans to the Q: N:- 2(b)

Dial tone:- The dial tone is signaling tone, which indicate that the exchange is ready to accept the dial digit.

i. Responds to the calling subscriber that the system is ready.

ii. Inform the calling subscriber that the call is being established.

iii. Ring the bell to the call party.

iv. Inform the calling subscriber if the call party is busy.

v. Inform call subscriber, if the call party line is unobtainable for some reason.

2. Which switching method reduces traffic congestion?

Ans to the Q:N:- 2(a)

congestion is a symptom of an overloaded network packet switching is more efficient from circuit switching because it ensure that more of the bandwidth of all cables are fully utilized. As it make better uses of resources, packet switching is more likely to reduce congestion than circuit switching.

3. a) write some examples of Telecommunication Technologi

Ans to the Q:N:- 3(a)

Examples of telecommunication technologies are given:-

* Television
* Broadcasting
* Telephone.
* Internet
* cybercrime.
* Radio Technology.
* satellite communication.

3.(b) Write some skills that are needed in telecommunica

Ans to the Q:N:- 3(b)

Here are the top telecommunication skills which are required to help you meet industry demand.

* cloud computing skills.
* IT support skills
* Programming.
* soft skills.
* value adding and certification.

3.(c) Explain the feature of telecommunication Engineering.

Ans to the Q:N:- 3(c)

Terminals and channel:-

All telecommunication Network depends on termin
They are components that allow communications to
stop and start. There's no point in having a term
without having a channel to support it.

Telecommunication processor:

As you may already be aware, the information
that passes through channels require a lot of proce
before it reaches the end user.

Telecommunication software :-

The information that passes through different telecommunications channel needs software to support it too. The type of software you use will depend on your telecommunication of choice.

4. (a) Define satellite Microwave transmission system. Describe the demerits of satellite transmission.

Ans to the Q.N :- 4(a)

satellite Microwave transmission system uses satellite for broadcasting and recieving of signals. These system needs satellite which are in the orbit which is 3600 km above the earth.

Demerits of satellite communication :-

1. satellite communication is disturbed by solar activity and cyclones in the space.
2. Due to aging effect the efficiency of satellite components decreases.
3. The longer propagation times is one of disadvanta of satellite communication.

b) Write the advantages and disadvantages of star topology.

Ans to the Q:N:- 4(b)

Advantages of star topology

1. Less expensive because each device only need one I/O port.
2. Easier to install.
3. Less amount of cables require
4. Robust, if one link fails other link will work just fine.
5. Easy fault detection.

Disadvantage of start Topology:-

1. If hub goes down everything goes down
2. Hub requires more resources and regular maintance because it is the central system of star topology.

Q) Define public switch telephone system. List major system of any telecommunication Network.

Ans to the Q:N :- 4(c)

PSTN :- public switched telephone network is perhaps the most stupendous telecommunication network in existence today. the length of telephone wire-pairs buried underground exceeds.

Any telecommunication network may be viewed as consisting of the following major system :-

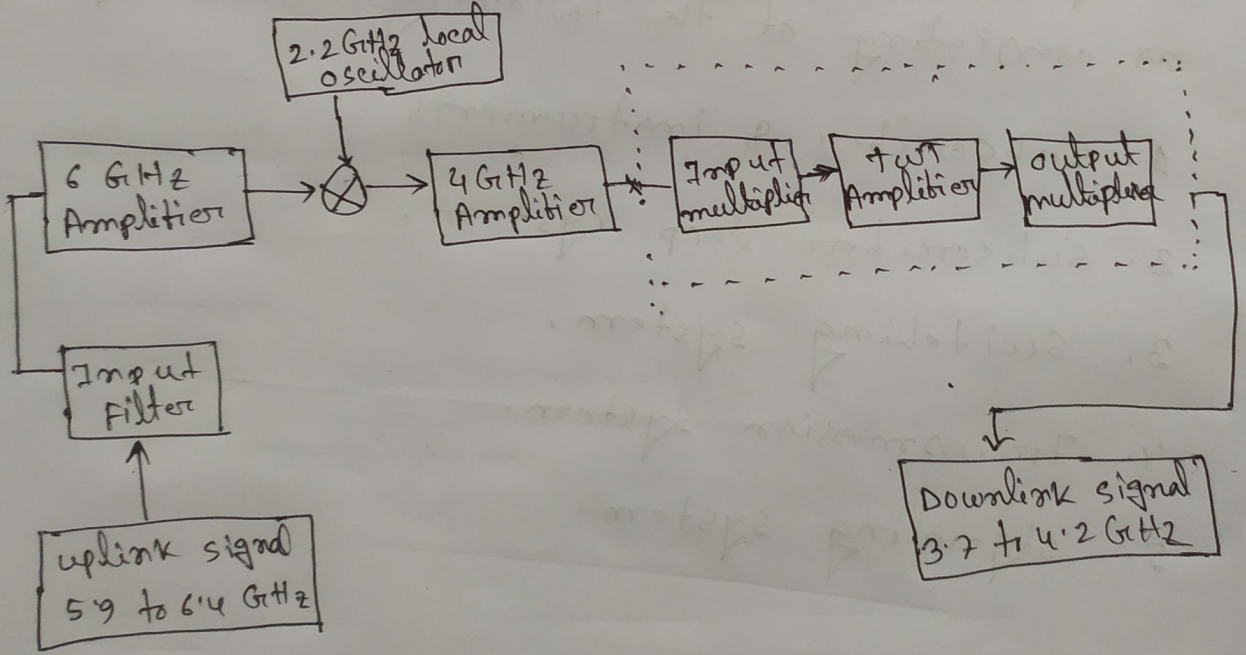
1. subscriber & instruments
2. subscriber loop system.
3. switching system.
4. Transmission system.
5. signaling system.

5. a) Define satellite communication. Draw the block diagram of satellite communication system.

Ans to the Q:N:- 5 (a)

Satellite communication:- satellite is powerful long distance and point to multipoing communication system. A communication satellite is on Radio frequency repeater.

Block diagram of satellite communication system:-



b) Write down the merit of the satellite communication.

Ans to the Q:N:- 5(b)

Following is the merits of satellite communication system:

* Merits:-

1. No tracking is required by Geostationary satellite.
2. Multiple access point are available in satellite communication.
3. 24 hour communication can be achieved with the help of satellite.
4. The signal quality of satellite communication is highe
5. To put more information on the carrier a broad band c

c) Write down the characteristics of a mesh Topology.

Ans to the Q:N:- 5(c)

The characteristics of a mesh topology is given below:

* A mesh topology provides redundant link across the network.
* If a break occurs in a segment of cable, traffic ca still be resolated using the other cables.
* It is common to partial mesh topology to be depla This balance cost and the need for redundancy.

6. a) How is data transfer achieved by using CATV channel?

Ans to the Q.N:- 6(a)

To provide internet access, the cable company has divided into the available bandwidth of the coaxial cable into three bands; video, downstream data, and upstream data. The downstream only video band occupies frequency from 54 to 550 MHz. The downstream data occupies the upperband from 550 to 750 MHz

b) Write short notes:

i) POTS
ii) PBX
iii) In channel signaling.
iv) charging plan.

Ans to the Q.N:- 6(b)

i) POTS:-

plain old telephone system is understood as an aggregate of world's circuit-switched telephone network, used for providing public

telecommunication. These system are operated regionally, locally and internationally using telephone lines. POTS consist of swiches at centralized points on the network, which act as nodes for communication between point and any other point on the network.

ii) PBX:-

PBX can be understood as a local exchange within an office or building, in order to communicate within themselves. As the name implies, it is a private exchang which is a branch to the main exchange to the similiar local loop connected to the main loop as a trun

iii) charging plan:-

The calls are charged as accounted by the metering instruments connected to each subscribor line or as per a metering register that is assigned to each subscribor in case of electronic exchange.

iv) closed numbering plan:-

This is also called the uniform numbering plan where the number of digit in a subscribor number are fixed. This is used in a few countries such as France, Belgium canada and the USA.

7. a) Define In-band signaling. write down the advantages of In-band signaling.

Ans to the Q:N:-7(a)

In-band signaling :- In-band voice frequency uses the same frequency band as the voice, which is 300-3400 Hz, which has to be protected against false operation by speech.

Advantage of In-band signaling :-

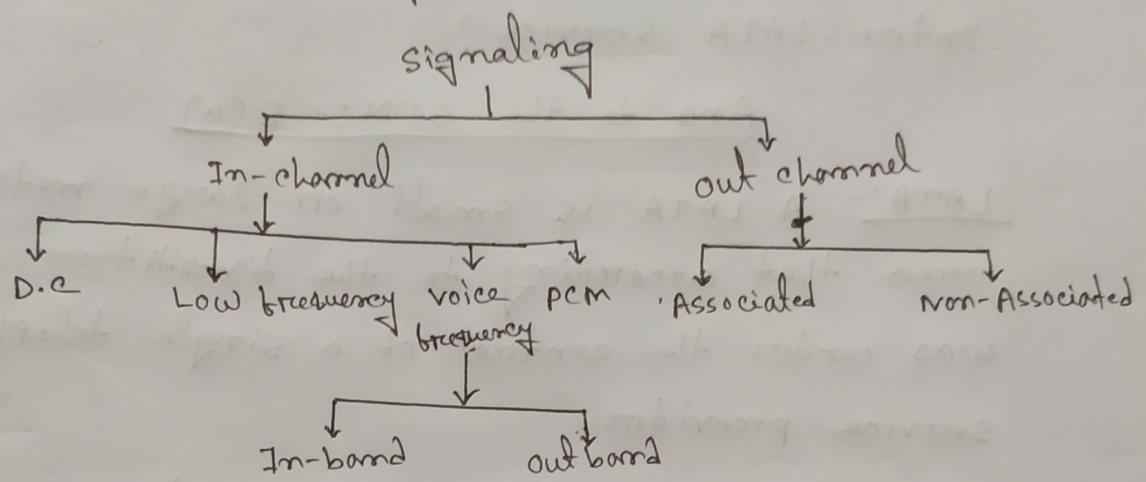
* The control signal can be sent to every part where a speech signal can be reach.
* The control signals will be independent of the transmission system.
* The analog to digital & Digital to analog conversion processes will not affect them.

7.(b) How many types of signaling techniques? Draw the diagram of signaling techniques.

Ans to the Q:N:-7(b)

As discussed above, the signaling techniques are catagorized into two, the In-channel signaling and the common channel signaling.

Diagram of signaling Techniques :-



7.c) What is DSL Technology ? What are the service provided by the telephone companies using DSL ?

Ans to the Q:N:- 7(c)

DSL :- Telephone company developed digital subscriber line technology to provide higher speed access to internet

*Service provided by the telephone companies using DSL :-

DSL Technology is a set of technology, each differing in the first letter (ADSL, VDSL, HDSL, SDSL). The set is often referred to as xDSL, where x can be replaced by A, V, H or S.

8. a) What is LATA? what are Intra-LATA and Inter-LATA service?

Ans to the Q:N:- 8(a)

LATA:- A LATA is small or large metropolition area that according to the divestiture of 1984 was under the control of a single telephone service provider.

* Inter-LATA and Intra-LATA service:-

The services offered by the common carries inside a LATA are called Inter-LATA services. The service between LATA's are handled by interexchange carrier. This carries, sometimes called long-distance companies

b) How to use a rotary dial phone for implementing pulse dialing?

Ans to the Q:N:- 8(b)

A rotary dial phone uses the following for implemen pulse dialing:-

* Finger plate and spring.
* shaft, gear and pinion wheel.
* pawl and ratchet mechanism.
* Impulsing contact.

* centrifugal governor and worm gear.
* Transmitter, Reciever & bell-by-pass circuits.

(c) What are the determing the design of a switching system

Ans to the Q:N:- 8(c)

In order to determine the best design for a telephone switching system, 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, the calling rate + the average holding time during the 60 minutes period.

calling rate:-

This is the avarage number of request for connectio per unit of time.

Holding time:-

This is the mean amount time that a call last.