GALGOTIAS UNIVERSITY

CAT I Semester III, V, VII, IX All Programs
Answer uploading Template

Admission No. of Student	21SCSE1011615	Name of Course	DCN
Name of Student	Abhinav kumar choudhary	Course Code	BCSE2370
Program	B.Tech CSE	Date of Examination	28/09/2022
Semester	Third	Time	11:00–12:30
Signature of Student	Abhinav kumar chy		

Student shall start writing from below:

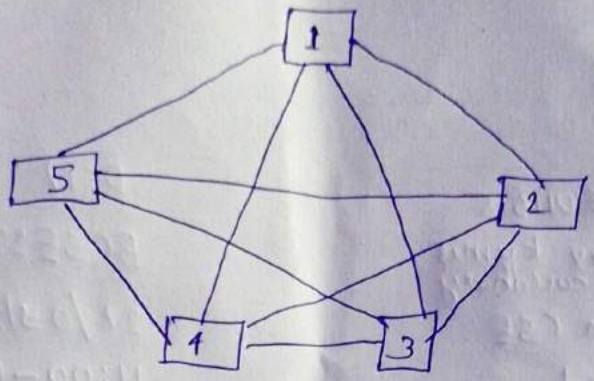
Ans→① There are three types of network
(i) Local Area Network (LAN)
(ii) Wide Area Network (WAN)
(iii) Metropolitan Area Network (MAN)

Ans→② Modem refers to the term modulator Demodulator. It converts the digital data signal into the analogue data signal. It connect your ~~compute~~ home, usually through a coax cable connection, to your internet Service provider (ISP).

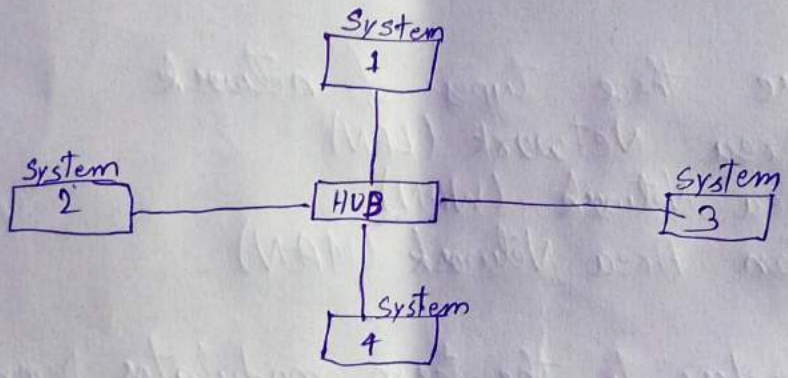
Ans→3) Network topology refers to the geometric arrangement of links and nodes in a computing network. It makes the ~~direct~~ link between many computer.

Figure of different topology

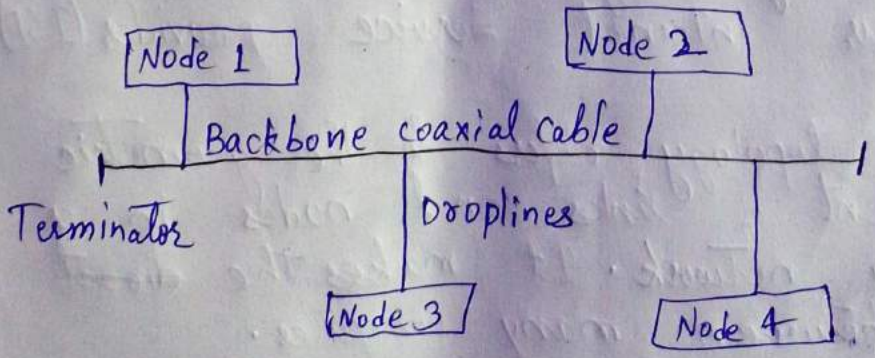
(i) Mesh Topology :-



(ii) Star Topology



(iii) Bus Topology :-



Types of network topology are :-

(i) Mesh Topology :-

In this topology every device is connected through another device via a particular channel. In this Topology, protocols like AHCP, DHCP, are used.

(ii) Star Topology :-

In this Topology, all the devices are connected to a single hub through a cable. In this Topology, protocols like CD, CSMA, are used.

(iii) Bus Topology :-

It is a network type in which every computer & network devices is connected through a single cable. In this protocols like TDMA, Pure Aloha, CDMA, slotted Aloha, etc used.

Diagrams are on the page no- 2

(4) (i) Pulse code modulation :-

This method used digitally represent sampled analog signals. It is the standard form of digital audio in computers, compact disk, & in other digital audio applications.

(ii) ASK :- Amplitude Shifting keying is the as changing amplitude of the carrier signal with respect to the binary information or digital signal.

(iii) FSK :—

Frequency-Shift keying (FSK) is a method of transmitting digital signals using discrete signals. The two binary states — logic 0 (low) & 1 (high) each are represented by an analog waveform.

(iv) PSK :—

Phase-Shifting keying is a digital modulation process which conveys data by changing the phase of a constant frequency reference signal. It is widely used for wireless LANs, RFID & BlueTooth connections.

(v) Delta modulation :—

Delta modulation is an analog to digital & digital to analog signal conversion Technique. It is employed to realise high signal to noise ratio.

5) Ans → OSI stands for Open System Interconnection is a reference model that describes how information from a software application in one computer moves through a physical medium to a software application in another computer. OSI consists of a seven layers, and each layer performs a particular network function. Each layer is self-contained, so that task assigned to each layer performed independently. The OSI models is main by divided into two layerss.

(i) Upper layer – This layer mainly deals with the application related issues.

(ii) Lower layers :- This layer deals with the data transport issues.

These are seven OSI Layers :-

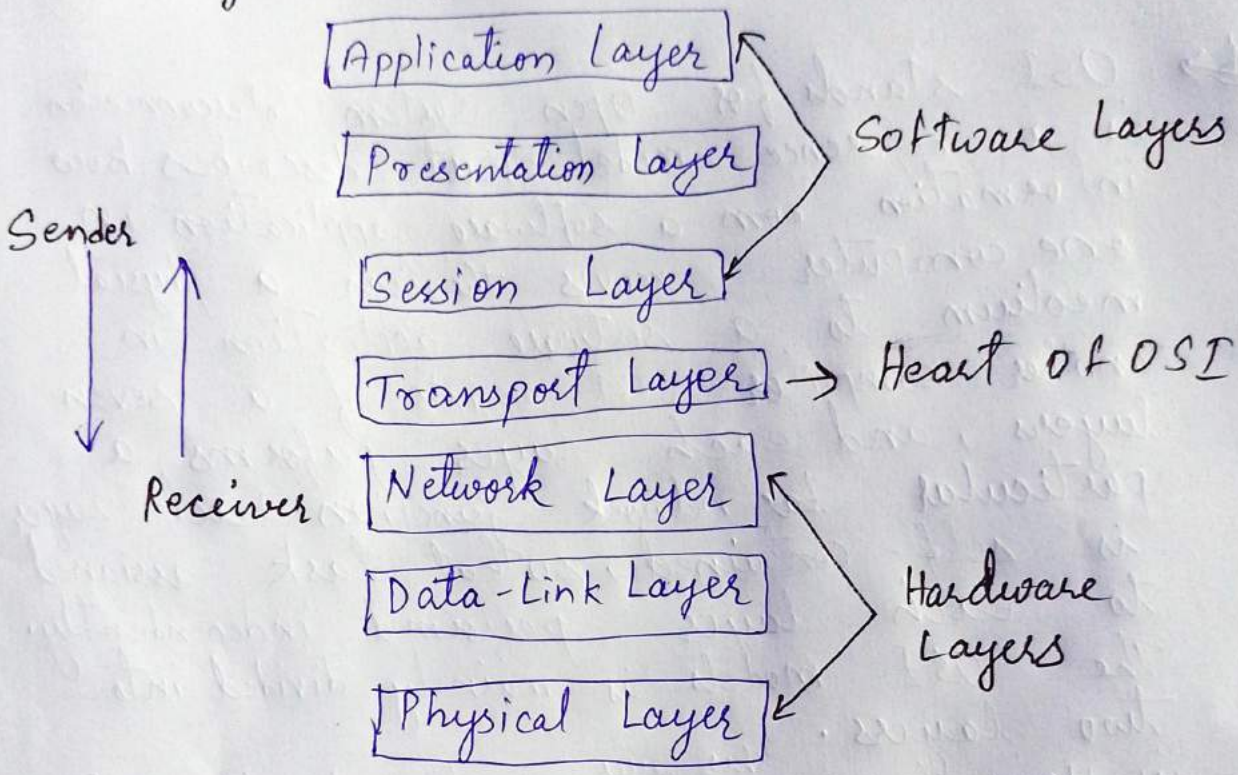
(i) Physical layer :-

It provides a physical medium Through which bits are transmitted from one node to another node.

(ii) Data Link :-

It is used for error free transfer of data from one node to another.

Diagram of OSI model



(iii) Network :-

It is responsible for moving the packets from the source to the destination.

(IV) Transport :-

It provides reliable massage delivery from process to process.

(V) Session :-

It is used establish, manage & terminate the sessions.

(VI) Presentation :-

It is responsible for Translation, compressions and encryption.

vii) Application :-

This layer provides services to the user.

6) Analog to Digital Convession :-

Digital Signal - It is a signal that represents data as a sequence of discrete values at any given time.

Analog Signal :- An analog signal is any continuous signal for which the time varying feature of the signal is a representation of some other time varying quantity

The following techniques can be used for Analog to digital conversion:

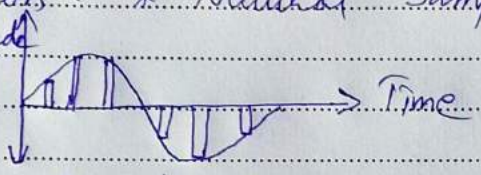
(a) Pulse code Modulation :-

The most common technique to change analog to digital data is called PCM. It has three process:-

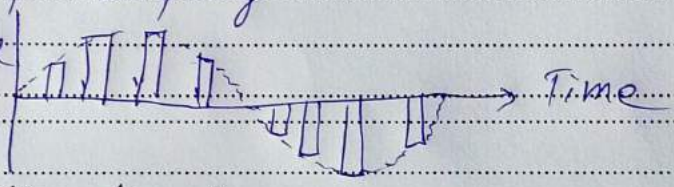
(i) Sampling - The first step in PCM is measuring the amplitude of a measuring the continuous-time signal at discrete signals'

~~(ii) Quantization~~

* Natural sampling



* Flat top Sampling :-



(ii) Quantization :-

The result of sampling is a series of pulses with amplitude values b/w the maximum & minimum amplitude of the signal.

The following steps in quantization:

(i) Assume signal has amplitude b/w Vmax, Vmin

(ii) divide L zones of height d

$$d = \frac{(V_{max} - V_{min})}{L}$$

(iii) Encoding:-

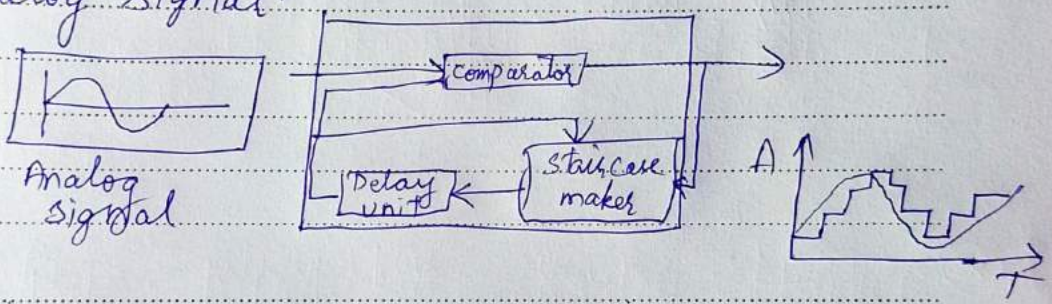
The digitalization of the analog signal is done either by the encoder after each sample is quantized & the no. of bits per changed to an n bit code. It is also minimizes the bandwidth used.

Delta Modulation:-

Delta modulation finds the change from the previous value.

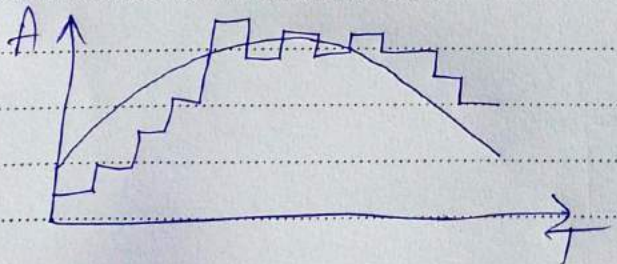
Modulator:-

It is used at the sender site to create a stream of bits from an analog signal.



(c) ADaptive Delta modulation:-

The size adapted a/c to the level of input signal. This method is known as ADM.



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