# 13689

# Transmission switching and signaling

# Question no 1

# Design a multistage (3stage) for N=200, n=20 & k=10 using

# Ans…

In the first stage we have N1n or 10 cross bars. Each of size 20×10 In the second stage we have 4 cross bar each of size 10×10 In third stage 10 cross bar each of size 4×20 the total number of cross point is 2KN +k(N/n)² or cross point. This is 5 percent of the number of cross point in a single stage switch (200×200) = 40,000)

According to the close criterion:

n= (N/2)½

 k˃2n -1

Cross point ≥ 4N ([2N) ½-1)

# Question no 2

# What is access network? Give examples of some of the technologies used in access network?

# Ans…

Access network is a user network that connects subscribers to particular service providers and, through the carrier network, to other network such as the internet

# Examples of access network…

Access network are ISP home network, enterprise networks ADSL, mobile network, FITH etc. It is the most commonly installed wired LAN technology and it provides services on the Physical and Data link Layer of OSI reference model. Ethernet LAN typically uses coaxial cable or twisted pair wires.

* **Eithe**r is the most commonly installed wired LAN (local area network) technology.
* **Wireless LANs** allow mobile users to connect through a wireless (radio) connection
* **Fiber optic** network such a fiber to home (FTTH) use **optical fiber** from a central points directly to individual buildings such residences, apartment buildings and businesses.
* **ADSL (Asymmetric digital subscriber line)** is a technology for high bandwidth on existing phone lines of homes and businesses

# Question no 4

# What is PDH? Name some of its limitation and advantages of SDH/SONET. Show the path section designation of SDH. Also show SDH frame and calculate its basic capacity for a byte and frame.

# Ans …

# PDH…(Plesiochronous digital hierarchy)

The plesiochronous digital hierarchy (PDH) is a telecommunication network transmission technology designed for the transport network of large data volumes across large scale digital network.

The PDH design allows the streaming if data without having isochronous (clock running at identical times, perfectly synchronized) to synchronize the signal exchange. PDH clock

# Advantages of SDH…

* Synchronous network and SDH support multipoint networking
* Capability of transporting existing PDH signals
* Easy growth to higher bit rates which enhance the administration and maintenance process
* It is capable transporting broadband signals

# Question no 7

1. A microwave transmitter has an output of 500 mW. What is its output in dBW?
2. A combining network is two input; +20 dBm and +6dBm. It has an insertion loss of 3 dB

What is combined output in dBm?

# Ans …(a)

A microwave transmitter has an output of 500 mw what is its output

500mw =dBw?

500mw= 16.66?w

16.66/w = -4.99.8dbw

# (B)

A combining network has two input +29dBw and +6dBm it has insertion lost of 3Db what is combined output in Dbw?

Output in dBw

P(mw) = 1mw .10 P (dbm )10)

P(mw) =1mw.10 (+29)(+6)

P (mw) = 0.1mw +290 = +6

P(m) =290. 1dBm-60

$\frac{230.1dBm}{3dm}$=76.7dBm ans

# Question no 8

# VOIP. Explain w.r.t basic function, VOIP components Also explain how to overcome the challenges. What is the role of FXC and FXO in VOIP?

# Ans…

Voice over internet protocol, also called IP telephony is a method and group of technologies for the delivery of voice communications and multimedia sessions over internet protocol networks such as the internet

# The four most important VOIP components are

* Signaling gateway controller
* Media gateway
* Media server
* application server

# FXO (foreign exchange office)

Is the port that receives the analog line. It is the plug on the phone on fax machine or the plug (s) on your analog phone system. It delivers an on hook/hook-off indication (loop closure). Since the FXO port is attached toa devices ,such as a fax ora phone ,the device is often called the FXO device ‘’ this port established the connection to the analog line (FXS)

# Question no 14

# ADSL? Describe and show the modulation technique used in DSL also show and calculate and upstream and downstream data rate for ADSL.

# Ans…

# ADSL..(Asymmetric Digital subscriber line)

Also see fast guide to DSL .ADSL (asymmetric digital subscriber line ) is a technique for transmitting digital information at a high bandwidth on existing phone lines to homes and businesses

# Modulation techniques

In ADSL there are two competing modulation schemes.

1. Carrier less amplitude phase(CAP)
2. Discrete multi tone(DMT)

# Question no 15

# Explain the multiplexing hierarchy T3?

# Ans …

In telecommunication, a digital multiplexing hierarchy is a hierarchy consisting of an ordered repetition tandem digital multiplexer that produce signals of successively higher data rates at each level of the hierarchy

T3 line carriers 672 channels that each run at 64 kbps a multiplexer is a similar to a digital switch that accept the individual channel and has a singular output the digital signal are multiplexed over different time slots enabling several channels to be carried on the same data line.

# Question no 16

# Explain SIGTRAN?

# Ans…

SIGTRAN stack is the protocol stack that support transmission of switched circuit network (SCN) signaling via ip network it also uses the standard IP transport protocol as the transmission bottom layer and satisfies the special transmission requirement of SCN signaling via adding its own functions.

# Question no 17

# Explain SS7oip?

# Ans…

An SS7 over IP network consists of a traditional SS7 network that can integrate IP-enabled or all I-P deices with protocol defined by the internet engineering task force (IETS) standard organization SS7 –over –IP signaling primarily addresses the transport aspect of SS7 . call –control services and other type of deployed without concern for the method of interconnection. The method of services implementation however, remains dependent on the particular network element chosen to support the services rather than the transport chosen. The section looks at the limitation of the SS7 network and its network components role of SIGTRAN protocols, the purpose of SS7over –IP networks the advantages of transitioning to th