Department of Electrical Engineering
Mid – Term Assignment Spring 2020
Date: 13/04/2020

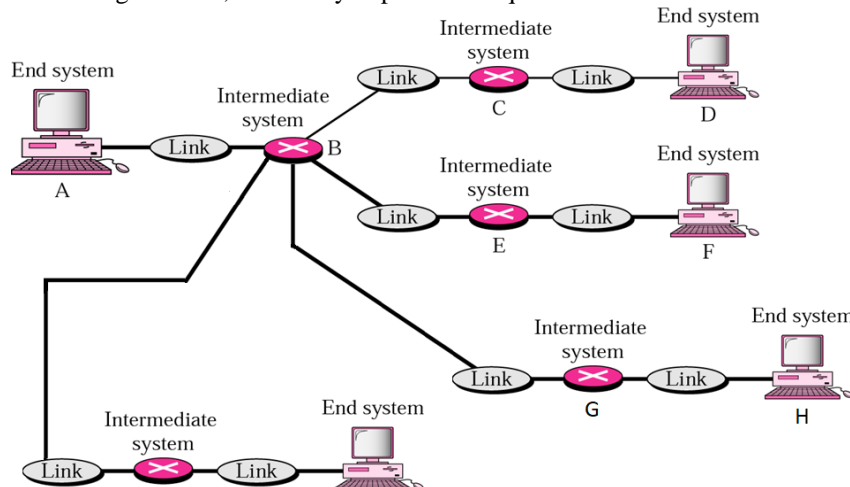## Course Details

Course Title: Computer Communication Network   **Module:** 06

Instructor: Engr Muhammad Waqas   **Total Marks:** 30

Student Details

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Q1.	(a)	1. _____ topology has unidirectional movement of traffic. 2. Set of rules that govern communication is called _____ 3. _____ of a network is the frequency of failure and network recovery time after a failure is measured. 4. ASK, PSK, FSK and QAM are all examples of _____ modulation. 5. Data synchronization is a function related with _____ layer. 6. The _____ layer changes bits into electromagnetic signals. 7. The information to be communicated in a network is called the _____. 8. _____ topology requires the maximum number of I/O ports. 9. A signal that repeats itself is a _____ signal. 10. A 56k modem can download at a rate of _____ Kbps and upload at a rate of _____ Kbps. 11. In mesh topology, if there are five nodes then there will be _____ links. 12. When data is transmitted from device A to device B using internet model, the header from A's layer 4 is read by B's _____ layer. 13. A _____ device will convert an analog signal to a digital signal. 14. _____ is the collection of all the component frequencies.	Marks 14 CLO 1
Q2.	(a)	1. How are frames different from packets? Explain with examples. 2. A phone line being analog can we send digital data on phone lines? Support your answer with examples. 3. Give some details about fault tolerance, which network topologies have fault tolerance capability? 4. How is logical addressing different from physical addressing? Support your answer with examples. 5. A local telephone company wants to connect the LANs in all its offices throughout a city. For this case which network category would be used?	Marks 10 CLO 1
Q3.	(a)	Consider the following network, how many hops will it require for data to reach from node A to node J. 	Marks 04 CLO 1
	(b)	A Sine wave has a frequency of 135 Hz. What is its period?	Marks 02 CLO 1

QNo 1) (a)

(1) Ring

(2) Protocol

(3) Reliability

(4) Digital - to - Analog

(5) physical Layer

(6) physical

(7) Message

(8) Mesh

(9) Periodic

(10) 56.6 , 33.6

(11) 10

(12) Transport layer

(13) ADC (converter)

(14) frequency spectrum

QNo 2 (a) 1.

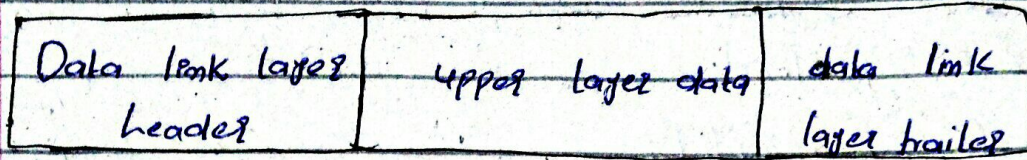How are frames differents from packets?
Explain with example.

Ans) Frame or

★ An information unit whose source and destination are data link layer entities.

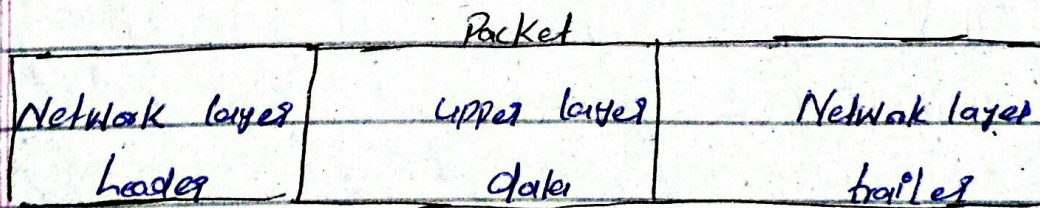★ Composed of the data link layer header (trailer) and upper layer data.

Frame

Data link layer header	upper layer data	data link layer trailer

Packet :-

* An information unit whose source and destination are network layer entities.

* Composed of the network layer header (trailer) and upper-layer data.

Packet

Network layer header	upper layer data	Network layer trailer

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Q.No 2 (a) A phone line being analog Can We send digital data on phone lines? Support your answer with example.

Yes we send analog data over phone

Yes we send digital data on phone lines in Two ways.

Examples

Use the phone company's switched network for low speed modern traffic

Use dedicated circuit that can function at high speed or more less independently of the network switching system.

No 2 (a)(i) Give some detail about fault
tolerance. Which network topologies
have fault tolerance Capability?

Ans)   Fault tolerance -

Fault tolerance is the property
that enables a system to continue
operating properly in the event
of the failure of (or one or
more faults within) some of its
Components.

* Mesh topologies have fault tolerance
Capability
Even if one of the Component fails
there is always an alternative
present. So data transfer doesn't
get affected

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QN(2) (a)(ii)

How is logical addressing different
from physical addressing? Support
your answer with example.

* **logical addressing :**

Logical addressing is generated by cpu while a program is running. The logical address is virtual address as it does not exist physically. Therefore, it is also known as virtual address. This address is used as a reference to access the physical memory location by cpu. the term logical address space is use for the set of all logical addresses generated by a programs perspective.

For example :

IF you use IP as the Network layer protocol. devices on the network are assigned IP addresses such as 207.120.67.30

* **physical addressing**

Physical addressing Identifies a physical location of required data in a memory. The user never directly deal with the

physical address but can access by its corresponding logical address. The user program generates the logical address. and think that the program is running in it's logical address but the program needs physical memory for the execution.

For example.

Ethernet uses a 6-byte (48-bit.) physical address.

Q.No 2 (5) A local telephone Company Wants to Connect the LANs in all its offices throughout a city. for this Case Which network Category Would be used?

Ans) We Can Connect the LANs in all its offices throughout a city through WAN (Wide Area network) because

WAN Connect different Smaller networks. Including local area networks (LANs) and metro area network (MANis) This ensure that Computers and users in one location Can Communicate With Computer and user in other locations. WAN implementation Can be done either with the help of the public transmission System or a private network.

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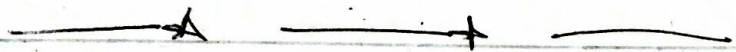
QNo3 (a) Consider the following network how many hops will it Require for data to reach from node A to node J.

Ans) They have 3 hops will Required for data to Reach from node A to J.

Q.No2 (b)   A   Sine wave   has   a   frequency
              of 135 Hz · What is its period.

Solution.

$$F = 135 \ Hz$$

Required:

$$T = ?$$

$$F = 135 \ Hz$$

$$T = 1/F$$

$$= \frac{1}{135}$$

$$\boxed{T = 0.0074 \ sec}$$

The END