

# Department of Electrical Engineering

## Mid – Term Assignment Spring 2020

Date: 13/04/2020

### Course Details

Course Title: Computer Communication Network

Module: 06

Instructor: ENGR WAQAS KHAN

Total Marks: 30

### Student Details

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Q1.	(a)	<ol style="list-style-type: none"> <li>1. _____ topology has unidirectional movement of traffic.</li> <li>2. Set of rules that govern communication is called _____</li> <li>3. _____ of a network is the frequency of failure and network recovery time after a failure is measured.</li> <li>4. ASK, PSK, FSK and QAM are all examples of _____ modulation.</li> <li>5. Data synchronization is a function related with _____ layer.</li> <li>6. The _____ layer changes bits into electromagnetic signals.</li> <li>7. The information to be communicated in a network is called the _____.</li> <li>8. _____ topology requires the maximum number of I/O ports.</li> <li>9. A signal that repeats itself is a _____ signal.</li> <li>10. A 56k modem can download at a rate of _____ Kbps and upload at a rate of _____ Kbps.</li> <li>11. In mesh topology, if there are five nodes then there will be _____ links.</li> <li>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.</li> <li>13. A _____ device will convert an analog signal to a digital signal.</li> <li>14. _____ is the collection of all the component frequencies.</li> </ol>	<p>Marks 14</p> <p>CLO 1</p>
Q2.	(a)	<ol style="list-style-type: none"> <li>1. How are frames different from packets? Explain with examples.</li> <li>2. A phone line being analog can we send digital data on phone lines? Support your answer with examples.</li> <li>3. Give some details about fault tolerance, which network topologies have fault tolerance capability?</li> <li>4. How is logical addressing different from physical addressing? Support your answer with examples.</li> <li>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?</li> </ol>	<p>Marks 10</p> <p>CLO 1</p>
Q3.	(a)	<p>Consider the following network, how many hops will it require for data to reach from node A to node J.</p>	<p>Marks 04</p> <p>CLO 1</p>
	(b)	A Sine wave has a frequency of 135 Hz. What is its period?	<p>Marks 02</p> <p>CLO 1</p>

Question 1(a)Fill in the blanks:-

- 1) Ring topology
- 2) Protocol
- 3) Reliability
- 4) digital to analog
- 5) Data link
- 6) Physical layer
- 7) OSI
- 8) Mesh topology
- 9) Mysterious
- 10) 56.6, 33.6
- 11) do links

(2)

12) Transport

13) Rectifier (ADC converter).

14) Frequency.

### Question No 2:-

1) How are frames different from packets?  
Explain with example.?

Answer:- Difference from Packet by frames:-  
A frame is the chunk of data sent as a unit over the data link (Ethernet, ATM).

A packet is the chunk of data sent as a unit over the layer above it (IP).

If the data link is made specifically for IP, as Ethernet and Wifi are, these will be the same size and packets will correspond to frames.

(3)

2) A phone line being analog can we send digital data on phone lines? Support your answer with example.

Answers:-

Reason with examples:-

Computer transmit digital data expressed as an electrical impulses. Where in the phone line it transmit the voice frequencies as analog signal. As to transmit digital signal or data. the sender modem must first modulate the signal or encoding. Digital signal into an analog signal that travel over the phone line.

Example:-

As we take example of phone line companies they take digital telephone

(4)

Sending high speed data over phone line:  
new communication system are in digital form and analog is slowly way out.  
So companies recommend digital services.

Question 2(3)

Give some detail about fault tolerance, which network topology have fault tolerance capability?

Ans:-

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

While Mesh topology have multiconnection making it the more fault tolerant topology available. Every component of the network is connected directly to other component.

④ How is logical addressing different from physical addressing? Support your answer with example.

Answer:-

Different from logical by physical :-

The basic difference between logical and physical address is that logical address is generated by CPU in perspective of a program. On the other hand, the physical address is a location that exists in the memory unit. The set of all logical addresses generated by CPU for a program is called logical address space.

(5) A local telephone company want to connect the LAN's in all it's offices through a city. For this case which network category would be used.

Answer:-

Local telephone company want to connect the LAN (Local area network) in all its offices in the city.

First it used WAN in office but now LAN. The ring network would be used.

Q3) a) Consider the following network.  
how many hops will it require  
for data to reach from node A to  
node j.

Answer:-

The hops will require to ~~re~~ data  
to reach from node A to node j  
is 3 hops.

- 1) From end system A to router B
- 2) from router B to router I.
- 3) from router I to end system to J.

(b) A sine wave has a frequency of  $135 \text{ Hz}$   
What is its period.

Given data.

$$\text{Frequency} = f = 135 \text{ Hz}$$

Required  
 $T = ?$

Sol

$$T = \frac{1}{f} = \frac{1}{135 \text{ Hz}} = \boxed{0.0074 \text{ seconds.}}$$