

# Department of Electrical Engineering

## Mid – Term Assignment Spring 2020

Date: 13/04/2020

### Course Details

Course Title: Computer Communication Network

Module: 06

Instructor: \_\_\_\_\_

Total Marks: 30

### Student Details

Name: RAFAQAT ULLAH KHAN

Student ID: 14107

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> <pre> graph LR     A[End system A] --- B[Intermediate system B]     B --- C[Intermediate system C]     B --- E[Intermediate system E]     B --- I[Intermediate system I]     C --- D[End system D]     E --- F[End system F]     I --- G[Intermediate system G]     G --- H[End system H]     </pre>	<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>

6)

Question - 01 :-

Part :- (a) :-

Answer :-

- i) :- Ring
- ii) :- Protocol
- iii) :- Reliability
- iv) :- Digital to analog
- v) :- Physical layer
- vi) :- Physical
- vii) :- Message
- viii) :- Mesh
- ix) :- Periodic
- x) :- 56.6 , 33.6
- xi) :- 10
- xii) :- Transport layer
- xiii) :- Analog to digital
- xiv) :- Frequency

~~~~~

Question - Q2:-

Part:- (a):- Sub part:- (A):-

Answer:-

Frame :- 1

- i):- It is the data link layer protocol data unit:-
- ii):- Its associated OSI layer is data link layer.
- iii):- It includes source and destination MAC address.
- iv):- Correlation segment is encapsulated with in a packet.

e.g:-

A particular example of frame is Ethernet frame.

Packet:-

- i):- It is the network layer protocol data unit.
- ii):- Its associated OSI layer is network layer.
- iii):- It includes source and destination IP address.
- iv):- Correlation Packet is encapsulated with in a frame.

e.g:-

An enormous file is broken into many packets and then transmitted across the network. And then software regather them into single file again.

" " " " " "

2). Ca  
el  
tr  
an  
dig  
m  
a  
an  
or  
e  
d  
it  
n  
3). - F

2). Computer transmit data, expressed as electrical impulse, where as telephone transmit voice frequency as an analog signals to transmit digital data. The sending modem must first modulate or encode a computer data signal into an analog signal than can travel over the phone.

e.g. - Digital phone sending high speed data while analog is slow on its way.

3). Fault tolerance:-

It is a property that enable a system to continue operating properly in the event of failure of some of its components.

Mesh topology have multi-connection making it the most fault tolerant topology available every component of network is connected directly to each other component.

4). Logical address:-

i). It is virtual address generated by CPU.

ii). The user can view the logical address of a program.

iii). The user uses the logical address to access the physical address.

e.g :- Memory cell, storage element and network host.

Physical address:-

i). It is a location in a memory unit.

ii). The user can never view physical address of program.

iii). The user can not directly access physical address.

e.g :- A postal address generally called physical address.

5). A local telephone company wants to connect the LAN's in all its offices throughout a city. For this a network category which is used as known is the Ring network category.

Question = 03 :-

Part :- (a) :-

There are 3 hops  
required for data to reach  
from node A to node J.

Question = 03 :-

Part :- (b) :-

Given data :-

$$F = 135 \text{ Hz}$$

Required :-

$$\text{Time Period} = T = ?$$

Solution :-

As we know

$$T = \frac{1}{f}$$

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

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

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