

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

Course Details

Course Title: Computer Communication Network **Module:** 06
Instructor: SIR ENGR WAQAS **Total Marks:** 30

Student Details

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Q1.	(a)	<ol style="list-style-type: none"> 1. <u>Ring</u> topology has unidirectional movement of traffic. 2. Set of rules that govern communication is called <u>Protocol</u> 3. <u>Reliability</u> 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 <u>Digital</u> modulation. 5. Data synchronization is a function related with <u>Physical</u> layer. 6. The <u>Physical</u> layer changes bits into electromagnetic signals. 7. The information to be communicated in a network is called the <u>Message</u>. 8. <u>Mesh</u> topology requires the maximum number of I/O ports. 9. A signal that repeats itself is a <u>Periodic</u> signal. 10. A 56k modem can download at a rate of <u>56.6</u> Kbps and upload at a rate of <u>33.6</u> Kbps. 11. In mesh topology, if there are five nodes then there will be <u>10</u> 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 <u>Transport</u> layer. 13. A <u>ADC</u> device will convert an analog signal to a digital signal. 14. <u>Frequency Spectrum</u> is the collection of all the component frequencies. 	Marks 14 CLO 1
Q2.	(a)	<ol style="list-style-type: none"> 1. How are frames different from packets? Explain with examples. ANS . The difference between frame and packet is that frame is the serial collection of bits, and it encapsulates packets whereas packets are the fragmented form of data and it encapsulates segments. eg. An enormous file is broken into many packets and then transmitted across the network one at a time. The network hardware conveys the packet to the certain destination, where a software regathers them into a signal file again. 2. A phone line being analog can we send digital data on phone lines? Support your answer with examples. ANS. Computers transmit digital data, expressed as electrical impulses, whereas telephones Transmit voice frequencies as analog signals. To transmit digital data, the sending modem Must first modulate, or encode, a computer's digital signal into an analog signal that can Travel over the phone line. eg when you talk on a telephone, the microphone in it's "receiver" produces an analog signal the travels to the central office. Here , the signal switches either to another local destination or other switching offices that connect it to a remote destination. Dialing the telephone produces the signals that tell the switching system where to route the call. 	Marks 10 CLO 1

3. Give some details about fault tolerance, which network topologies have fault tolerance capability?

ANS . Fault-tolerant technology is a capability of a computer system, electronic system or Network to deliver uninterrupted service, despite one or more of its components failing. Fault tolerance also resolves potential service interruption related to software or logic errors.

Wireless Mesh Network (WMN) is an adhoc network with a fixed network infrastructure. The physical structure of WMN includes base stations, a backbone and mobile stations. A mesh topology has multiple connections, making it the most fault tolerant topology available. Every components of the network is connected directly to every other components.

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

ANS. 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. However, the set of all physical address Mapped to corresponding logical addresses is referred as physical Address Space. The Logical and physical address generated while run-time address binding method differs From each other.

The physical address is the local address of a nodes; it is used by the data link layer to deliver Data from one node to another within the same network. The logical address defines the Sender and receiver at the network layer and is used to deliver messages across multiple Networks.

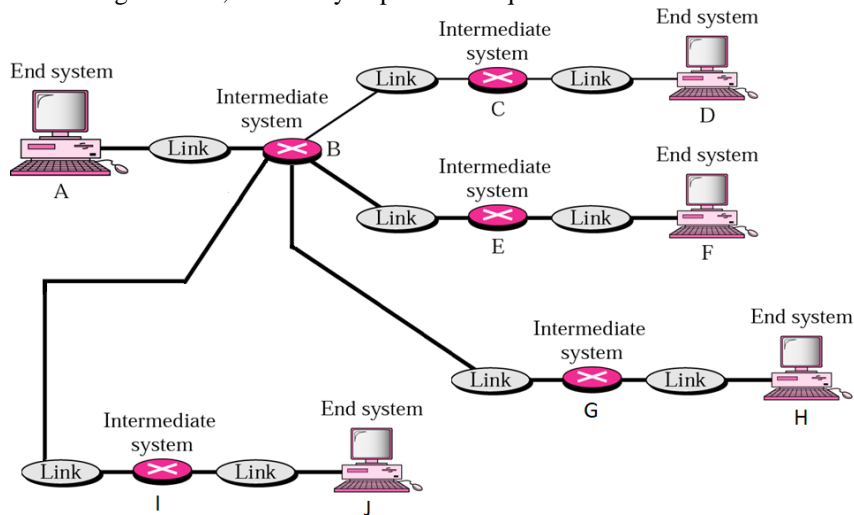
e.g

A Mac Address is the physical or virtual address of your NIC card or network interface. From a computer on a network's standpoint, it is the physical address of that computer's NIC card. It is used to bring information to that computer on Layer 2 of the OSI model.

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. For this case Ring Network category 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.



ANS . 2 hops

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

ANS . 0.0074

Marks 04

CLO 1

Marks 02

CLO 1