

**Department of Electrical Engineering**  
**Assignment**  
**Date: 07/05/2020**

**Course Details**

**Course Title:** Computer Communication Network  
**Instructor:** \_\_\_\_\_

**Module:** \_\_\_\_\_  
**Total Marks:** 20

**Student Details**

**Name:** \_\_\_\_\_

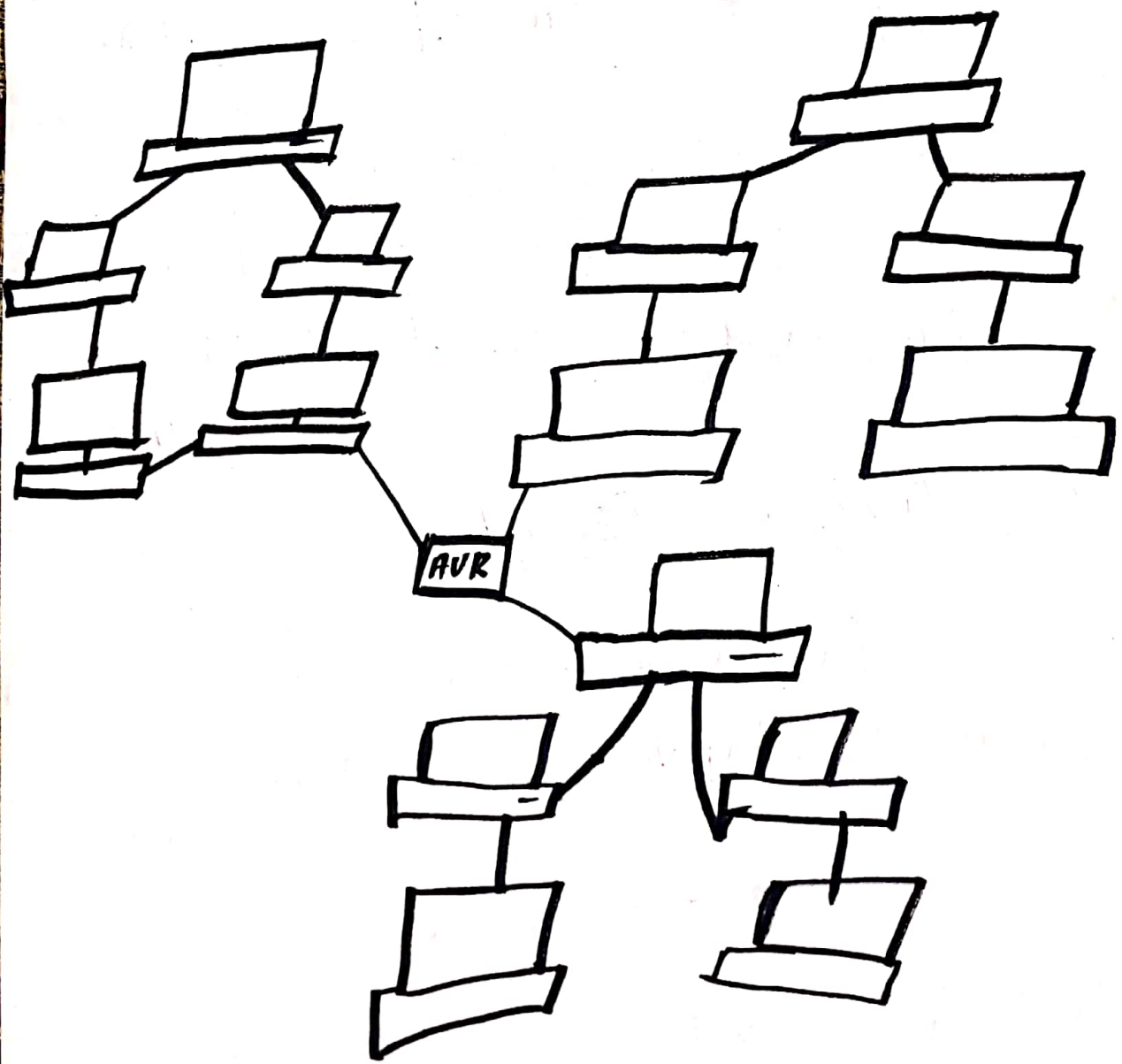
**Student ID:** \_\_\_\_\_

Q1.	(a)	Draw a hybrid topology with a star backbone and three ring networks also simulate the topology in Opnet.	Marks 4 CLO 1
Q2.	(a)	Suppose a computer sends a frame to another computer on a bus topology LAN. The physical destination address of the frame is corrupted during the transmission. What happens to the frame? How can the sender be informed about the situation?	Marks 4 CLO 1
Q3.	(a)	Suppose a computer sends a packet at the transport layer to another computer somewhere in the Internet. There is no process with the destination port address running at the destination computer. What will happen?	Marks 4 CLO 1
Q4.	(a)	Match the following to one or more layers of the OSI model: a. Reliable process-to-process message delivery b. Route selection c. Defines frames d. Provides user services such as e-mail and file transfer	Marks 4 CLO 1
Q5.	(a)	Draw the graph of the NRZ-L, NRZ-I and Manchester scheme using each of the following data streams, assuming that the last signal level has been positive. From the graphs, guess the bandwidth for this scheme using the average number of changes in the signal level. a. 00000000 b. 11111111 c. 01010101 d. 00110011	Marks 4 CLO 2

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①

Q18⇒



Q2 ⇒ If the corrupted destination address does not match any station address in the network the packet is lost. If the corrupted destination address to wrong station in the case how are the error detection mechanism, available in most data link protocols, will find the error and discard the frame. In both cases the source will somehow be informed using one of the data link control mechanisms discussed in chapter 5. Before using the destination address in an intermediate or the destination node the packet goes through error checking that may help the node find through corruption (with a high probability) and discard the packet. Normally the upper layer protocol will inform the source to resend the packet.

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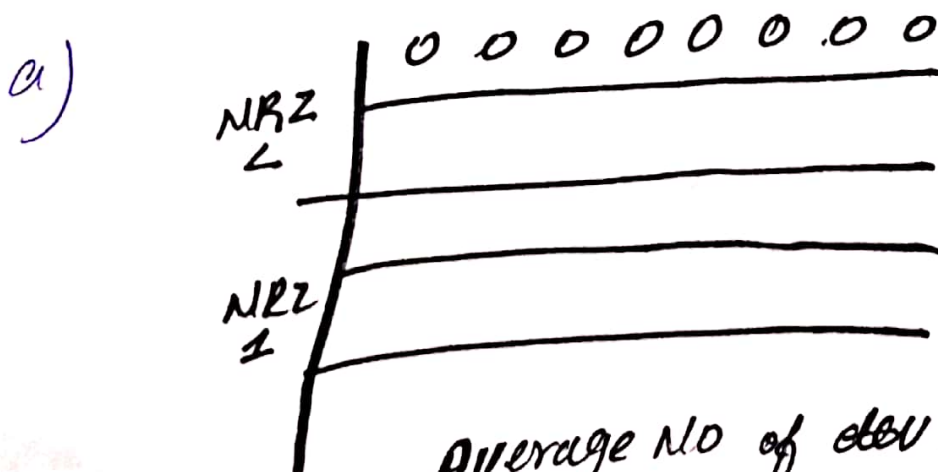
Q3 ⇒ If the physical layer, communication is direct between devices. At the higher layers, however communication must move down through the layers on sending device over to receiving device and the backup through the layers. Each layer in the sending device adds its own information to the message it receiving from the layer just above it and passes the whole package to the layer just below it. At the receiving machine the message is unwrapped layer by layer, with each process receiving and remaining the data intact for it.

The process of each machine that communicate (3) at a given layer physical layer has a direct link between 2 (two) devices, while over other layers have to pass the information down to the lower layers on the sender device by adding extra bites at each layer and the receiver devices unwraps the message at each layer moving upwards till it finally reaches the corresponding communicating layer.

Q4

1.1 :- Match the following the one or more layers of the Model.

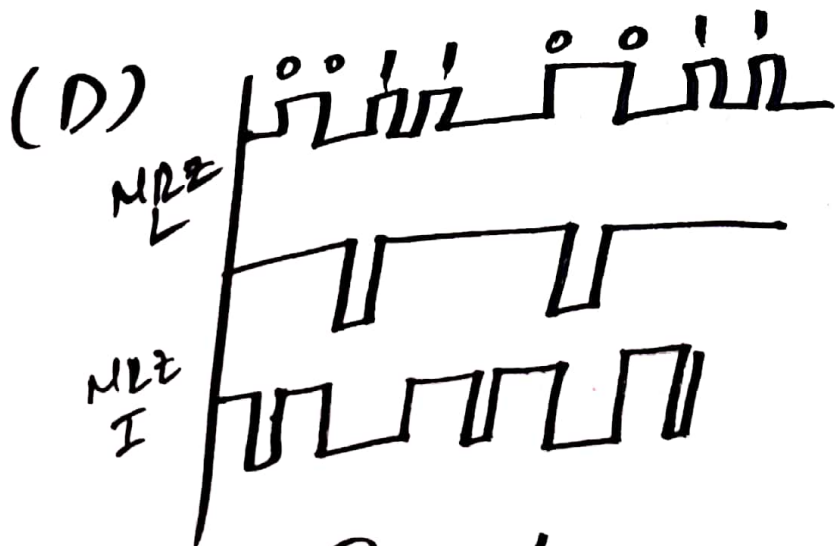
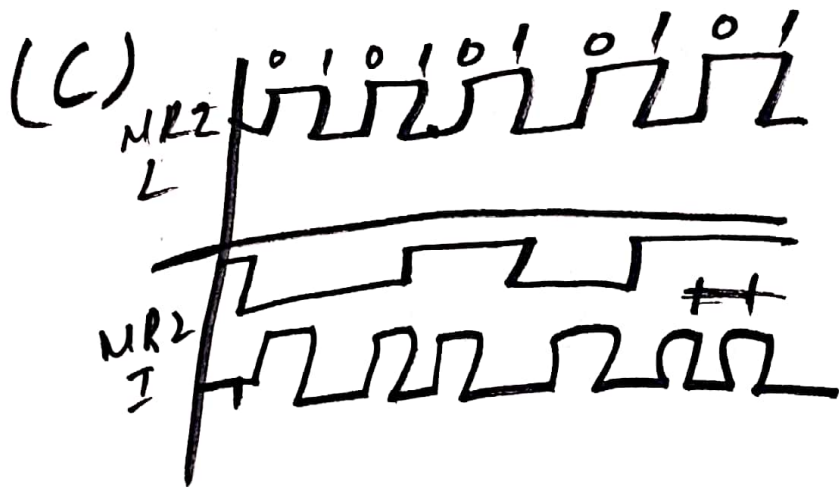
- a) route determination - Network layer (Layer 3)
- b) flow control - Transport layer (Layer 4)
- c) Interface to transmission media (Physical) layer (Layer 1)
- d) provides access for the end users - Application layer (Layer 7)



Average NO of dev charges =

$$(0 + 0 + 8 - 4) / 4$$

$$= 3 \text{ for } N = 8$$



End =