

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

Course Details

Course Title: Computer Communication Network
Instructor: _____

Module: _____
Total Marks: 20

Student Details

Name: **M.Kamran**

Student ID: **13752**

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

Name : Muhammad Kamran

ID# : 13752

Assignment#

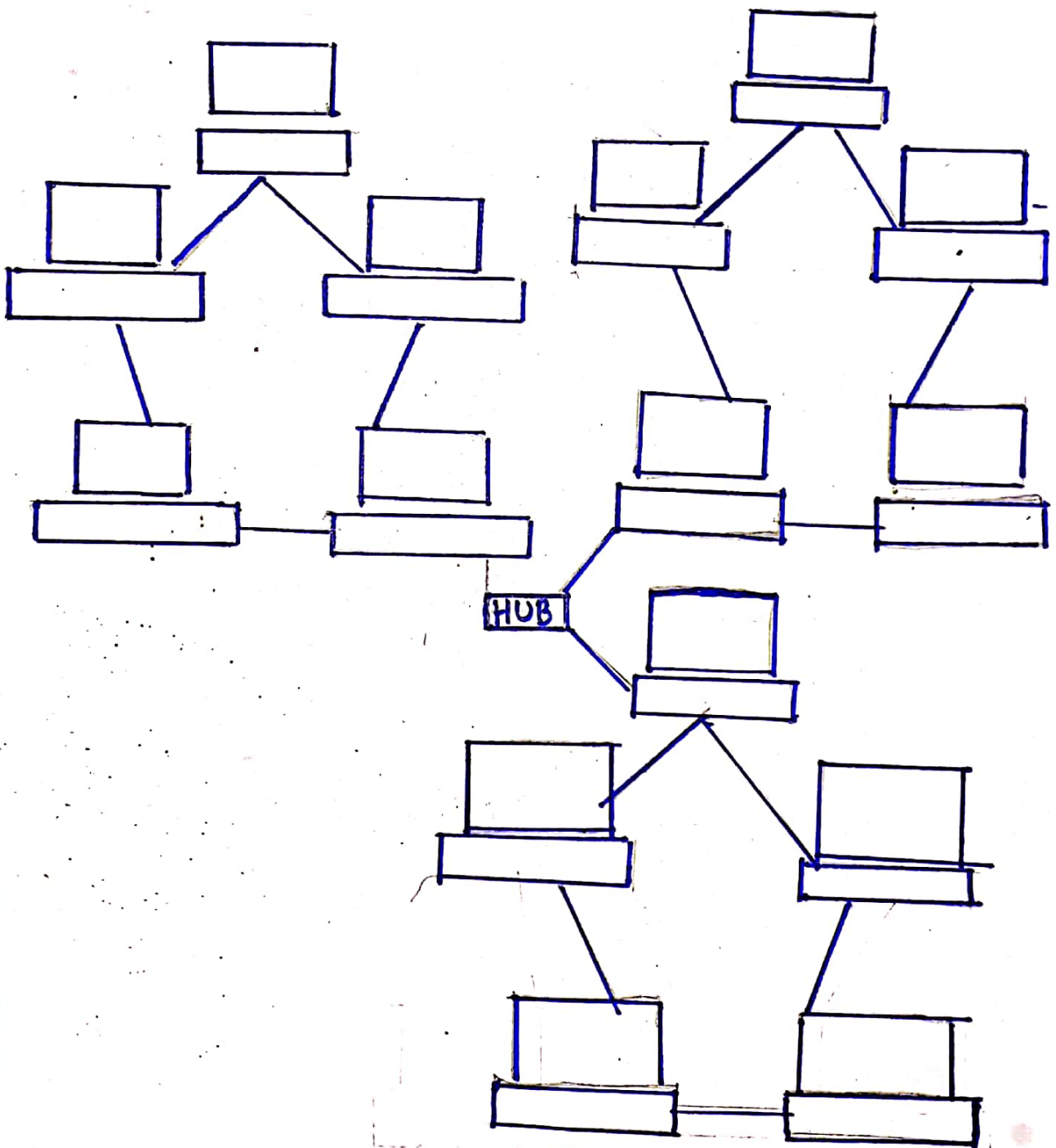
Date : 6-6-2020

Subject: computer communication
Network.

Q# 1(a):

Draw a hybrid topology with a star backbone and three ring networks also simulate the topology in opnet.

hybrid topology with star backbone:



(2)

Q# 2(a)

Suppose a computer send 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 frame? How can the sender be informed about the situation.

If the corrupted destination address does not match any station address in the network, the packet is lost. If the corrupted destination address matches one of the station. the frame is delivered to the wrong station. In this case however, 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.

(3)

Q #3: 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?

The sending computer is running three processes at this time with port addresses a, b and c. The receiving computer is running two processes at this time with port addresses j and k. A process in the sending computer needs to communicate with process j in the receiving computer. Note that although both computers are using the same application FTP. For example the port addresses are different because one is a client program and other is a server program. To show that data from a process a need to deliver process j

(4)

and not K the transport layer encapsulates ~~the~~ data from the application layer in a packet and adds two port addresses (a and j) source and destination. The packet in the transport layer is then encapsulated in another packet at the network layer with logical source and destination addresses (A and P) finally this packet is encapsulated in a frame with the physically source and destination address of the next hop. We have not shown the physically addresses because they change from hop to hop inside the cloud designed as the internet.

Q#4:

Match the following to one or more layers of the OSI Model:

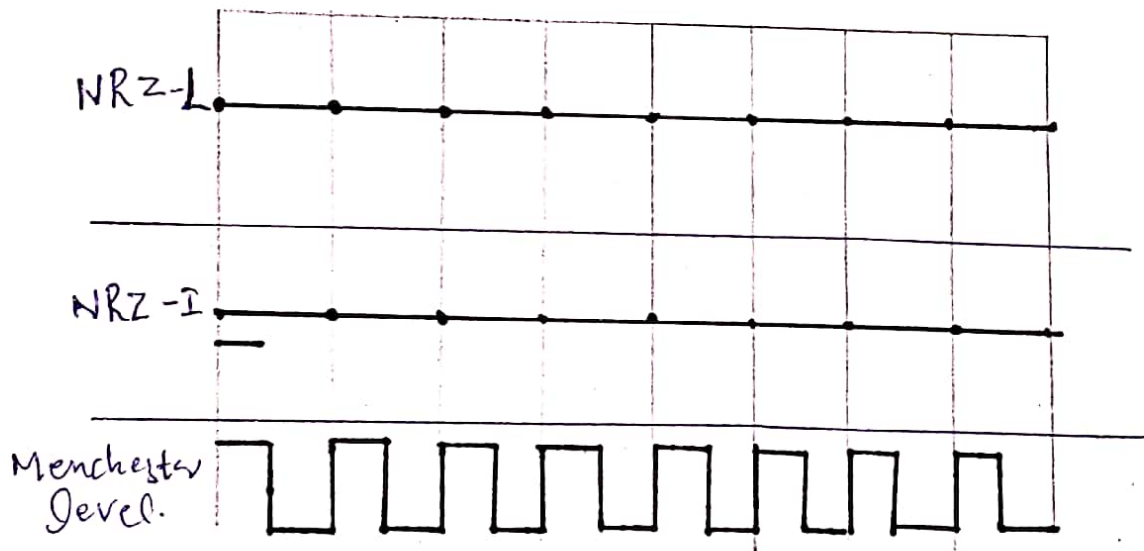
- (a) Reliable process-to-process Delivery
(Transport layer)
- (b) Route selection (Network layer)
- (c) Defines frames (Data link layer)
- (d) providing user services:
(application layer)
- (e) Transmission of bits across the
medium (physical layer)

(6)

Q# 5: (a)

Draw the graph of the NRZ-L, NRZ-I and Manchester scheme using each of the following data stream 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



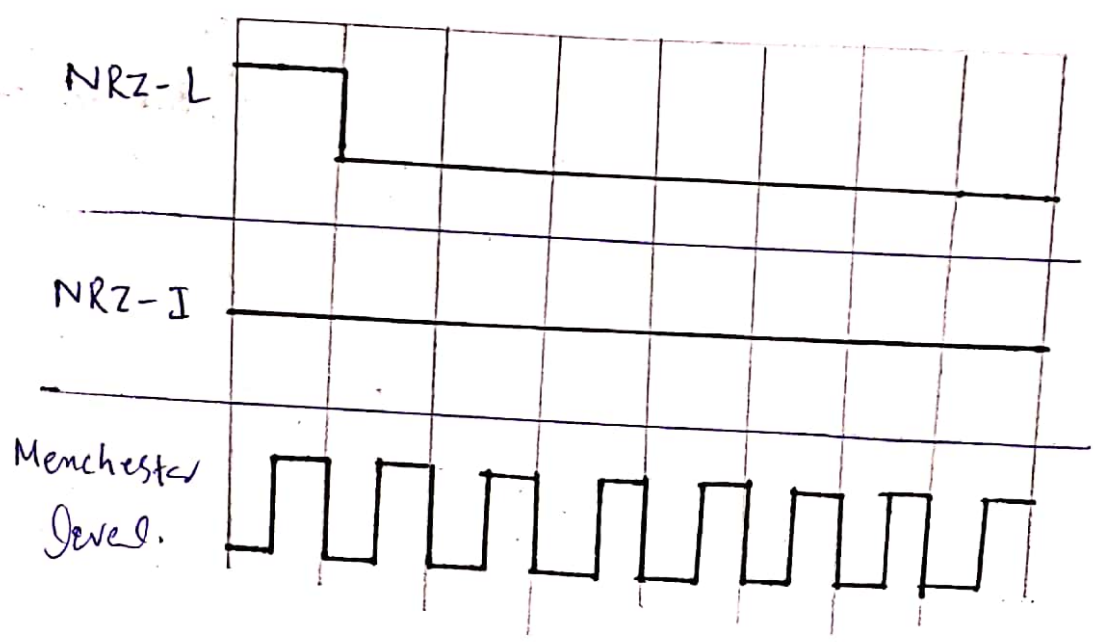
$$\text{Average No of changes} = (0 + 0 + 8 + 4) / 4$$

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

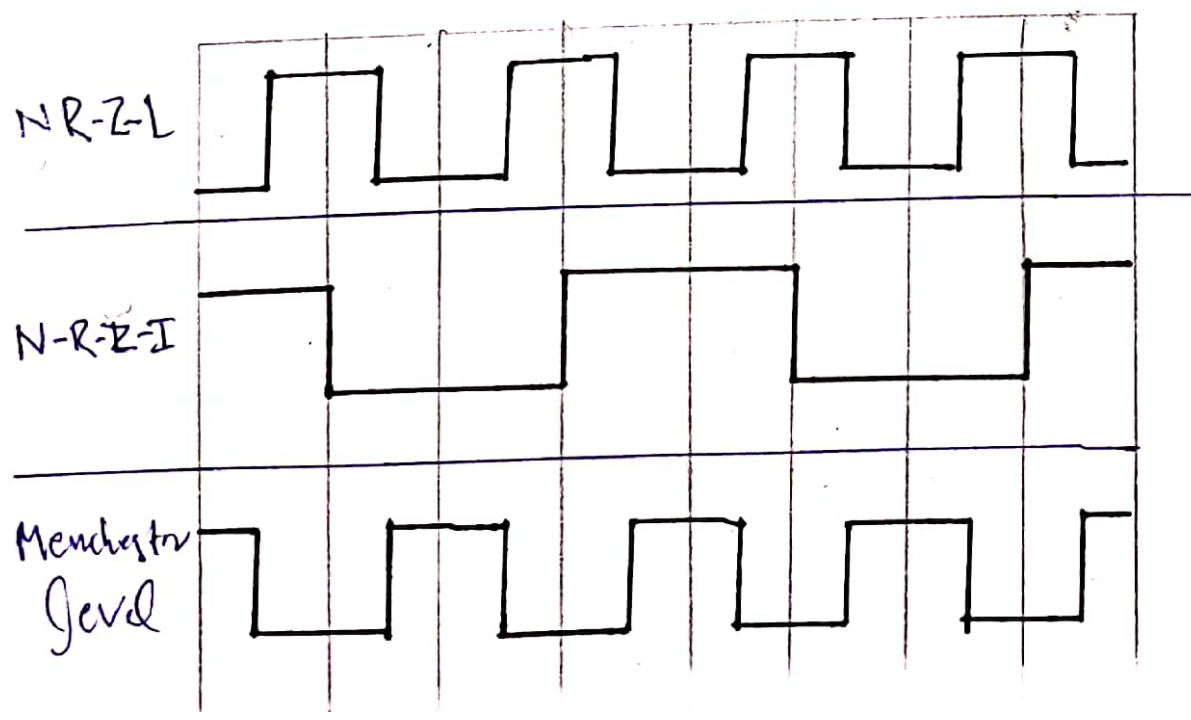
(6)

(7)

(B) (11111111)



(C) (01010101)



(8)

(d) (00110011)

