

Department of Electrical Engineering

Assignment

Date: 07/05/2020

Course Details

Course Title: Computer Communication Network

Module: _____

Instructor: Sir M. Wazir

Total Marks: 20

Student Details

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Student ID: 6997

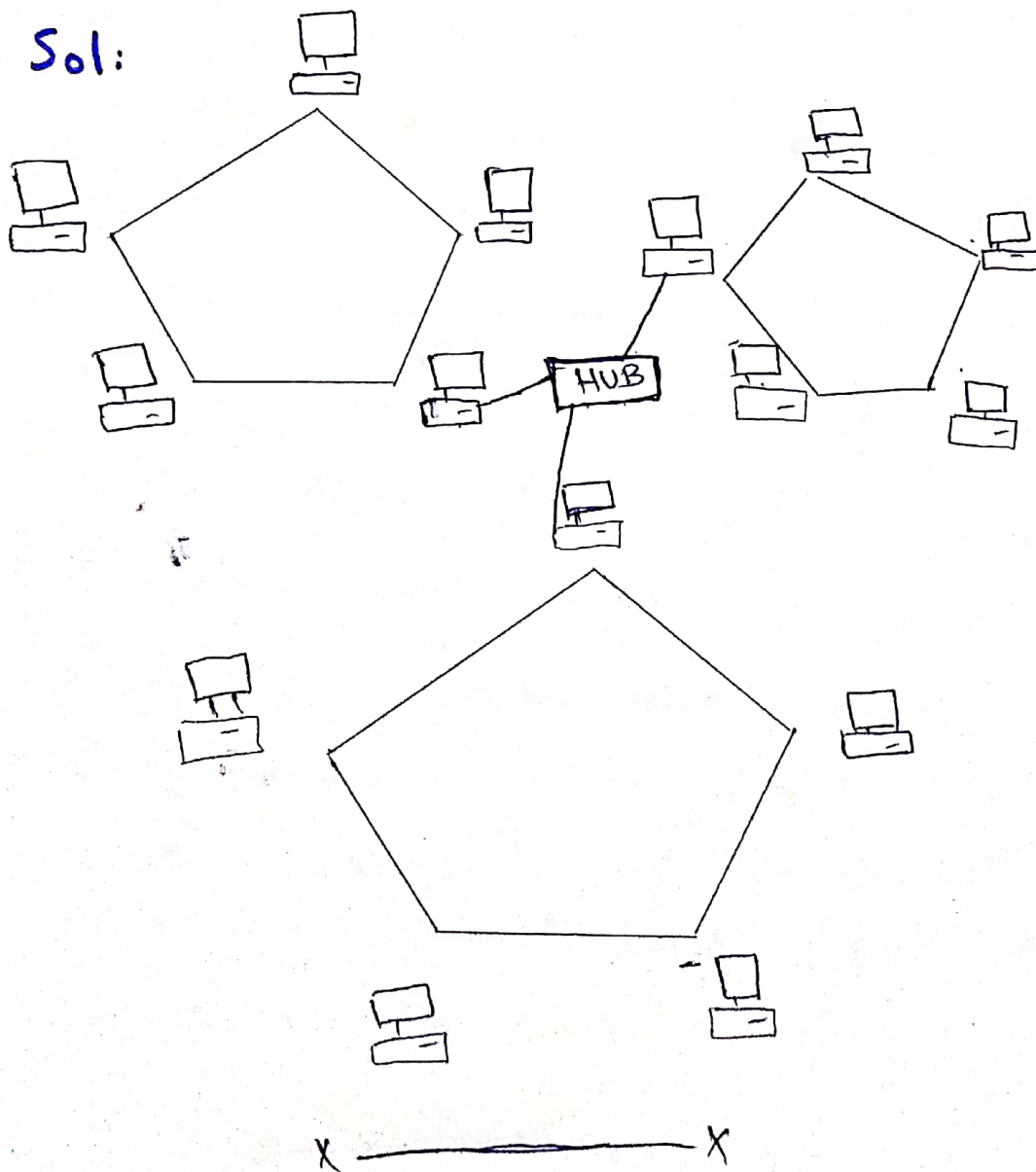
Q1.	(a)	Draw a hybrid topology with a star backbone and three ring networks also simulate the topology in Opnet.	Marks 4 CLO 1
Q2.	(a)	Suppose a computer sends a frame to another computer on a bus topology LAN. The physical destination address of the frame is corrupted during the transmission. What happens 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

Amb

Q NO: 1 (a)

Draw a hybrid Topology with a Star backbone and Three ring networks ?

Sol:



Q No: 2 (a)

Suppose a computer sends a frame to another computer on a bus topology LAN. The physical.....?

Ans: 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 stations, 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 discarded - Normally the upper layer protocol will inform the source to resend the packet -

X ————— X

Q:3 (a)

Suppose a Computer sends a packet at the Transport layer to another... what will happen?

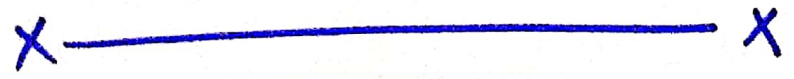
Ans: Before using the destination address in an intermediate or the destination node, the packet goes through error checking that may help the node find the corruption (with a high probability) and discard the packet - Normally the upper layer protocol will inform the source to resend the packet -



Q:4(a)

The the following to one or more layers of the OSI Model.

- (a) Reliable process-to-process Message delivery - Transport -
- (b) Route Selection Network -
- (c) Defines frames - Data Link -
- (d) Provides user services such as e-mail and file transfer - Application



Q No: 5 : (a)

Draw the graph of NRZ-L, NRZ-I and Manchester Scheme - - - - ?

(a) 00000000

(b) 11111111

(c) 01010101

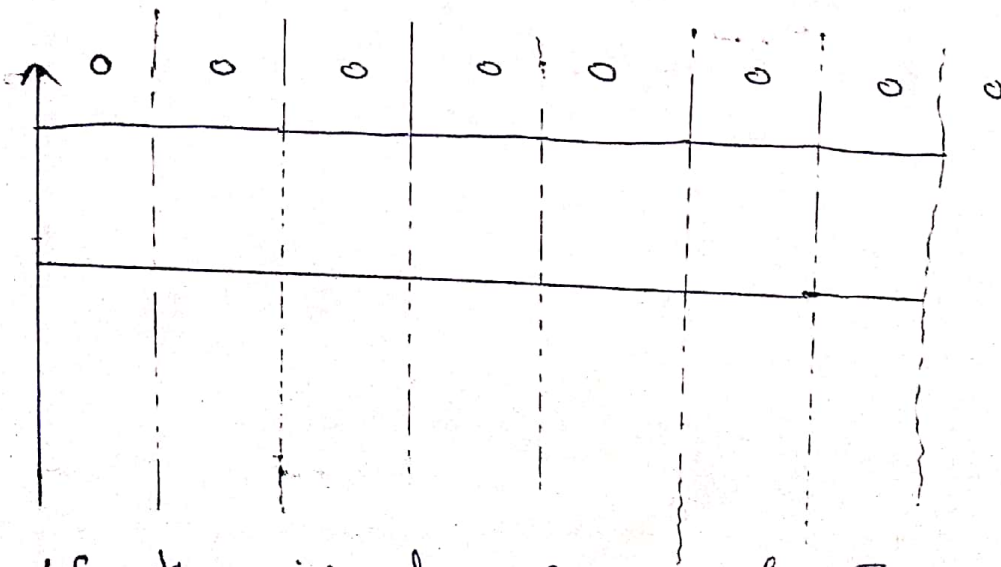
(d) 00110011

Sol: NRZ-L.

Average number of changes $(0+0+8+4)/4=3$
 $N=8$

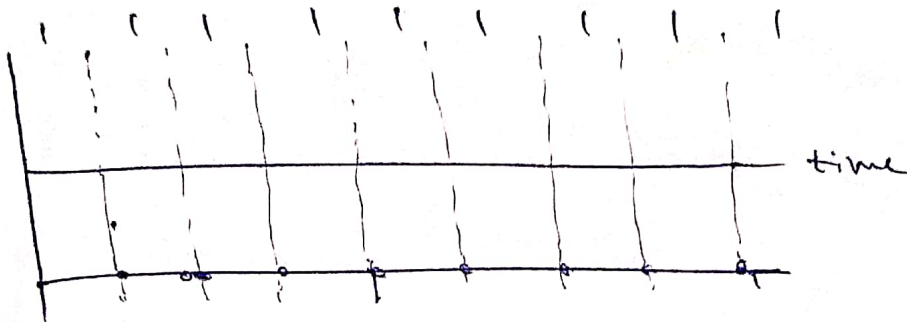
So bandwidth is proportional to $3/8 N$.

(a) Given data bit is 00000000



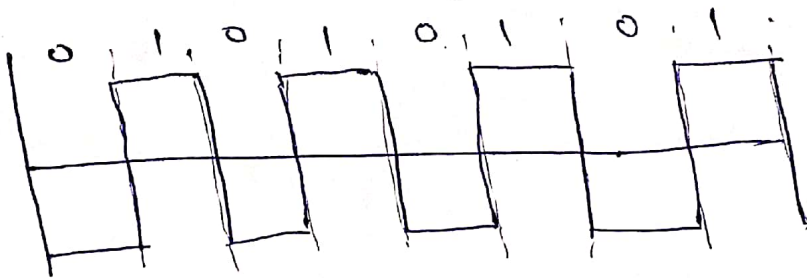
If there is long sequence of zero or 1s in NRZ-L then the number of changes = 0.

(b) 11111111

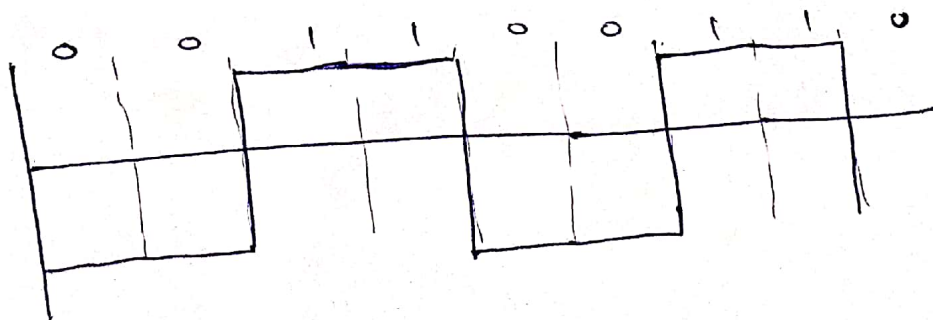


If there is continuous large No. of 0s or 1s then there will be no changes.

(c) 01010101



(d) 00110011



NRZ-I Scheme

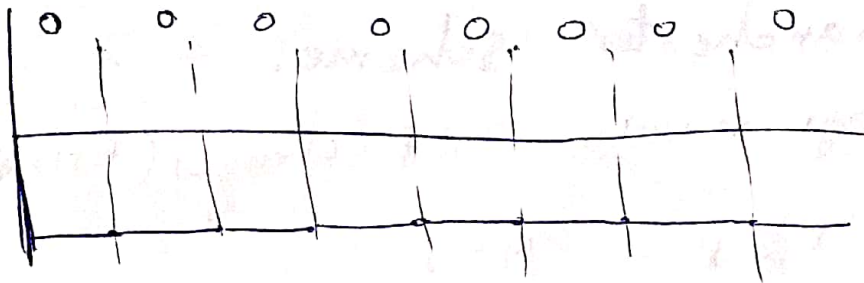
Average number of changes $(0+9+4+4)/4$

$$= 4.25 \quad N=8$$

So Bandwidth is Proportional to $4.25/N$

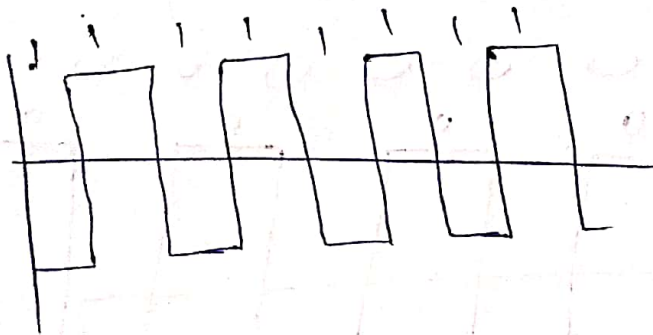
(a)

0 0 0 0 0 0 0 0



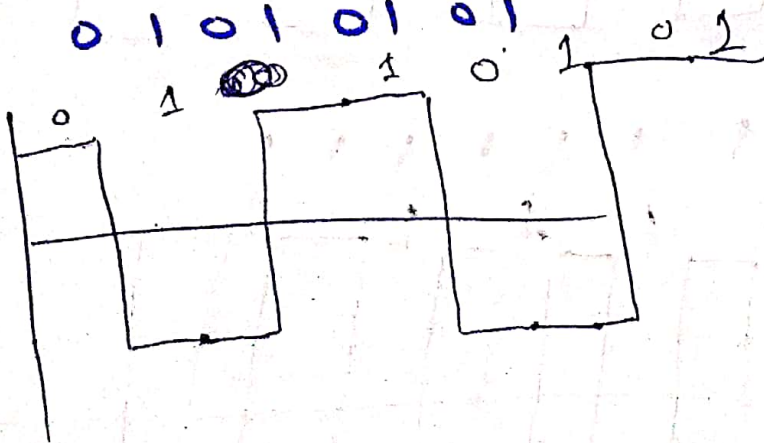
(b)

1 1 1 1 1 1 1 1

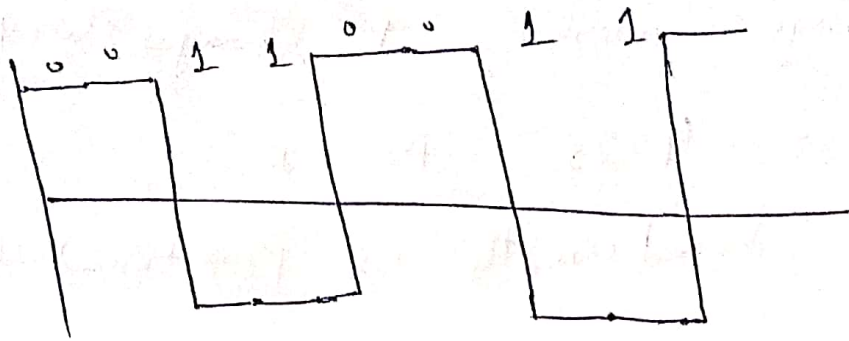


(c)

0 1 0 1 0 1 0 1



(d) 00110011



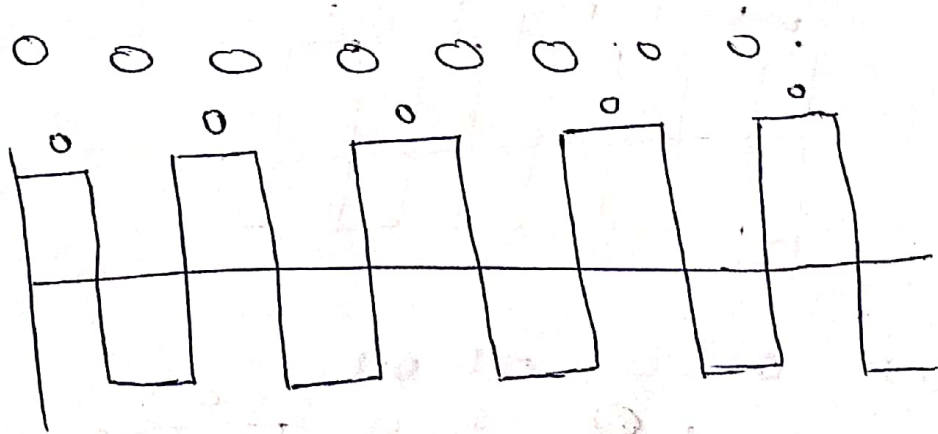
Manchester Scheme:

Average number of changes $(15+15+8+12)/4$

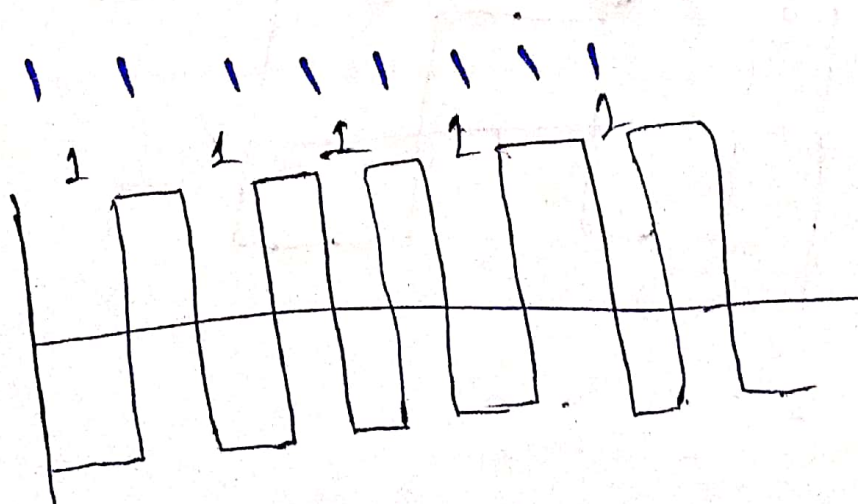
$$= 12.8 \quad N=8$$

So bandwidth is proportional to $12.8/8^N$

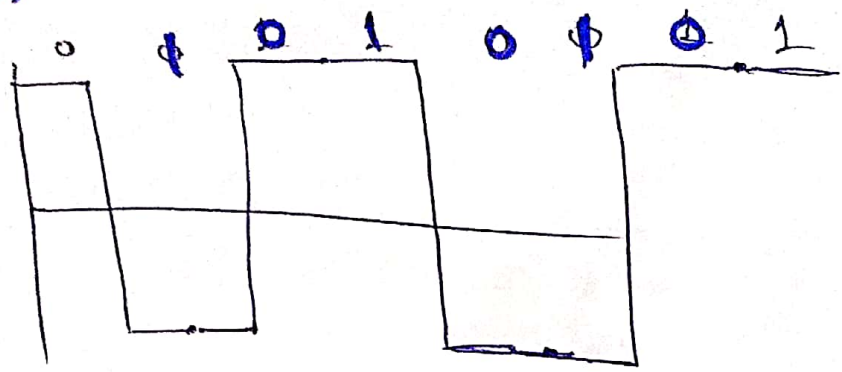
(a)



(b)

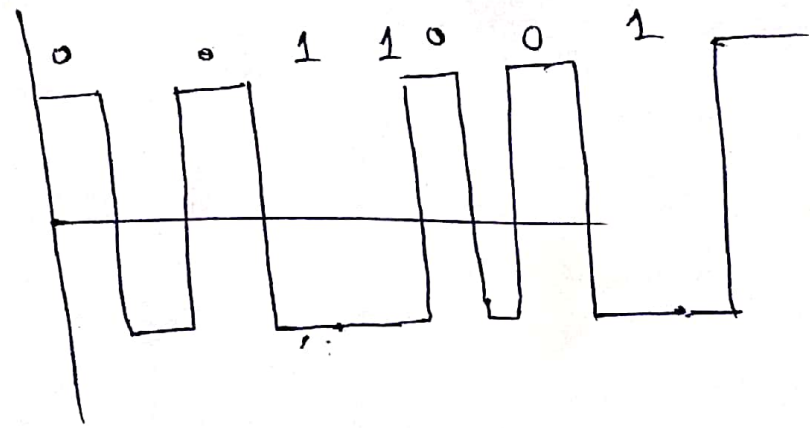


(c) 0 φ 0 1 φ φ 0 1



(d)

0 0 1 1 0 0 1 1



X-----X