

# Department of Electrical Engineering

## Assignment

Date: 07/05/2020

### Course Details

Course Title: Computer Communication Network

Module: \_\_\_\_\_

Instructor: Sir Waqas

Total \_\_\_\_\_

Marks: \_\_\_\_\_

### Student Details

Name: Anees Sher

Student ID: 11743

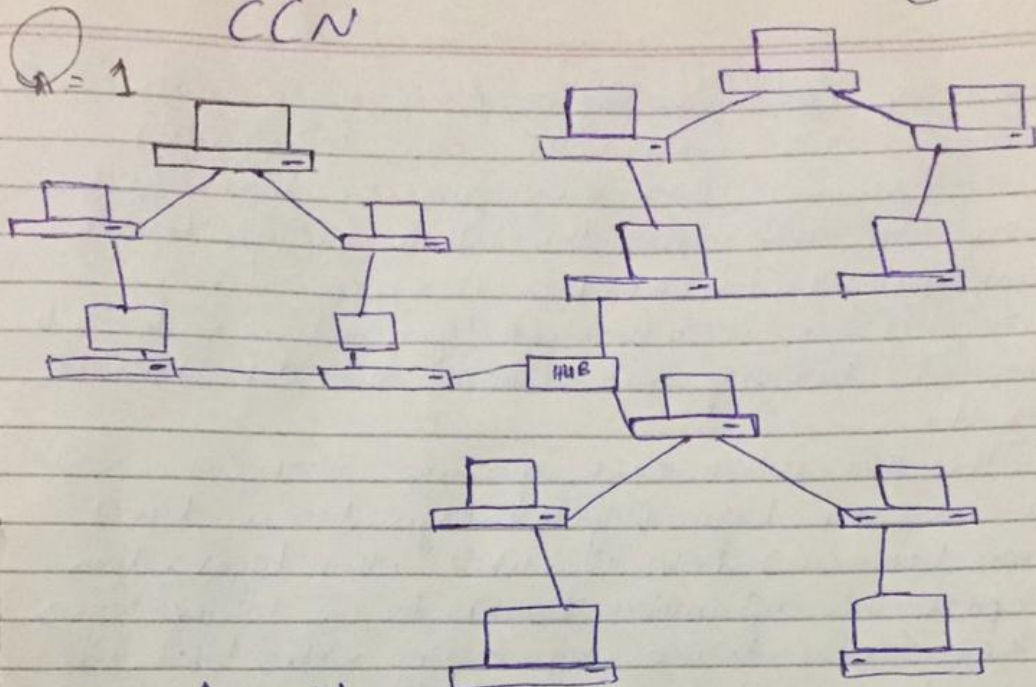
Q1.	(a)	Draw a hybrid topology with a star backbone and three ring networks also simulate the topology in Opnet.	Marks 4
			CLO 1
Q2.	(a)	Suppose a computer sends a frame to another computer on a bus topology LAN. The physical destination address of the frame is corrupted during the transmission. What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

ID 11743

Assignment.

(1)

CCN



Wide Area Networks-

Q=2 If the corrupted destination address does not match any station address in the network the packet is lost. If the corrupted destination address is 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 discussed in Chapter 11.

Before using the destination address is 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=3 At the physical layer, communication is direct between devices. At the higher layers, however communication must move down through the layers on the sending device over to receiving device and the



(2)

back up through the layers. Each layer in the sending device adds its own information to the message it receives 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 removing the data meant for it.

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

Q4:-

Answer:-

1.15 Match the following to one or more layers of the OSI 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 user - Application layer (layer 7)



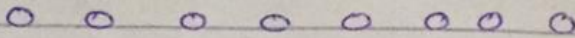
3

Q 4

a)

Ans

NRZ  
L



NRZ  
I

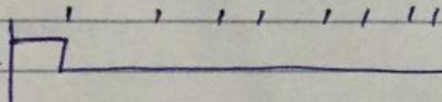


Average No of changes =

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

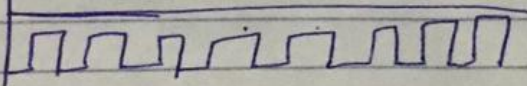
$$= 3 \text{ for } N=8$$

b) NRZ  
L



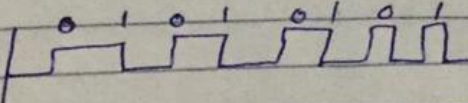
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NRZ  
I

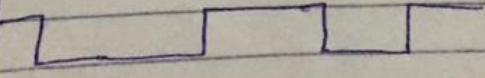


Manchester level

c) NRZ  
L

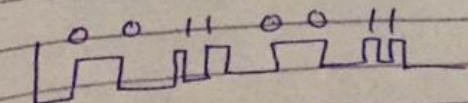


NRZ  
I

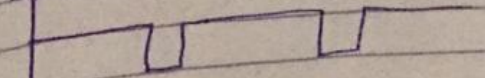


Manchester level

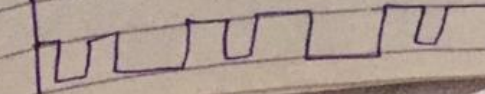
d)



NRZ L



NRZ I.



→ Manchester level.