

## Department of Electrical Engineering

Final – Term Summer 2020

Date: 24/09/2020

### Course Details

Course Title: Computer Communication Network

Module: 06

Instructor: \_\_\_\_\_

Total Marks: 50

### Student Details

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

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

Q1.	(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 06
			CLO 1
Q2.	(a)	The signal-to-noise ratio is often given in decibels. Assume that $SNR_{dB} = 36$ and the channel bandwidth is 2 MHz. Calculate the theoretical channel capacity.	Marks 04
	(b)	What is the bit rate for each of the following signals? a) A signal in which 1 bit lasts 0.001 s b) A signal in which 1 bit lasts 2 ms c) A signal in which 10 bits last 20 J-Is	CLO 1
			Marks 04
Q3.	(a)	Write <b>brief</b> short notes on the following i) What are the three criteria necessary for an effective and efficient network? ii) What is the difference between half-duplex and full-duplex transmission modes? iii) For n devices in a network, what is the number of cable links required for a mesh, ring, bus, and star topology? iv) What are the concerns of the physical layer in the Internet model? v) Name some services provided by the application layer in the Internet model. vi) How do the layers of the Internet model correlate to the layers of the OSI model? vii) What does the amplitude of a signal measure? What does the frequency of a signal measure? What does the phase of a signal measure?	Marks 14
			CLO 1
Q4.	(a)	Convert the bit stream 1 0 1 0 1 1 0 1 0 1 for the following schemes a) NRZ-L b) NRZ-S c) UNIPOLAR-RZ d) BIPOLAR-RZ	Marks 16
			CLO 2
	(b)	What is the total delay (latency) for a frame of size 5 million bits that is being sent on a link with 10 routers each having a queuing time of 2 $\mu$ s and a processing time of 1 $\mu$ s. The length of the link is 2000 Km. The speed of light inside the link is $2 \times 10^8$ m/s. The link has a bandwidth of 5 Mbps. Which component of the total delay is dominant? Which one is negligible?	Marks 06
			CLO 1