

# LOVELY PROFESSIONAL UNIVERSITY

Online Assignment : 1	Max marks :30 (3*10)	Course code: CSE 306
Date of submission: 12-02-21	Format: Hand written	Submission mode: online

**NOTE:**

- i. The assignment should be handwritten and should be uploaded in the pdf format.
- ii. If any of the assignments is found copied or any of the assignment matched with the other, the students will be getting ZERO and will not be eligible for the rest academic tasks.

## SET A

Q1. What are the causes of impairment? Suppose a wave with amplitude 10V and frequency 6Hz, travels through a medium that contains thermal noise. Using the time-domain representation of the wave, briefly explain the concept of the causes of impairment. [Note that you need to retain the signal strength at the destination]

Q2. Categorize the four basic topologies in terms of line configuration. With the help of diagrams explain for n devices in a network, what is the number of cable links required for a mesh, ring, bus and star topology?

Q3. Explain the different types of modulation in detail.

## Set B.

Q1. With reference to OSI model, discuss various steps involved if User A wants to communicate with a User B. Also discuss the need for layering in network architecture.

Q2. Suppose a composite periodic signal with amplitude 5V, 10V and 15V and frequency 2, 4 and 8 and phase 0°, 90° and 180° travels through a guided medium and the receiver being computer system. With the help of the suitable diagrams in context with the signals show how the information flows from the sender to the receiver. [Hint: the computer system only understands the digital signals].

Q.3 what is the total 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 microseconds and a processing time of 1 microseconds. The length of the link is 2000 Km. The speed of light inside 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?

### Set C.

Q1. Explain in detail the difference between the OSI and the TCP/IP model and Identify some network criteria which helps in proper working of a data communication.

Q.2. Explain with the help of a suitable diagram how the communication takes place if a user A sends a message via Whatsapp (Uses TCP/IP model) to the another user. Note: Explain the role of each layer in detail.

Q.3 What are the performance measures for networking? What are the propagation time and the transmission time for a 5MB message if the bandwidth of the network is 1Mbps? Assume that the distance between the sender and the receiver is 12,000 km and that light travels at  $2.4 \times 10^8$  m/s.