

International Islamic University Chittagong

Department of Computer Science and Engineering

B. Sc. in CSE

Mid term Exam, Spring 2022

Course Code: CSE 3525

Course Title: Data Communication

Time: 1 hour and 30 minutes

Full Marks: 30

(The figures in the right-hand margin indicate full marks)

1. a) Following figure (Figure 1) shows that the communication is between a process running on computer S with port address 35 and a process running on computer R with port address 91. Show the content of transport, network, and data link layers for each hop. CLO1 5

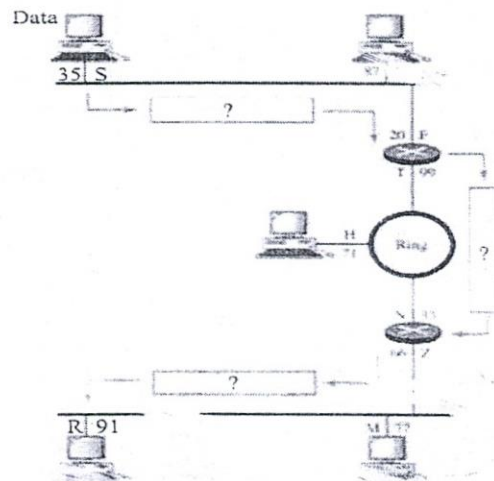


Figure 1

1. b) Describe the functions of each of the layers of ISO-OSI model. CLO1 5
2. a) Show the time and frequency domain plot of a voice signal and a sine wave. Also calculate and show the bandwidth for both signals. CLO1 5
2. b) A signal at the end of a 3 km transmission media has a power of 3mW. If the loss in the cable is 2 db, what was the power of the signal at the starting point of the media. CLO2 5

OR

2. b) Analyze, compare and evaluate the formula for Nyquist bit rate for a noiseless channel and the formula for Shannon capacity for a noiseless channel. CLO2 5
3. a) Write differences between synchronous and asynchronous transmission. Discuss signal propagation through guided and unguided media CLO2 5
3. b) With figure show any two method of converting digital data to digital signal. CLO3 5

OR

3. b) Construct digital signal with the following line coding schemes for the following bit stream: 10010000111 CLO3 5
- NRZ-I
 - Manchester
 - Differential Manchester
 - AMI
 - AMI with HDB3