

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
TEST-1 EXAMINATION (FEB 2022)

B-Tech (6th SEM)

Course Code: 18B11CI611

Max. Marks: 15

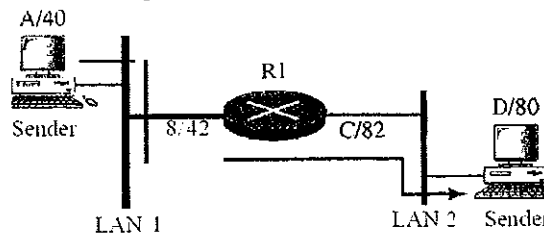
Course Name: COMPUTER NETWORKS

Max. Time: 1 HRS

Course Credit: 3

Note: All questions are compulsory

- Q. No. 1 (a) In Figure, assume that the communication is between a process running at computer A with port address i and a process running at computer D with port address j . Show the contents of packets and frames at the network, data link, and transport layer for each hop. [1, 2]
[CO-1]



- (b) Match the following to one or more layers of the OSI model and brief discuss all function of that layer?
- | | |
|------------------------------------|-------------------------------------|
| a. Route determination | b. Flow control |
| c. Interface to transmission media | d. Provides access for the end user |

- Q. No. 2 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 2×10^8 m/s. The link has a bandwidth of 5 Mbps. Which component of the total delay is dominant? Which one is negligible? [2]
[CO-2]

- Q. No. 3 Draw the graph of the 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. [2, 1]
[CO-2]
- | | |
|-------------|-------------|
| a. 00000000 | b. 11111111 |
| c. 01010101 | d. 00110011 |

- Q. No. 4 (a) Distinguish between synchronous and statistical TDM with the help of suitable illustration? [2, 2]
[CO-2]
- (b) Compare and contrast a circuit-switched network and a packet-switched network. What is the role of the address field in a packet traveling both packet Switched networks?

- Q. No. 5 Given the dataword 1010011110 and the divisor 10111, [3]
[CO-3]
- (a) Show the generation of the codeword at the sender site (Modulo 2 method).
- (b) Show the checking of the codeword at the receiver site (assume no error).