JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- FEB-2023

COURSE CODE(CREDITS): 18B11CI611(3)　　　　　　　　　MAX. MARKS: 15

COURSE NAME: COMPUTER NETWORKS

COURSE INSTRUCTORS: Vipul, Amit, Arvind, Pankaj, Jagpreet　　　MAX. TIME: 1 Hour

Note: All questions are compulsory. Marks are indicated against each question in square brackets.

Q. No. 1	In Figure, (a) Computer A sends a message to computer D via LAN 1, router R 1, and LAN 2. Show the contents of the packets and frames at the network and data link layer for each hop interface. (b) 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]
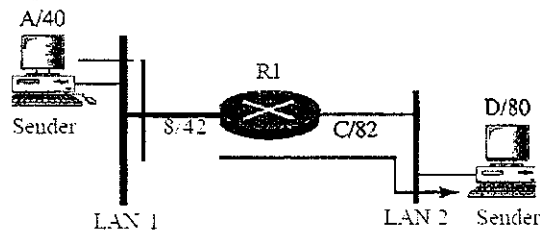
Q. No. 2	(a) What is the transmission time of a packet sent by a station if the length of the packet is 1 million bytes and the bandwidth of the channel is 200 Kbps? (b) What is the total delay (latency) for a frame of size 5 million bits that is being sent on a link with 10 routers each having a queuing time of 2 μs and a processing time of 1 μs. The length of the link is 2000 Km. The speed of light inside the link is 2 x10^8 *mls*. The link has a bandwidth of 5 Mbps. Which component of the total delay is dominant? Which one is negligible?	[1, 2] [CO-1, 2]
Q. No. 3	Draw the graph of the Bipolar AMI (a, b) and Manchester (c, d) scheme using each of the following data streams, assuming that the last signal level has been negative. 　　a. 00000000　　　　b. 11111111 　　c. 01010101　　　　d. 00110011	[2] [CO-2]
Q. No. 4	(a) Discuss all digital data to analog signal conversions? Which of them is the most susceptible to noise? Defend your answer. (b) Distinguish between synchronous and statistical TDM with the help of suitable illustration.	[2, 2] [CO-2]
Q. No. 5	Given the data word $x^7 + x^5 + x^4 + x + 1$ and the divisor $x^4 + x^2 + x + 1$, (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 one bit error).	[3] [CO-3]