National Institute of Technology Kurukshetra

Department of Computer Engineering

Computer Networks (CSPC-202/ITPC-202)

Branch: CS, IT (IV Semster)

Mid Term- I

Date of Exam – 21-February-2025

Time- 06:00 PM-06:50 PM [50 Min] Max Marks:15

Instructions: All questions are compulsory.

Q1.	The loss in a cable is usually defined in decibels per kilometer (dB/km). Suppose the signal at the beginning of a cable with -0.3 dB/km has a power of 2 mW. What is the power of the signal at 5km?	3 M
Q2.	Five channels, each with a 100-kHz bandwidth, will be multiplexed together. What is the minimum bandwidth of the link if there is a need for a guard band of 10 kHz between the channels to prevent interference?	2 M
Q3.	In the standard Ethernet with a transmission rate of 10 Mbps, assume that the length of the medium is 2500 m and the size of the frame is 512 bytes. The propagation speed of a signal in a cable is 2×10^8 m/s. Find the transmission delay and propagation delay.	[2+2] M
Q4.	How does Baseband transmission differ from Broadband transmission? Provide a real-world application for each.	2 M
Q5.	Station A needs to send a message of 15 packets to Station B using a sliding window protocol with a window size of 5. All packets are immediately available for transmission. Suppose every 4th packet that Station A transmits is lost (but no ACKs from Station B are lost). Determine: (a) How many total packets will Station A need to transmit to successfully send the message to Station B if the Go-Back-N control strategy is used? (b) How many total packets will Station A need to transmit to successfully send the message to Station B if the Selective Repeat control strategy is used?	[2+2] M

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