

**III B. Tech I Semester Supplementary Examinations, April -2025**  
**COMPUTER NETWORKS**  
**(CSE)**

Time: 3 hours

Max. Marks: 70

Answer any **FIVE** Questions **ONE** Question from **Each unit**  
 All Questions Carry Equal Marks  
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		<b><u>UNIT-I</u></b>	
1.	a)	Explain the different types of network topologies with neat diagrams. Mention the advantages and disadvantages of each.	[7M]
	b)	What are unguided transmission media? Compare radio waves, microwaves, and infrared communication.	[7M]
		(OR)	
2.	a)	Describe the OSI reference model and briefly explain the function of each layer.	[7M]
	b)	Explain the different types of guided transmission media: twisted-pair cable, coaxial cable, and fiber optic cable. Compare them based on bandwidth, cost, and usage.	[7M]
		<b><u>UNIT-II</u></b>	
3.	a)	Explain the concept of framing. How do fixed-size and variable-size framing differ? Provide examples.	[7M]
	b)	Compare and explain the three elementary data link layer protocols: Simplex, Simplex Stop-and-Wait, and Simplex for Noisy Channel.	[7M]
		(OR)	
4.	a)	Describe error detection and correction techniques in the data link layer. Explain the working of CRC with an example	[7M]
	b)	Discuss the working of HDLC. Explain its configurations, transfer modes, and different types of frames.	[7M]
		<b><u>UNIT-III</u></b>	
5.	a)	Explain Carrier Sense Multiple Access (CSMA). How does it improve over ALOHA?	[7M]
	b)	What are the major differences between IEEE 802.3 and Ethernet? Explain how collision detection is handled in Ethernet.	[7M]
		(OR)	
6.	a)	What is Channelization? Explain FDMA, TDMA, and CDMA with appropriate diagrams. Compare them.	[7M]
	b)	Describe the architecture and working of the Ethernet protocol. What is the role of MAC addresses in Ethernet?	[7M]
		<b><u>UNIT-IV</u></b>	
7.	a)	Compare Virtual Circuit and Datagram networks. Discuss with respect to setup, addressing, and reliability.	[7M]
	b)	Describe the Leaky Bucket and Token Bucket traffic control algorithms. Use diagrams to show how they manage congestion.	[7M]
		(OR)	
8.	a)	Write short notes on any two of the following routing techniques: Flooding, Hierarchical Routing, Traffic-Aware Routing.	[7M]

	b)	Discuss NAT (Network Address Translation). How does it help in conserving IP addresses?	[7M]
		<b><u>UNIT-V</u></b>	
9.	a)	Discuss error control and congestion control mechanisms in TCP. How does TCP handle lost or duplicated segments?	[7M]
	b)	Explain the working of HTTP in the World Wide Web. Describe the request and response message formats.	[7M]
		(OR)	
10.	a)	Discuss the features of Transmission Control Protocol (TCP). How does it ensure reliable data delivery?	[7M]
	b)	Explain the structure of the Domain Name System (DNS). What is the role of name space and resolution?	[7M]

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