

Code: 23CS3502, 23AM3502, 23DS3502, 23IT3502

III B.Tech - I Semester - Regular Examinations - NOVEMBER 2025**COMPUTER NETWORKS**
(Common for CSE, AIML, DS, IT)

Duration: 3 hours

Max. Marks: 70

Note: 1. This question paper contains two Parts A and B.

2. Part-A contains 10 short answer questions. Each Question carries 2 Marks.

3. Part-B contains 5 essay questions with an internal choice from each unit. Each Question carries 10 marks.

4. All parts of Question paper must be answered in one place.

BL – Blooms Level

CO – Course Outcome

PART – A

		BL	CO
1.a)	Name any two functions of the Data Link layer in OSI.	L2	CO1
b)	State one advantage and one disadvantage of coaxial cable.	L2	CO1
c)	Mention any two advantages of using CRC over parity check.	L2	CO1
d)	Name any two error situations handled in the simplex protocol for noisy channels.	L2	CO1
e)	Mention two differences between FDMA and TDMA.	L3	CO2
f)	What is the principle of controlled access in MAC?	L3	CO2
g)	What is the main idea of the shortest path routing algorithm?	L3	CO3
h)	List two services provided by the network layer to the transport layer.	L3	CO3
i)	List any two services provided by UDP.	L4	CO4
j)	What are the two types of windows used in TCP flow control?	L4	CO4

PART – B

			BL	CO	Max. Marks
UNIT-I					
2	a)	Describe the TCP/IP reference model and its layers.	L2	CO1	4 M
	b)	Compare the scalability of LAN, MAN, and WAN with real-world examples (e.g., home, metro city, global bank).	L2	CO1	6 M
OR					
3	a)	Discuss the advantages and disadvantages of fiber optic cables compared with copper cables.	L2	CO1	4 M
	b)	The OSI and TCP/IP models differ in abstraction levels. Discuss how these differences influence protocol design and interoperability in modern networks.	L2	CO1	6 M
UNIT-II					
4	a)	Write notes on flow control in the Data Link Layer.	L2	CO1	4 M
	b)	Why is the one-bit sliding window protocol considered as a special case of Go-Back-N? In Go-Back-N ARQ, if the window size is too large, what problems may occur?	L2	CO1	6 M
OR					
5	a)	Compare simplex stop-and-wait and simplex noisy channel protocols.	L2	CO1	4 M

	b)	A noisy channel has a high error rate - Suggest modifications to the stop-and-wait protocol to improve efficiency.	L2	CO1	6 M
UNIT-III					
6	a)	Why is CDMA more secure than FDMA and TDMA? Analyze.	L3	CO2	4 M
	b)	Controlled access eliminates collisions, but why is it less common in modern LANs compared to random access?	L3	CO2	6 M
OR					
7	a)	Explain Slotted ALOHA and compare it with Pure ALOHA.	L3	CO2	4 M
	b)	Define CSMA. Explain collision detection with suitable example.	L3	CO2	6 M
UNIT-IV					
8	a)	Explain the flooding algorithm and its limitations.	L3	CO3	4 M
	b)	Explain the implementation of connectionless service in the network layer.	L3	CO3	6 M
OR					
9	a)	Compare distance vector and link state routing in terms of convergence and scalability.	L3	CO3	4 M
	b)	Compare the Virtual circuit and Datagram circuit network.	L3	CO3	6 M

UNIT-V					
10	a)	Analyse the fields of TCP header format.	L4	CO4	5 M
	b)	Analyse the E-mail architecture.	L4	CO4	5 M
OR					
11	a)	Compare and Contrast local login and remote login in terms of security and efficiency.	L4	CO4	4 M
	b)	Analyse DNS architecture with its record types.	L4	CO4	6 M