Total No. of Questions: 6

Seat No.:

BACHELOR OF TECHNOLOGY (CBCS - 2023)
B. Tech. Sem-V Computer Science & Business Systems : WINTER: 2025
SUBJECT: COMPUTER NETWORK

Day : Wednesday
Date : 10/12/2025

W-30742-2025

Time : 02:30 PM-05:30 PM
Max. Marks : 60

NB :
1. All questions are COMPULSORY.
2. Figures to the right indicate FULL marks.
3. Draw neat labelled diagrams WHEREVER necessary

Q. 1	Explain different types of transmission media. Discuss the characteristics, advantages, and limitations of twisted pair, coaxial cable, fiber optic cable, and radio waves.	(10)	CO 1
	OR		
Q. 1	Compare and analyze the OSI and TCP/IP models with respect to architecture, layers, functionality, and real-world implementation examples.	(10)	CO 1
Q. 2	Illustrate the working of CSMA/CD and CSMA/CA protocols with the help of suitable diagrams. Compare their efficiency and network suitability.	(10)	CO 2
	OR		
Q. 2	Describe various error detection techniques used in data communication. Cyclic Redundancy Check (CRC) with examples.	(10)	CO 2
Q. 3	Describe in detail the Packet Switching technique. Explain how packets are transmitted and reassembled, and compare virtual circuit and datagram approaches.	(10)	CO 3
	OR		
Q. 3	Discuss IPv4 addressing schemes in detail. Explain the different address classes with their ranges, structure, and applications.	(10)	CO 3
Q. 4	Describe the working of the File Transfer Protocol (FTP). Explain the control and data connections, and list any four FTP commands with their purpose.	(10)	CO 4
	OR		
Q. 4	Explain the architecture and working of the Domain Name System (DNS). Discuss the DNS hierarchy and resolution process with neat diagrams.	(10)	CO 4
Q. 5	Discuss principle behind Spread Spectrum techniques. How does spread spectrum improve security, resistance to interference, and multiple access capabilities?	(10)	CO 5
	OR		
Q. 5	Explain the concept of multiplexing. How does multiplexing help in efficient bandwidth utilization? Discuss the different types of multiplexing techniques.	(10)	CO 5
Q. 6	Discuss the role of cryptography in network security. Explain how encryption and decryption ensure secure communication.	(10)	CO 6
	OR		
Q. 6	Differentiate between symmetric-key and asymmetric-key cryptography. Explain each with a neat diagram and example algorithms.	(10)	CO 6

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