JHARKHAND Rai University
RANCHI

End Semester/Reappear (Semester VI) Examination May 2025

Programme: B. Tech (CSE)

Course: Computer Networks **Full Marks: 70**

Course Code:3PCCCS307 **Time: 3 Hrs.**

Enrolment no. _____

Q. No.	Questions	CO	Bloom Taxonomy Category	Marks
	Section I			
1	**Short Answer type questions.**			**4 x 5 = 20**
a	Explain the concept of a Virtual LAN (VLAN) and highlight its benefits in efficient network management.	CO1	Understand	
	or			
	Explain the spread spectrum technique and its role in wireless communication, highlighting its key applications and benefits.	CO1	Understand	
b	Given the data word 1100101 and the divisor 1011, determine the CRC codeword. Provide a step-by-step explanation of the calculation process.	CO2	Evaluate	
	or			
	Compare the sliding window mechanism in Stop-and-Wait ARQ and Go-Back-N ARQ, highlighting their key differences in data transmission and efficiency.	CO2	Understand	
c	Compare and contrast the different types of CSMA techniques. Provide examples of each.	CO3	Analyze	
	or			
	Describe the process of ARP (Address Resolution Protocol) in a network.	CO3	Understand	
d	What are the key features of the Transmission Control Protocol (TCP)?	CO4	Remember	
	or			
	Define congestion control and discuss its importance in TCP.	CO4	Remember	
	Section II			
	Long Answer type questions.			**3 x 10 = 30**
2	Discuss the different types of transmission media used in Local Area Networks (LANs). Explain the scenarios in which each type would be most appropriately used.	CO1	Understand	
	or			
	Compare and contrast Star, Ring, and Bus topologies. Discuss the advantages and disadvantages of each.	CO1	Analyze	
3	Compare and contrast circuit switching and packet switching. Discuss the scenarios where each technique is more suitable.	CO3	Analyze	
	or			
	Explain the structure of an IPv4 address and an IPv6 address. Include a discussion on the different types of addresses in both IPv4 and IPv6.	CO3	Understand	

4	Explain the concepts of delivery and forwarding in the context of network communication.	CO4	Remember	
	or			
	What is Quality of Service (QoS) and why is it important in modern networks? Explain any two techniques for improving QoS in a network.	CO4	Remember	
Section III				
	Application based questions			**1 x 20 = 20**
5	Explain the role of firewalls in network security. Discuss various traffic filtering techniques used by firewalls, highlighting their advantages and disadvantages.	CO4	Analyze	
	or			
	Analyze the functionality of the Domain Name System (DNS), explaining its resolution process and the different types of DNS servers involved.	CO4	Analyze	

COURSE OUTCOME

CO1 Explain the functions of the different layer of the OSI Protocol.

CO2 Draw the functional block diagram of wide-area networks (WANs), local area networks (LANs) and Wireless LANs (WLANs) describe the function of each block.

CO3 For a given requirement (small scale) of wide-area networks (WANs), local area networks (LANs) and Wireless LANs (WLANs) design it based on the market available component

CO4 For a given problem related TCP/IP protocol developed the network programming. Configure DNS DDNS, TELNET, EMAIL, File Transfer Protocol (FTP), WWW, HTTP, SNMP, Bluetooth, Firewalls using open source available software and tools.