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RV University

School of Computer Science and Engineering

B.Tech. Degree Examination-May 2025

Semester : IV

Course Code : CS2120

Course Title : Computer Networks

Duration : 2 Hours **Max. Marks: 30**

Instructions to students:
Answer all Questions

Sl. No.	PART A – Max Marks (10)	Marks	L1-L6	CO
1.	a. List any two advantages of using computer networks	1	L2	1
	b. Explain 3 types of MAC Address with examples	1	L2	3
	c. Compare Circuit Switching and Packet Switching.	1	L2	3
	d. Explain the concept of Wi-Fi.	1	L2	3
	e. State the difference between a router and an access point.	1	L2	1
2.	a. You are hired as a network architect for a company that is upgrading its entire IT infrastructure. The company needs to understand the basic network communication models to ensure compatibility between various protocols and devices across the network. For that, explain the differences between the OSI model and the TCP/IP model along with the architecture.	5	L2	2

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Sl. No.	PART B – Max Marks (20)	Marks	L1-L6	CO
3.	a. Draw a table and explain Classful IP Addressing. List and describe all the classes (A, B, C, D, and E) in terms of: IP address range Default subnet mask Number of hosts per network Purpose or usage of each class Provide one example IP address from each class.	5	L2	4
	b. An IP datagram of 3500 bytes (including 20-byte header) is to be transmitted over a network with MTU = 1000 bytes. i) How many fragments will be created for this IP datagram, considering that the network has an MTU of 1000 bytes? 2) Calculate the size of each fragment, including offset values.	5	L3	4
4.	a. Solve using the checksum algorithm and compute the checksum for the following 48-bit data. This checksum can be sent along with these data values over the network. 0xABCD, 0xFEEE, 0x1234. Recompute the checksum at the receiver's end and prove that there is no error in the data.	5	L3	2
	b. You are a network technician in a data center investigating a connectivity issue between a client and a server. During your analysis, you need to examine whether a reliable connection was successfully established. Explain each step involved in the TCP three-way handshaking process and analyse how this process ensures connection establishment and connection termination.	5	L4	5

Course Outcomes

1. Elaborate distance-based classification of networks and various mobile communication technologies in the Networking domain
2. Analyze the system requirements of Internet and its design parameters for supporting different types of applications
3. Demonstrate the role of Spanning Tree Protocol in removing loops within a LAN
4. Differentiate classful and CIDR schemes of IPv4 addressing and understand the functioning of Routing protocols used in the Internet
5. Comprehend L4 protocols and working principles of VLAN, VPN, NAT and VoIP used by various Networking applications.

Marks Distribution										
L1	L2	L3	L4	L5	L6	CO1	CO2	CO3	CO4	CO5
0	15	10	5			2	10	3	10	5