Reg. No.															

Question Paper Code	13684

M.E. - DEGREE EXAMINATIONS, APRIL / MAY 2025

Second Semester

M.E. - Computer Science and Engineering

20PCSPC201 / 24PCSPC201 - NETWORK DESIGN AND TECHNOLOGIES

Regulations – 2020 / 2024

Duration: 3 Hours | Max. Marks: 100

PART - A (10 × 2 = 20 Marks)

Answer ALL Questions

		Marks	K – Level	CO
1.	Define the term Firewalls.	2	K1	CO1
2.	Compare connectionless and connection-oriented communication.	2	K2	CO1
3.	Mention the network elements and signaling specifications of UMTS and WLAN.	2	K1	CO2
4.	Define Best effort service.	2	K1	CO2
5.	List two layers of the Bluetooth protocol stack.	2	K1	CO3
6.	Name two commonly used Bluetooth profiles.	2	K1	CO3
7.	What is the role of BCCH and FCCH channels in GSM?	2	K1	CO4
8.	Distinguish between GPRS and EDGE.	2	K2	CO4
9.	State the role of OFDM and DFT pre-coded OFDM in LTE radio access.	2	K1	CO5
10.	What is the purpose of power optimization in radio networks?	2	K1	CO5

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

			Marks	K – Level	CO
11.	a)	Discuss the functionality of the various internetworking devices and mention their specifications to handle the current network traffic.	13	K2	CO1
		OR			
	b)	Explain in detail about			
	(i)	Shared Media Networks	7	K2	CO1
	(ii)	Switched Networks	6	K2	CO1
12.	a) (i)	Apply the security mechanisms of WiMAX to ensure secure data transmission. How do these features help in achieving confidentiality and integrity in a WiMAX network?	7	K3	CO2
	(ii)	Identify how IEEE 802.11e utilizes WMM to support multimedia QoS requirements. In what ways do the enhancements over the legacy IEEE 802.11 standard improve multimedia traffic handling?	6	K3	CO2
		OR			
	b)	Develop the network architecture and wireless LAN.	13	K3	CO2

13.	a)	Illustrate the Bluetooth protocol stack in terms of its design and functionality. How effectively does it support reliable wireless communication across different use cases and devices?	*13*	*K3*	*CO3*
		OR			
	b)	Identify and discuss the various technologies used in wireless domain.	*13*	*K3*	*CO3*
14.	a)	Compare and contrast Mobility Management and Session Management.	*13*	*K2*	*CO4*
		OR			
	b)	Discuss how small screen web browsing is supported over GPRS and EDGE. How do these technologies manage web content optimization and improve the browsing experience on devices with limited display capabilities?	*13*	*K2*	*CO4*
15.	a)	Discuss about LTE Security architecture with neat diagram.	*13*	*K2*	*CO5*
		OR			
	b)	Explain Green Wireless Networks in detail.	*13*	*K2*	*CO5*

PART - C (1 × 15 = 15 Marks)

16.	a)	Illustrate in detail about centralized and distributed control and data plane approached in SDN scenario by considering an example network application.	*15*	*K3*	*CO6*
		OR			
	b)	Construct the NVGRE framework and explain its role in providing network virtualization. How does NVGRE enable efficient communication between virtual networks?	*15*	*K3*	*CO6*