Reg. No.																

Question Paper Code	14685

M.E. / M.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 2026

Second Semester

M.E. - Computer Science and Engineering (with Specialization in Networks)

24PCNPC201 - NETWORK DESIGN AND PROGRAMMING

Regulations - 2024

Duration: 3 Hours | Max. Marks: 100

PART – A (i) (MCQ)
(16 × 1 = 16 Marks)
Answer ALL Questions

		Marks	*K – Level*	*CO*
1.	DWDM stands for: a) Dense Wavelength Division Multiplexing b) Digital Wide Data Mode c) Dual Wave Data Method d) Distributed Wireless Data Model	*1*	*K1*	*CO1*
2.	Quality of Service (QoS) is used to: a) Increase packet loss b) Manage network performance c) Reduce security d) Disable routing	*1*	*K2*	*CO1*
3.	Analyze which type of network is most suitable for supporting dynamic routing and scalability. a) Circuit switched b) Packet switched c) Message switched d) Analog network	*1*	*K3*	*CO1*
4.	Which protocol assigns IP addresses automatically? a) DNS b) DHCP c) FTP d) HTTP	*1*	*K1*	*CO2*
5.	What is the function of subnet mask? a) Encrypt data b) Identify network and host parts c) Assign ports d) Increase bandwidth	*1*	*K2*	*CO2*
6.	Analyze the given IP address 10.0.0.5/8 and determine the network to which it belongs. a) Class A b) Class B c) Class C d) Class D	*1*	*K3*	*CO2*
7.	DTN stands for: a) Data Transfer Network b) Delay Tolerant Network c) Distributed Transport Node d) Dynamic Traffic Network	*1*	*K1*	*CO3*
8.	What is the role of SDN controller? a) Forward packets b) Manage network behavior centrally c) Encrypt data d) Assign IP addresses	*1*	*K2*	*CO3*
9.	Analyze which IoT architecture is most effective for achieving scalability in large-scale IoT deployments. a) Traditional networks b) SDN c) Circuit switching d) Token ring	*1*	*K3*	*CO3*
10.	DNS is used for: a) File transfer b) Email sending c) Name resolution d) Encryption	*1*	*K1*	*CO4*

11.	Difference between FTP and HTTP?		1	K2	CO4
	a) Speed	b) FTP transfers files, HTTP transfers web pages			
	c) Protocol type	d) OSI layer			
12.	Analyze the function of the protocol responsible for resolving domain names before loading a webpage.		1	K3	CO4
	a) FTP	b) DNS			
	c) HTTP	d) TCP			
13.	Why is TCP reliable?		1	K2	CO5
	a) No delay	b) Uses acknowledgments			
	c) No packets	d) No ports			
14.	Analyze the UDP function used for receiving data in network communication.		1	K3	CO5
	a) send()	b) recvfrom()			
	c) bind()	d) accept()			
15.	SNMP is used for:		1	K1	CO6
	a) File transfer	b) Network management			
	c) Routing	d) Encryption			
16.	Analyze the technique used to hide private IP addresses in a public network environment.		1	K3	CO6
	a) DNS	b) NAT			
	c) FTP	d) TCP			

PART – A (ii) (Short Answer Questions)
(6 × 3 = 18 Marks)
Answer ALL Questions

17.	Examine the impact of QoS parameters on network performance.	3	K4	CO1
18.	Apply CIDR notation to divide a network efficiently.	3	K3	CO2
19.	Apply SDN architecture in cloud data center networks. .	3	K3	CO3
20.	Compare DNS resolution process with other protocols.	3	K4	CO4
21.	Compare iterative and concurrent server models.	3	K4	CO5
22.	Apply VPN for secure communication in remote access.	3	K3	CO6

PART - B (Descriptive Answer Questions)
(6 × 11 = 66 Marks)
Answer ALL Questions

23.	a)	Analyze how OFDM can be applied to improve bandwidth utilization in a communication system.	11	K3	CO1
		OR			
	b)	Analyze the application of collision avoidance techniques in a wireless LAN environment.	11	K3	CO1
24.	a)	Apply NAT configuration to enable communication between private and public networks.	11	K3	CO2
		OR			
	b)	Apply VLSM to divide a network into subnets of different sizes.	11	K3	CO2
25.	a)	Interpret the architecture of Software Defined Networking (SDN) and analyze its advantages over traditional networking. .	11	K4	CO3
		OR			

	b)	Examine the Delay Tolerant Networks (DTN) applications in challenging network environments.	*11*	*K4*	*CO3*
26.	a)	Justify the working of HTTP, FTP, and DNS protocols and compare their roles in data communication.	*11*	*K5*	*CO4*
		OR			
	b)	Conclude the hierarchical routing concept and its importance in large-scale networks.	*11*	*K5*	*CO4*
27.	a)	Express the bind(), listen(), and accept() functions in server-side programming.	*11*	*K3*	*CO5*
		OR			
	b)	Demonstrate UDP communication using sendto() and recvfrom() functions.	*11*	*K3*	*CO5*
28.	a)	Assess the role of VPN, NAT, and SNMP in network security and management.	*11*	*K5*	*CO6*
		OR			
	b)	Explore the different network security mechanisms and evaluate their effectiveness in protecting data communication.	*11*	*K5*	*CO6*