25CAP104

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MCA DEGREE EXAMINATION DECEMBER 2025
(First Semester)

Branch - **COMPUTER APPLICATIONS**

COMPUTER NETWORKS

Time: Three Hours Maximum: 75 Marks

SECTION-A (10 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** marks (10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	The Internet backbone mainly uses _____ switching. a) Circuit b) Packet c) Message d) Virtual	K1	CO1
	2	The network layer is responsible for _____. a) Routing packets b) Displaying websites c) Sending emails d) Physical transmission	K2	CO1
2	3	Cookies are mainly used for: a) Congestion control b) User session management c) Error detection d) Multiplexing	K1	CO1
	4	Difference between POP3 and IMAP? a) POP3 stores mail on server permanently b) POP3 downloads mail to client, IMAP keeps mail on server c) IMAP cannot manage folders d) POP3 supports multiple devices	K2	CO2
3	5	Three-way handshake is used in TCP for _____ a) Routing setup b) Establishing reliable connection c) Flow control d) De multiplexing	K1	CO1
	6	Flow control differs from congestion control because a) Flow control prevents receiver overflow b) Congestion control prevents port mismatch c) Congestion control prevents receiver overflow d) Flow control avoids packet loss due to routers	K2	CO2
4	7	IPv6 addresses are _____ bits long. a) 32 b) 128 c) 64 d) 256	K1	CO1
	8	YANG is a _____ a) Protocol b) Data modeling language c) Routing algorithm d) Transport service	K2	CO2
5	9	Which medium is used for wireless communication? a) Copper wires b) Optical fiber c) Radio waves d) Coaxial cable	K1	CO1
	10	Wireless LAN security mainly prevents _____ a) Unauthorized access b) Routing loops c) Packet segmentation d) Error detection	K2	CO2

Cont...

SECTION - B (35 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** Marks (5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Describe and explain seven different Internet protocols with their primary functions.	K2	CO1
		(OR)		
	11.b.	Explain how encryption and firewalls protect computer networks from attacks.		
2	12.a.	Illustrate how SMTP and IMAP enable email communication.	K4	CO2
		(OR)		
	12.b.	Analyze TCP vs UDP socket programming in reliability and use cases.		
3	13.a.	Show why UDP is preferred for real-time applications.	K3	CO3
		(OR)		
	13.b.	Apply TCP handshake to demonstrate reliable communication.		
4	14.a.	Compare distance-vector and link-state algorithms for convergence, scalability, and reliability.	K5	CO4
		(OR)		
	14.b.	Compare SNMP and NETCONF/YANG and evaluate which is better for monitoring and control.		
5	15.a.	Construct a security framework to protect a wireless LAN from attacks.	K6	CO5
		(OR)		
	15.b.	Develop a strategy to optimize security and performance in a 4G/5G cellular network deployment.		

SECTION -C (30 Marks)

Answer **ANY THREE** questions

ALL questions carry **EQUAL** Marks (3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Explain the functions of the network core and discuss the difference between packet-switched and circuit-switched networks.	K2	CO1
2	17	Demonstrate how processes communicate over a network using transport services.	K3	CO2
3	18	Analyze how the transport layer ensures reliable process-to-process delivery.	K4	CO3
4	19	Assess IPv4 addressing and defend its suitability for modern networks.	K5	CO4
5	20	Develop an error detection and correction scheme to ensure data integrity.	K6	CO5

Z-Z-Z END