

**PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)**

**MSc (SS) DEGREE EXAMINATION MAY 2026
(Fourth Semester)**

Branch – SOFTWARE SYSTEMS (FIVE YEARS INTEGRATED)

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	What is the name of the number of bits transmitted per second? (i) Baud Rate (ii) Bit Rate (iii) Sampling Rate (iv) Bandwidth	K1	CO1
	2	Select the layer of the OSI model that is responsible for routing. (i) Transport Layer (ii) Data Link Layer (iii) Network Layer (iv) Physical Layer	K2	CO1
2	3	Choose the switching technique that establishes a dedicated path before data transfer? (i) Packet Switching (ii) Message Switching (iii) Circuit Switching (iv) Virtual Switching	K1	CO2
	4	Which code is used for single-bit error correction? (i) CRC (ii) Hamming Code (iii) Parity Code (iv) Manchester Code	K2	CO2
3	5	Tell the name of the ARQ protocol that retransmits all frames after an error occurs. (i) Stop-and-Wait ARQ (ii) Selective Reject ARQ (iii) Go-Back-NARQ (iv) Sliding Window	K1	CO3
	6	Which device operates at the Physical Layer? (i) Bridge (ii) Repeater (iii) Switch (iv) Router	K2	CO3
4	7	Select the correct length of an IPv6 address. (i) 128 bits (ii) 64 bits (iii) 32 bits (iv) 256 bits	K1	CO4
	8	What is DHCP used for? (i) Detect errors. (ii) Translate Address (iii) Encrypt Data (iv) Assign IP Address Automatically	K2	CO4
5	9	Which mechanism is used by TCP for Congestion Control? (i) CSMA/CD (ii) Slow Start (iii) Parity Check (iv) Stop-and-Wait	K1	CO5
	10	Choose the protocol used for sending Emails? (i) TCP (ii) FTP (iii) SMTP (iv) DNS	K2	CO5

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.	Outline on the applications of computer networks in detail	K2	CO1
		(OR)		
	11.b.	Explain bandwidth and data rate with examples.		
2	12.a.	Examine the features of Circuit Switching and Packet Switching.	K3	CO2
		(OR)		
	12.b.	Illustrate Hamming Code for single-bit error correction with an example.		
3	13.a.	Demonstrate the working of Stop-and-Wait ARQ with a suitable example.	K3	CO3
		(OR)		
	13.b.	Identify how Random Access Protocols are used in Ethernet networks.		
4	14.a.	Explain IP addressing and subnetting to solve a suitable example.	K5	CO4
		(OR)		
	14.b.	Justify ICMP message types into appropriate categories.		
5	15.a.	Determine the TCP Three-Way Handshake with a Suitable Diagram.	K5	CO5
		(OR)		
	15.b.	Compare SMTP and MIME based on their functions.		

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 data encoding techniques and the relationship between bit rate, baud rate, bandwidth, and sampling rate.	K2	CO1
2	17	Examine TDM, FDM, and CDM.	K3	CO2
3	18	Identify Flow control and Error control techniques.	K3	CO3
4	19	Compare Distance Vector Routing and Link State Routing.	K5	CO4
5	20	Evaluate FTP, DNS, and HTTP, protocols with their working and features.	K5	CO5

Z-Z-Z

END