Semester: 5th	Department of CSE\DS\AI&DS	AY: 2026-27
Course Code: **BCS502**	Course Name: **Computer Networks**	

Question Bank

Q.	Module-01	M	L	C
1.	What is data communication? List and explain characteristics and components of communication model.	10	L1	CO1
2.	Define switching. Explain Circuit Switched Network and Packet Switched Network, Virtual Circuit Network (VCN)? With neat diagram, explain three phases involved in VCN.	10	L2	CO1
3.	Write a note on Encapsulation and decapsulation at Source Host for TCP/IP protocol suite.	6	L2	CO1
4.	Discuss the four basic topologies used in networks, explain their advantages and disadvantages.	6	L1	CO1
5.	Explain in detail the guided and unguided Media transmission with suitable diagram.	12	L2	CO1
6.	Compare and contrast various network types (e.g., LAN, MAN, WAN) with real-word examples.	10	L2	CO1
7.	Explain the concept of protocol layering and discuss the advantages of using a layered approach in network models.	8	L2	CO1
8.	Describe the TCP/IP protocol suite and explain the functions of each layer.	10	L2	CO1
9.	Explain the OSI model and its seven layers. Compare the OSI and TCP/IP models, highlighting their similarities and differences.	10	L2	CO1
10.	Discuss the characteristics of guided transmission media? Explain twisted pair, coaxial cable, and fibre optics, and compare their advantages and disadvantages.	8	L2	CO1
11.	What are the different ways of Data representation.	8	L2	CO1
12.	What are the modes of Data flow? Explain with neat diagram.	10	L2	CO1
	Module-02			
1.	Explain the process of error detection in block coding with neat diagram and example.	10	L2	CO2
2.	Explain how error is detected using hamming distance and linear block code.	10	L2	CO2
3.	What are Cyclic Codes ? Explain the CRC encoder and decoder with a neat diagram.	10	L1	CO2
4.	Generate the code for the data word 1001 and generate 1011.	8	L2	CO2
5.	What is a polynomial. Show CRC divisor using polynomials.	8	L1	CO2
6.	Define the checksum. Explain the same with neat diagram and example.	10	L1	CO2
7.	Write the procedure and the algorithm to calculate the traditional checksum.	10	L2	CO2

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8.	Write the algorithm for Fletcher & Adler checksum.	8	L2	CO2
9.	Explain DLC services in detail with a neat diagram.	10	L2	CO2
10.	Explain the following protocol with all necessary diagrams. i. Simple protocol ii. Stop & Wait protocol.	12	L2	CO2
11.	Explain Framing in HDLC with frame structures.	8	L2	CO2
12.	Explain LCP , PAP , CHAP , IPCP , & MultiLink PPP.	10	L2	CO2
13.	Explain ALOHA & slotted ALOHA with necessary diagram.	8	L2	CO2
14.	Write a note on – a. CSMA b. CSMA FCA c. CSMA fCD.1.	10	L2	CO2
	Module-03			
1.	Explain the service provided by network layer to the transport layer.	10	L2	CO3
2.	Explain how the packets are routed in packet-switched networks using a datagram approach.	10	L2	CO3
3.	Explain – i. The Address Space of IPV4. ii. Classful Addressing.	8	L2	CO3
4.	Explain Classless Addressing in IPV4.	8	L2	CO3
5.	Explain the following DHCP (Dynamic Host Configuration Protocol) –i. Operation of DHCP. ii. iii. DHCP message format. FSM for the DHCP client	10	L2	CO3
6.	Explain Network Address Resolution (NAT).	8	L2	CO3

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