



V Semester B.E Semester End Examinations

Dec 2025/Jan 2026

Model Question Paper
Computer Networks and Security

Duration: 3 hrs

Max. Marks: 100

Answer five full questions choosing one complete question from each module.

Sl. No.	Questions	Marks	CO	RBT Level
Module 1				
1 a)	What is Data communication? List and Explain characteristics and components of communication Model and Outline the characteristics of Mesh Topology	10	CO1	2
b)	Illustrate the different layers of OSI reference Model with neat Diagram.	10	CO1	2
OR				
2 a)	Illustrate the importance of virtual switched networks .With neat diagram explain three phases involved in VCN.	10	CO1	2
b)	Discuss how data can be transmitted through Unguided media in wireless Communication.	10	CO1	2
Module 2				
3 a)	Outline the process of error correction and error detection with structure of encoder and decoder.show how to find the minimum hamming distance for coding scheme C(5,2).	10	CO2	2
b)	Design the Go back N Automatic Repeat Request protocol with sender and receiver window.	10	CO2	3
OR				
4 a)	Define Redundancy. Explain the CRC encoder and CRC Decoder with block diagram.	10	CO2	2
b)	Illustrate how CSMA/CD augment the algorithm to handle the Collision.	10	CO2	3
Module 3				
5 a)	Explain the three level of Hierarchy in subnetting. Suppose an organization given the block 17.12.40.0/26 which contain 64 addresses.the organization has three offices and needs to divide the addresses into three sub blocks of 32 ,16 and 16 addresses. Find the network id , Broadcast ID, and ip addresses use to configure the host in each blocks.	10	CO3	3
b)	Exemplify the Distance vector Routing with suitable example.	10	CO3	3
OR				
6 a)	Illustrate the concept of Fragmentation along with identification, flags and fragment offset fields with example.	10	CO3	3
b)	Illustrate the working of OSPF and BGP	10	CO3	2
Module 4				
7a)	Explain the UDP Header Format and services provided by UDP.	10	CO4	2

b)	Outline the four types of characteristics are attributed to a flow and how scheduling technique is used to improve the QoS.	10	CO4	3
OR				
8a)	Illustrate how TCP uses congestion to avoid congestion and alleviate congestion in network.	10	CO4	2
8 b)	Outline the Architecture of WWW and different Web Documents in WWW.	10	CO4	3
Module 5				
9a)	Write short notes on Traditional ciphers used in Symmetric key cryptography.	10	CO5	2
9b)	Explain Encapsulating Security payload with neat diagram.	10	CO5	2
OR				
10a)	Illustrate the DES and Triple DES with neat diagram.	10	CO5	3
b)	Exemplify the Diffie Hellman cryptosystem along Man in middle attack.	10	CO5	2
