



**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
<b>Module 1</b>				
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
<b>OR</b>				
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
<b>Module 2</b>				
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
<b>OR</b>				
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
<b>Module 3</b>				
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
<b>OR</b>				
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
<b>Module 4</b>				
7a)	Explain the UDP Header Format and services provided by UDP.	10	CO4	2

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

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