

THE KAVERY ENGINEERING COLLEGE*(An Autonomous Institution)***B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, NOV/DEC 2025***Fourth Semester**Electronics and Communication Engineering***EC3401 - Networks and Security***Regulations - 2021**Duration : 3 Hrs**Maximum : 100 Marks***PART - A (ANSWER ALL QUESTIONS) (Marks 10*2=20)**

<i>Q.No</i>	<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
1.	Define Piconet and Scatternet.	L1	1	2
2.	Outline the fundamental characteristics of data communication system.	L2	1	2
3.	What is the function of network layer?	L1	2	2
4.	Why IPv6 is preferred than IPv4?	L2	2	2
5.	Distinguish between UDP and TCP.	L2	3	2
6.	Recall the approaches to improve the QoS.	L1	3	2
7.	Define attack.	L1	4	2
8.	Analyze the security goals in network security.	L4	4	2
9.	Outline the hardware Trojans model.	L2	5	2
10.	Illustrate the feature Block chain technology.	L2	5	2

PART - B (ANSWER ALL QUESTIONS) (Marks 5*16 = 80)

<i>Q.No</i>	<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
11.	a Draw the OSI network architecture and explain the functionalities of every layer in detail.	L2	1	16
	Or			
	b How would you apply the arithmetic methods used in checksum calculations to add data items? Provide a specific example to illustrate your explanation.	L2	1	16
12.	a Demonstrate your understanding of intradomain routing protocols by explaining their functions and characteristics with example.	L2	2	16
	Or			
	b i Explain in detail about Network Layer Protocols Mobile IP.	L2	2	8
	ii Compare IPv4 to IPv6.	L2	2	8
13.	a Analyze the TCP connection process and its state transition diagram and discuss the different states involved and the transitions between them.	L4	3	16
	Or			
	b i Compare and contrast the congestion control mechanisms of DEC-bit and RED.	L4	3	8
	ii Investigate the components of the HTTP protocol.	L4	3	8

14.	a	Explain the steps involved in encrypting and decrypting a message using RSA algorithms with example.	L2	4	16
		Or			
	b i	Illustrate the OSI security architecture.	L2	4	8
	ii	Discuss about the security services and mechanisms.	L2	4	8
15.	a	Identify the impact of side-channel attacks on the security of cryptographic systems. What vulnerabilities do they exploit?	L3	5	16
		Or			
	b i	How would you apply the principles of secure design to minimize the risk of hardware Trojans in a complex electronic system? Provide a detailed explanation of your design choices.	L3	5	8
	ii	How can block chain technology be applied in supply chain management? Provide a specific example.	L3	5	8