Register No : _____

THE KAVERY ENGINEERING COLLEGE

(An Autonomous Institution)

B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, APRIL-MAY 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)

Q.No	*Questions*	*BLT*	*CO*	*Marks*
1.	Define the purpose of layering in networks.	L1	1	2
2.	How hidden station occurs rather than exposed station problem.	L2	1	2
3.	Sketch the IPv6 datagram format.	L1	2	2
4.	Compare and contrast unicast and multicast routing.	L2	2	2
5.	What are the advantages of using UDP over TCP?	L1	3	2
6.	What is meant by three-way handshaking in TCP connection establishment	L2	3	2
7.	Define the terms: Threats, Vulnerability & Attacks.	L1	4	2
8.	Compare active and passive attacks.	L2	4	2
9.	What can you say about the potential adversaries to implant a hardware Trojan?	L2	5	2
10.	List the key elements of block chain technology.	L1	5	2

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

Q.No			*Questions*	*BLT*	*CO*	*Marks*
11.	a		Sketch the OSI model and also discuss how the TCP/IP network which impacts OSI model?	L2	1	16
			Or			
	b	i	Obtain the CRC code for the data bit sequence 1001101100 using the generator polynomial $x^4 + x^2 + 1$.	L2	1	8
		ii	Sketch the protocol stack and analyze the concept of IEEE802.11 with relevant applications.	L2	1	8
12.	a		Discuss in detail about the operation of hierarchically structured OSPF protocol by considering a suitable network.	L2	2	16
			Or			
	b	i	Enumerate three transition strategies to move from IPv4 to IPv6. Illustrate the difference between tunnelling and dual stack strategies during the transition period. When is each strategy used?	L2	2	8
		ii	Examine Internet Control Message Protocol (ICMP) error reporting messages in a communication network.	L2	2	8

13.	a	i	How congestion is controlled? Explain in detail about congestion control techniques in transport layer.	L2	3	8
		ii	Discuss briefly about different techniques to improve Qos in process-to-process delivery.	L2	3	8
			Or			
	b		Interpret in detail about the following: • Domain Name system • WWW • HTTP	L2	3	16
14.	a		Discuss about security services and analyse the Public-Key cryptosystems with relevant functional blocks.	L2	4	16
			Or			
	b		Analyze secure HASH Algorithm and compare the features with Digital Signature Standard scheme of NIST.	L2	4	16
15.	a	i	The RSA-T 100 Trojan is triggered when a 32-bit specific plaintext is applied. Calculate the probability of triggering this Trojan if one uses random patterns as plaintext.	L3	5	8
		ii	Discuss the main objective of side channel analysis and the most prominent features of invasive and non-invasive attacks.	L3	5	8
			Or			
	b		Organize in detail about blockchain technology, and explain how the hash functions are utilized to implement blockchain technology.	L3	5	16