

Register No: _____

THE KAVERY ENGINEERING COLLEGE
(An Autonomous Institution)

B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, NOV /DEC 2024

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.	List the responsibilities of data link layer.	RE	1	2
2.	Define flow control.	RE	1	2
3.	Classify the advantages of IPv6 over IPv4.	UN	2	2
4.	What is multicasting?	RE	2	2
5.	What are the services provided by the transport layer?	RE	3	2
6.	Define MIME.	RE	3	2
7.	Demonstrate the features of AES.	UN	4	2
8.	Outline the applications of RSA.	UN	4	2
9.	Show the different attack surfaces for a smartphone.	UN	5	2
10.	Illustrate the key elements of block-chain.	UN	5	2

PART – B (ANSWER ALL QUESTIONS) (Marks 5*13 = 65)

<i>Q.No</i>	<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
11.	a i Explain in detail about the frame format of HDLC.	UN	1	6
	ii Describe how the hidden and exposed node problems are addressed in wireless LANs.	UN	1	7
Or				
12.	b With neat diagram, Illustrate the OSI network architecture and describe the functionalities of each layer in detail.	UN	1	13
Or				
12.	a Develop three phases of mobile IP that enable communication with a remote host.	AP	2	13
13.	b Construct a detailed explanation of the Distance Vector Multicast Routing Protocol (DVMRP) with neat diagrams.	AP	2	13
Or				
13.	a Examine the services provided by TCP to application-layer processes, analyzing how each service supports reliable data communication.	AN	3	13
13.	b Inspect the SMTP in e-mail system under RFC 2821.	AN	3	13

14.	a	Illustrate the various types of security attacks in computer security, including their methods, purposes, and impacts.	UN	4	13	
		Or				
	b	Explain the concepts of the DSA in practical use cases to ensure the data integrity and authentication.	UN	4	13	
15.	a	i	Build taxonomy of side channel attacks with the various categories.	AP	5	5
		ii	Develop a model of fault injection attacks and their effects on system security.	AP	5	8
		Or				
	b	Describe and analyze block-chain technology along with its working principles.	AP	5	13	

*PART - C (Marks 1*15 = 15)*

<i>Q.No</i>		<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
16.	a	Determine the actual bit string transmitted for the bit stream 1101011011 using the standard Cyclic Redundancy Check method with the generator polynomial X^4+X+1 .	EV	1	15
		Or			
	b i	A block of addresses is granted to a small organization. If one of the addresses is 192.15.40.55/28. (i) Find the number of addresses in the block (ii) Find the first and last addresses in the block	EV	2	6
	ii	Change the following IPv4 addresses from binary notation to dotted-decimal notation. (i) 01111110 00111000 00101010 01001010 (ii) 11001100 01010100 00001111 01010100 (iii) 11111000 00000100 00000111 01100000	EV	2	9