Register No : _____

THE KAVERY ENGINEERING COLLEGE

(An Autonomous Institution)

B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, NOV/DEC 2025

Fifth Semester

Artificial Intelligence and Data Science

CW3551 - Data and Information Security

Regulations - 2021

Duration : 3 Hrs *Maximum : 100 Marks*

*PART – A (ANSWER ALL QUESTIONS) (Marks 10*2=20)*

Q.No	*Questions*	*BTL*	*CO*	*Marks*
1.	Define Information Security. What are its critical characteristics?	L1	1	2
2.	Compare SDLC and security SDLC.	L2	1	2
3.	List any two business needs for security.	L1	2	2
4.	List and explain the types of security attacks.	L1	2	2
5.	What is a digital signature?	L1	3	2
6.	List any two authentication requirements	L1	3	2
7.	What is the purpose of PGP in email security?	L1	4	2
8.	Recall any two IPSec protocols and their roles.	L1	4	2
9.	Define Secure Socket Layer (SSL).	L1	5	2
10.	List the major entities involved in SET processing.	L1	5	2

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

Q.No			*Questions*	*BLT*	*CO*	*Marks*
11.	a	i	Explain the NSTISSC Security Model and its components.	L2	1	8
		ii	Explain how balancing security and access impacts system performance.	L2	1	8
			Or			
	b	i	Illustrate the components of an Information System and their role in security.	L2	1	8
		ii	Summarize the Security SDLC with a neat diagram.	L2	1	8
12.	a	i	Analyze various security threats and attacks in an organization.	L4	2	8
		ii	Explain legal, ethical, and professional issues in information security	L2	2	8
			Or			
	b	i	Examine Access Control Matrix and how it helps in enforcing security.	L4	2	8
		ii	Compare confidentiality, integrity, and hybrid policies with examples.	L2	2	8

13.	a	i	Explain the working of a digital signature scheme with a suitable diagram.	L2	3	8
		ii	Analyze the importance of authentication protocols in secure communication.	L4	3	8
			Or			
	b	i	Explain the X.509 Directory Service and its role in authentication.	L2	3	8
		ii	Examine the Kerberos authentication mechanism with neat architecture.	L4	3	8
14.	a	i	Explain PGP architecture and its operational steps in securing emails.	L2	4	8
		ii	Explain the key management and trust model used in S/MIME.	L2	4	8
			Or			
	b	i	Illustrate the IP Security (IPSec) architecture and its components.	L2	4	8
		ii	Compare the ESP and AH protocols in IPSec with examples.	L2	4	8
15.	a	i	Analyze the SSL protocol architecture with its layers and objectives.	L4	5	8
		ii	Explain the Transport Layer Security (TLS) and its role in web communication.	L2	5	8
			Or			
	b	i	Analyze Secure Electronic Transaction (SET) and its operational flow.	L4	5	8
		ii	Explain the Digital Signature (DS) verification process in SET.	L2	5	8