

Reg.No.: 

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VIVEKANANDHA COLLEGE OF ENGINEERING FOR WOMEN  
[AUTONOMOUS INSTITUTION AFFILIATED TO ANNA UNIVERSITY, CHENNAI]  
Elayampalayam – 637 205, Tiruchengode, Namakkal Dt., Tamil Nadu.

**Question Paper Code: 50043**

B.E. / B.Tech. DEGREE END-SEMESTER EXAMINATIONS – JAN. 2026  
Sixth Semester  
Information Technology  
U19CSV43 - SECURITY IN COMPUTING  
(Regulation 2019)

Time: Three Hours

Maximum: 100 Marks

Answer ALL the questions

Knowledge Levels (KL)	K1 – Remembering	K3 – Applying	K5 - Evaluating
	K2 – Understanding	K4 – Analyzing	K6 - Creating

**PART – A**

(10 x 2 = 20 Marks)

Q.No.	Questions	Marks	KL	CO
1.	Mention the concept of "Fail-Safe Stance" in secure system design, and provide an example where this approach is critical.	2	K2	CO1
2.	Define "Securing the Weakest Link" in system security and discuss its importance for maintaining overall security in a network or system.	2	K1	CO1
3.	How does the SQL Injection can compromise the security of a web application?	2	K2	CO2
4.	List measures that can be implemented to prevent Cross-Site Request Forgery (XSRF) in web applications.	2	K1	CO2
5.	Explain the difference between a block cipher and a stream cipher in encryption algorithms.	2	K2	CO3
6.	Write Fermat's Little Theorem and its significance in cryptography.	2	K2	CO3
7.	Illustrate the role of a Digital Signature in ensuring the integrity and authenticity of a message.	2	K2	CO4
8.	State the primary purpose of a Message Authentication Code (MAC) in cryptography.	2	K1	CO4
9.	How the rootkit does plays on the security of an operating system?	2	K1	CO5

10. Depict critical importance of mobile security in modern computing and provide an example of a security threat in mobile devices. 2 K2 CO5

PART – B

(5 x 13 = 65 Marks)

Q.No.	Questions	Marks	KL	CO
11. a)	Analyze "Designing-In Security" in system design. Discuss balancing security and user convenience with examples from the software development life cycle.	13	K4	CO1
	(OR)			
b)	Discuss "Defense in Depth" and its role in system security. Compare it with "Security by Obscurity," highlighting their strengths and weaknesses.	13	K2	CO1
12. a)	Discuss malware types, buffer overflows, SQL injection and prevention methods with examples.	13	K2	CO2
	(OR)			
b)	Explain XSS, XSSI and XSRF. Compare the risks and prevention methods for each in web applications.	13	K2	CO2
13. a)	Explain block ciphers, DES limitations and the evolution to AES with differences in strength and performance.	13	K2	CO3
	(OR)			
b)	Discuss the role of number theory and finite fields in cryptography.	13	K2	CO3
14. a)	Explain the RSA cryptographic algorithm in detail with a suitable example.	13	K2	CO4
	(OR)			
b)	Explain the role of digital signatures in detail with a neat diagram.	13	K2	CO4
15. a)	Discuss security challenges in OS design. Analyze access control, system call filtering and memory protection. Evaluate rootkit impact and detection methods.	13	K2	CO5
	(OR)			
b)	Discuss the security implications of OWASP and the importance of addressing web application vulnerabilities like SQL injection and cross-site scripting.	13	K2	CO5

PART – C

(1 x 15 = 15Marks)

Q.No.	Questions	Marks	KL	CO
16.	a) Analyze the security and performance aspects of DES and AES in protecting sensitive data. Based on your analysis, recommend the more suitable encryption method for the company's data protection needs, justifying your choice in terms of both security and computational efficiency.	15	K4	CO3
	(OR)			
	b) Consider a scenario where two parties, Alice and Bob, need to securely exchange a shared key over an insecure channel. Using the Diffie-Hellman Key Exchange protocol, explain how Alice and Bob can establish a secure key. Provide a detailed example to illustrate the steps involved and discuss the potential security considerations.	15	K2	CO4

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