

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY GURAJADA VIZIANAGARAM
IV B. Tech I Semester Advanced Supplementary Examinations March 2025

SECURING CODING TECHNIQUES

(Computer Science & Engineering)

Time: 3 hours

Max. Marks: 70

Answer any **FIVE** Questions **ONE** Question from **Each unit**

All Questions Carry Equal Marks

UNIT-I

1. a) Explain the fundamental components of a computer network and their role in secure communication. [7M]
b) Analyze recent cyber attacks, lessons can be learned to improve cyber security measures and generic conclusion about attacks? [7M]

(OR)

2. a) Discuss the objectives and services of cybersecurity, and how they help mitigate network threats. [7M]
b) Evaluate an effective cybersecurity strategy to prevent different categories of attacks. [7M]

UNIT-II

3. a) Define OWASP Top 10 vulnerabilities and explain their significance in web security. [7M]
b) Discuss how insecure deserialization and cross-site scripting (XSS) affect web applications. [7M]

(OR)

4. a) Explain the risks and root causes of A1 Injection attacks, and discuss mitigation strategies. [7M]
b) How can organizations support their teams to ensure OWASP practices are effectively integrated into the software development lifecycle? [7M]

UNIT-III

5. a) Describe the importance of input validation, error handling, and logging in secure coding. [7M]
b) Compare static and dynamic testing techniques in detecting vulnerabilities in applications. [7M]

(OR)

6. a) Discuss the role of cryptography in securing data and preventing unauthorized access. [7M]
b) Explain the importance of vulnerability scanning and penetration testing in secure software development. [7M]

UNIT-IV

7. a) Explain the potential software risks associated with C and C++ programming. [7M]
b) How Java ensures security through serialization security and access control mechanisms. Justify? [7M]

(OR)

8. a) Demonstrate how defensive coding techniques can prevent security vulnerabilities in C/C++? [7M]
b) Write the effectiveness of unit testing and low-level design inspections in secure coding. [7M]

UNIT-V

9. a) Discuss the fundamental concepts of secure Python programming, including variables and loops. [7M]
 b) Analyze how external modules and web requests can introduce security risks in Python scripting. [7M]

(OR)

10. a) Explain the importance of input validation and file operations in securing Python applications. [7M]
 b) Propose a security framework to enhance Python programming practices in web applications. [7M]
