

**IV B.Tech I Semester Regular Examinations, January – 2024****SECURE CODING TECHNIQUES**

(OE-IV: CSE, CSE-AIML, CSE-AI, CSE-DS, CSE-AIDS, AIDS, AIML &amp; CSD)

**Time: 3 hours****Max. Marks: 70**

*Answer any FIVE Questions  
ONE Question from Each unit  
All Questions Carry Equal Marks*

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**UNIT- I**

- |   |  |     |
|---|--|-----|
| 1 | a) Discuss about networking models in detail.                                    | [7] |
|   | b) Discuss any one of the recent security attacks with relevant example.<br>(OR) | [7] |
| 2 | a) Demonstrate various networking components in detail.                          | [7] |
|   | b) Discuss the elements of Cyber security in detail.                             | [7] |

**UNIT- II**

- |   |   |     |
|---|---|-----|
| 3 | a) Discuss the role of Open Web Application Security Project in detail. | [7] |
|   | b) Demonstrate SQL Injection in detail.<br>(OR)                         | [7] |
| 4 | a) Discuss the effects of Insecure Deserialization in detail.           | [7] |
|   | b) Demonstrate Injection prevention methods.                            | [7] |

**UNIT- III**

- |   |   |     |
|---|---|-----|
| 5 | a) How to manage trusted system objects in access control mechanism.                      | [7] |
|   | b) Demonstrate how the memory resources needed to be handled through safe coding.<br>(OR) | [7] |
| 6 | a) Discuss about Data protection practices in detail.                                     | [7] |
|   | b) Discuss about sandboxing and its merits in detail.                                     | [7] |

**UNIT- IV**

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|---|---|-----|
| 7 | a) Briefly explain assertions in Java with relevant example code. | [7] |
|   | b) Describe Serialization and Externalization in detail.<br>(OR)  | [7] |
| 8 | a) List out various software risks observed in C or C++.          | [7] |
|   | b) Discuss the Strategies to manage denial of service in detail.  | [7] |

**UNIT-V**

- |    |   |     |
|----|---|-----|
| 9  | a) Discuss different types of functions in Python.                          | [7] |
|    | b) List out various external modules related to security in Python.<br>(OR) | [7] |
| 10 | a) Demonstrate the process to install a security external module in Python. | [7] |
|    | b) Discuss types of web requests in Python with example.                    | [7] |

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UNIT - I

- UNIT-1
- 1 a) Discuss about Cyber security services and objectives in detail. [7]
- b) Discuss the benefits of a network and communication. [7]
- (OR)

## Attacks in depth

- 3) Discuss about various security attacks in detail. [7]

**UNIT-II**

3    a) Describe about Security Misconfiguration. [7]  
     b) Demonstrate Injection prevention methods. [7]

(OR)

4    a) Discuss the role of Open Web Application Security Project in detail. [7]  
     b) Demonstrate vulnerabilities in Broken Authentication and session management. [7]

UNIT III

- UNIT - III**

5	a) List out Error handling practices needed in Secure coding. [7] b) Demonstrate static and dynamic testing in secure coding. [7]
(OR)	
6	a) Discuss about vulnerability scanning and penetration testing. [7] b) Discuss about Declarative and Programmatic Security in detail. [7]

UNIT- IV

- CNTR 4**

7 a) Discuss data visibility approaches in C++. [7]  
b) Discuss the best practices in writing C++ code. [7]

(OR)

8 a) Demonstrate object slicing with relevant example in C++. [7]  
b) Discuss about overriding virtual functions in C++. [7]

UNIT-V

- 9 a) Write a python a function validates whether a given user password consists of 8 characters length and a digit or not. [7]  
b) Give an example for lambda function in python. [7]

(OR)

10 a) List out the numbers that end with 4 in a given set of elements in Python. [7]  
b) Demonstrate Python functions with example. [7]



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**UNIT– I**

- 1 a) Explain different benefits of computer network topologies in detail. [7]  
 b) Discuss the following: malware, spyware and worms. [7]  
 (OR)
- 2 a) Demonstrate OSI reference model with neat diagram. [7]  
 b) Discuss the key factors in Cyber security. [7]

**UNIT– II**

- 3 a) Discuss the Injection Risks and mitigation process. [7]  
 b) Discuss about Cross Site scripting in detail. [7]  
 (OR)
- 4 a) Explain the basic principles behind XSS attacks. [7]  
 b) Demonstrate Secure coding practices in detail. [7]

**UNIT– III**

- 5 a) Evaluate the checks to be done during the input validations in a Online Payment Gateway scenario. [7]  
 b) List out session management practices in Secure coding. [7]
- 6 a) List out Error handling practices needed in Secure coding. [7]  
 b) List out the differences between http and https. [7]

**UNIT– IV**

- 7 a) Discuss about various defensive coding methods in C++. [7]  
 b) Demonstrate Constructor overloading and its relevance with sample C++ code. [7]  
 (OR)
- 8 a) Demonstrate object slicing with relevant example in C++. [7]  
 b) Discuss about overriding virtual functions in C++. [7]

**UNIT– V**

- 9 a) Write Python code to find out number of old age voters in a given list of n voters in a village [7]  
 b) Develop simple Python script to find the sum of all the numbers given in a file. [7]  
 (OR)
- 10 a) Demonstrate file handling in Python. [7]  
 b) Demonstrate HTTP requests in Python. [7]

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**UNIT– I**

- 1 Demonstrate ISO-OSI model layer Architecture with a neat diagram. [14]  
(OR)
- 2 a) Discuss the key benefits of Local Area Networks in detail. [7]  
b) Demonstrate TCP/IP model with a neat diagram. [7]

**UNIT– II**

- 3 a) Discuss key aspects in Broken access control? [7]  
b) How can an attacker exploit XSS vulnerabilities to compromise user data? [7]  
(OR)
- 4 a) Discuss about Cross Site Request Forgery attack in detail. [7]  
b) How to prevent Sensitive Data Exposure? [7]

**UNIT– III**

- 5 a) List out session management practices in Secure coding. [7]  
b) Explain about concurrency and configuration in secure coding. [7]  
(OR)
- 6 a) Discuss about Memory management in Secure coding. [7]  
b) How will be logging and auditing performed in secure coding. [7]

**UNIT– IV**

- 7 a) Discuss about various preventative planning methods in C++. [7]  
b) Give a simple example for handling assertions in C++. [7]  
(OR)
- 8 a) List out various ways to handle DOS attacks on Java Web API [7]  
b) Implement Java Object Serialization with example. [7]

**UNIT– V**

- 9 a) Implement python script to count number of alphabets, digits and symbols in a given file. [7]  
b) Demonstrate external modules with examples. [7]  
(OR)
- 10 a) Implement Python script to find number of 1s and 0s in a given binary string. [7]  
b) Differentiate GET and POST requests in Python. [7]