



Daffodil International University  
Faculty of Science & Information Technology  
Department of Information Technology & Management  
Final Examination, Summer 2025

Course Code: ITM 322; Course Title: Software and Web Security

Sections & Teachers: A (AR)

Time: 2:00 Hours

Marks: 40

Answer ALL Questions

*[The figures in the right margin indicate the full marks. All portions of each question must be answered sequentially.]*

1. a) Define Honey-pot? Outline different types of database security controls with brief description? b) You are given a plaintext and a keyword. Perform encryption using the "Autokey Cipher" and find the final ciphertext.

[Marks-4]

CO-1  
Level-1

[Marks-4]

CO-2  
Level-3

Plaintext: DAFFODILITM

Key: 9 (As you are from 9th batch)

2. a) State the term digital signature. Demonstrate how blockchain works with a diagram with brief description. b) You are given plaintext and a keyword. Perform encryption using the "Playfair Cipher" method and find the final ciphertext.

[Marks-4]

CO-4  
Level-3

[Marks-4]

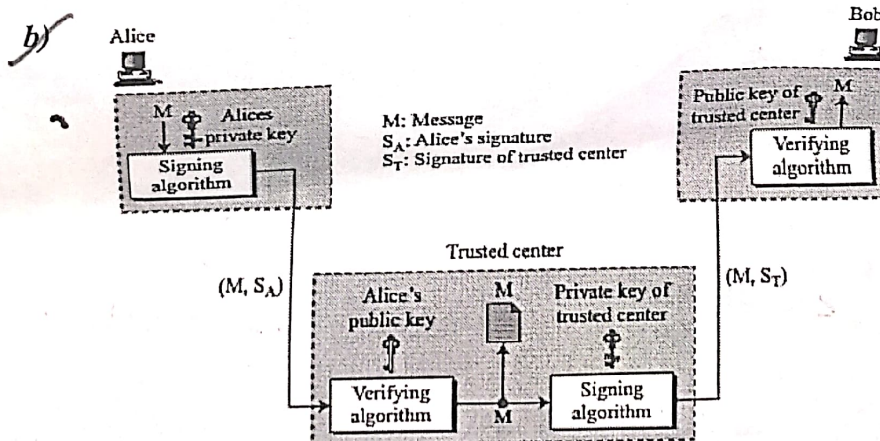
CO-2  
Level-3

Plaintext: YELLOWBUDS  
Keyword: DAFFODIL

3. a) Explain any five common web application vulnerabilities caused by bad design with example for each.

[Marks-4]

CO-1  
Level-2



[Marks-4]

CO-4  
Level-4

Analyze the working process of nonrepudiation using a trusted third party based on the provided diagram.

10x10  
100

X Y Z  
20 21 25

4. a) Illustrate the working principle of CMAC (also known as CBCMAC) with a proper diagram.

[Marks-4]

CO-3  
Level-4

- b) A website has a login form where users enter their username and password. The server processes this input using an insecure SQL query:

```
$email = $_POST['email'];  
$pass = $_POST['pass'];  
$sql = "SELECT * FROM accounts WHERE  
email = '$email' AND pass = '$pass'";  
$result = mysqli_query($conn, $sql);
```

[Marks-4]

CO-1  
Level-2

Interpret how SQL Injection can occur in this login system and **explain** how an attacker could exploit it to bypass authentication using malicious input.

5. a) Summarize how Cross-Site Request Forgery (CSRF) attacks are executed in web applications and **present** a few effective prevention techniques to mitigate such attacks.

[Marks-4]

CO-1  
Level-2

- b) Formulate example for each -

- Insecure Direct Object Reference and
- Insecure Cryptographic Storage

[Marks-4]

CO-1  
Level-5

with brief justification.