

SAMPLE PAPERS
DIPLOMA FIFTH SEMESTER EXAMINATION 2025 (JUT)
CYBER SECURITY
DIPLOMA WALLAH

[CLICK HERE TO VISIT DIPLOMA WALLAH WEBSITE](#) (MADE WITH ❤ BY SANGAM)

Full Marks: 70 marks | Time: 3 Hours

Instructions:

- Question No. 1 is compulsory.
 - Answer any **FOUR** questions from the remaining (Q.2 to Q. 7 marks).
-

Q.1 Multiple Choice Questions (Compulsory)

(7 Questions × 2 Marks = 14 Marks)

- (i) McCumber's Cube is used to represent:
- (a) Database Schema
 - (b) Information Systems Security
 - (c) Network Topology
 - (d) Coding Structure
- (ii) Which of the following is NOT a biometric authentication method?
- (a) Fingerprint
 - (b) Retina Scan
 - (c) Smart Card
 - (d) Voice Recognition
- (iii) In Linux, the 'root' user is also known as:
- (a) Guest User
 - (b) Super User
 - (c) Standard User
 - (d) Anonymous User
- (iv) What does 'S' stand for in the STRIDE threat model?
- (a) Security
 - (b) Spoofing
 - (c) Service

(d) System

(v) Which device operates primarily at the Network Layer to filter traffic based on IP addresses?

(a) Hub

(b) Switch

(c) Packet Filtering Firewall

(d) Repeater

(vi) Which malware locks your files and demands payment?

(a) Adware

(b) Ransomware

(c) Spyware

(d) Keylogger

(vii) Git is an example of:

(a) Operating System

(b) Version Control System

(c) Antivirus

(d) Firewall

Q.2

(A) What is the McCumbers Cube? Explain its three dimensions: Security Goals, Information States, and Safeguards. [7 Marks]

(B) Explain the concept of Web Application Firewalls (WAF). How is a WAF different from a traditional Network Firewall? [7 Marks]

Q.3

(A) What are Hardware Vulnerabilities? Briefly explain Meltdown and Spectre. [7 Marks]

(B) What is Steganography? Explain how it is used to hide data within data. [7 Marks]

Q.4

(A) Explain Version Control Systems. Why is Git used in software development? [7 Marks]

(B) Explain the concept of "System Hardening" in Linux and Windows. Why is it important? [7 Marks]

Q.5

(A) What is the OWASP Top 10? Briefly explain why it is important for developers and security professionals. [7 Marks]

(B) Describe the symptoms and working mechanism of a Spyware and a Rootkit. [7 Marks]

Q.6

(A) Explain the difference between Restricted, Confidential, and Top Secret data classification with examples. [7 Marks]

(B) Describe the core principles of security: Confidentiality, Integrity, and Availability (CIA Triad). [7 Marks]

Q.7 Write Short Notes on (Any FOUR): $[4 \times 3.5 = 14 \text{ Marks}]$

(A) Brute Force Attack

(B) Hashing (SHA-256)

(C) Pretexting

(D) Windows Active Directory

(E) Packet Filtering Firewall



SOLUTIONS - PAPER 3

MCQ Answer Key:

- (i) (b) Information Systems Security 282828
- (ii) (c) Smart Card 2929
- (iii) (b) Super User 3030
- (iv) (b) Spoofing 3131
- (v) (c) Packet Filtering Firewall 3232
- (vi) (b) Ransomware 3333
- (vii) (b) Version Control System 3434

Short Answer Hints:

- **Q.2(A) McCumbers Cube:** A framework for evaluating information security. D1: CIA, D2: Transmission/Storage/Processing, D3: Tech/Policy/Human.
- **Q.2(B) WAF:** Protects web apps (HTTP/S) from attacks like SQLi/XSS. Network firewall protects ports/IPs.
- **Q.3(A) Hardware Vulns:** Meltdown/Spectre allow accessing memory of other programs due to CPU design flaws.
- **Q.4(A) Git:** Tracks changes in code, allows collaboration, rollback to previous versions.
- **Q.5(A) OWASP Top 10:** List of most critical web security risks (e.g., Injection, Broken Auth). Standard for secure coding.