

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

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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 ).
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**Q.1 Multiple Choice Questions (Compulsory)**

(7 Questions × 2 Marks = 14 Marks)

- (i) What describes a system where a user cannot deny having performed a specific action?
- (a) Authorization
  - (b) Non-repudiation
  - (c) Snooping
  - (d) Masquerading
- (ii) Which tool is commonly used for network scanning and discovery?
- (a) Photoshop
  - (b) NMAP
  - (c) Word
  - (d) Calculator
- (iii) In the context of Linux permissions, what is the numerical value for 'Read' permission?
- (a) 1
  - (b) 2
  - (c) 4
  - (d) 7
- (iv) Which of the following is considered a 'Strong' password?
- (a) admin123
  - (b) password
  - (c) P@\$word#2024

(d) 12345678

(v) Which protocol is used for secure file transfer?

(a) FTP

(b) SFTP

(c) TFTP

(d) HTTP

(vi) The process of hiding data within another file (like an image) is called:

(a) Cryptography

(b) Steganography

(c) Tomography

(d) Biometrics

(vii) Which OWASP Top 10 vulnerability involves inserting malicious database queries into input fields?

(a) Broken Access Control

(b) SQL Injection

(c) Security Misconfiguration

(d) Insecure Design

Q.2

(A) Differentiate between Vulnerability, Threat, and Risk. Give one example of each to support your answer. [7 Marks]

(B) What is Social Engineering? Briefly explain Phishing, Pretexting, and Tailgating with examples. [7 Marks]

Q.3

(A) Write a detailed note on Digital Signatures. How do they ensure non-repudiation and integrity? [7 Marks]

(B) Explain Data Classification. What is the difference between Unclassified, Restricted, Confidential, and Top Secret data? [7 Marks]

Q.4

(A) What is a VPN (Virtual Private Network)? How does IPSec help in securing data over a network? [7 Marks]

(B) Briefly explain the RSA Algorithm and how Asymmetric encryption works. [7 Marks]

Q.5

(A) Explain DoS (Denial of Service) vs. DDoS (Distributed Denial of Service) attacks. [7 Marks]

(B) What is Hashing? How is SHA-256 different from Encryption? Explain the concept of One-way vs Two-way. [7 Marks]

Q.6

(A) Write notes on Password Attacks: Brute Force Attack, Dictionary Attack, and Rainbow Table Attack. [7 Marks]

(B) Explain the concept of Two-Factor Authentication (2FA) and Multi-Factor Authentication (MFA). [7 Marks]

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

(A) Ransomware (Symptoms & working)

(B) Spyware & Rootkits

(C) User Account Control (UAC)

(D) OWASP Top 10

(E) System Hardening



**SOLUTIONS - PAPER 2**

MCQ Answer Key:

- (i) (b) Non-repudiation 15
- (ii) (b) NMAP 1616
- (iii) (c) 4 1717
- (iv) (c) P@\$word#2024 1818
- (v) (b) SFTP 1919
- (vi) (b) Steganography 20
- (vii) (b) SQL Injection 2121

**Short Answer Hints:**

- **Q.2(A) Vuln/Threat/Risk:** Vulnerability = Weakness. Threat = Potential harm. Risk = Probability x Impact.
- **Q.2(B) Social Engineering:** Manipulating people. Phishing (Fake links), Tailgating (Following someone into secure area).
- **Q.3(A) Digital Signatures:** Uses private key to sign, public to verify. Ensures sender identity.
- **Q.4(A) VPN:** Extends private network across public network. IPSec provides encryption/auth for IP packets.
- **Q.5(B) Hashing:** One-way function (cannot decrypt). Used for integrity (check sums).
- **Q.6(A) Password Attacks:** Brute Force (Try all combos), Dictionary (Wordlist), Rainbow (Precomputed hashes).