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).

Q.1 Multiple Choice Questions (Compulsory)

(7 Questions × 2 Marks = 14 Marks)

(i) Which component of the CIA triad ensures that data is not altered by unauthorized people?

(a) Confidentiality

(b) Integrity

(c) Availability

(d) Authorization

(ii) In the context of AAA, what does the second 'A' stand for?

(a) Accounting

(b) Authorization

(c) Authentication

(d) Availability

(iii) Which of the following is a type of Asymmetric encryption algorithm?

(a) AES

(b) DES

(c) RSA

(d) Blowfish

(iv) What is the standard port number used for HTTPS traffic?

(a) 80

(b) 21

(c) 443

(d) 25

(v) Which command is used to change file permissions in Linux?

(a) chown

(b) chmod

(c) grep

(d) ls

(vi) Which phase of the Secure SDLC involves "Threat Modeling"?

(a) Testing

(b) Design

(c) Deployment

(d) Maintenance

(vii) In Cloud Computing, which service model provides virtualized computing resources like virtual machines over the internet?

(a) SaaS

(b) PaaS

(c) IaaS

(d) DaaS

Q.2

(A) Define Cyber Security. Explain the core principles of security using the CIA Triad (Confidentiality, Integrity, Availability) and AAA (Authentication, Authorization, Accounting). [7 Marks]

(B) What is Malware? Classify and explain Virus, Worms, and Trojan Horse with their symptoms. [7 Marks]

Q.3

(A) Explain the concept of Defense in Depth. Describe its various layers (Physical, Network, Host, Application, Data) with a neat diagram. [7 Marks]

(B) What is Cryptography? Differentiate between Symmetric (Private Key) and Asymmetric (Public Key) Encryption. [7 Marks]

Q.4

(A) Explain the function of a Firewall (Packet filtering vs. Stateful) and differentiate between IDS and IPS. [7 Marks]

(B) Describe Windows Security Architecture. Write detailed notes on Windows Active Directory and Group Policy Objects (GPO). [7 Marks]

Q.5

(A) What is Secure SDLC? Explain how security is handled in the Design, Development, and Testing phases. [7 Marks]

(B) Explain Threat Modeling. Describe the STRIDE methodology in detail. [7 Marks]

Q.6

(A) Explain Linux Security basics including File Permissions (r-w-x) and User Accounts. [7 Marks]

(B) What are Web Application Attacks? Explain the mechanism of SQL Injection and Cross-Site Scripting (XSS). [7 Marks]

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

(A) Vulnerability vs. Threat vs. Risk

(B) Social Engineering (Phishing)

(C) Digital Signatures

(D) VPN (Virtual Private Network)

(E) DoS vs. DDoS Attacks

SOLUTIONS - PAPER 1

MCQ Answer Key:

(i) (b) Integrity 11

(ii) (b) Authorization 22

(iii) (c) RSA 33

(iv) (c) 443 44

(v) (b) chmod 55

(vi) (b) Design 66

(vii) (c) IaaS 77

Short Answer Hints:

- **Q.2(A) CIA/AAA:** CIA = Confidentiality (Privacy), Integrity (No tampering), Availability (Access). AAA = Authentication (Identity), Authorization (Permission), Accounting (Tracking).

- **Q.2(B) Malware:** Virus (attaches to host), Worm (self-replicating), Trojan (disguised as safe soft).

- **Q.3(A) Defense in Depth:** Layered security. If one fails, others protect. Layers: Physical, Network, Host, App, Data.

- **Q.3(B) Cryptography:** Symmetric (Same key for enc/dec), Asymmetric (Pair of keys: Public/Private).

- **Q.4(A) Firewall/IDS:** Firewall blocks traffic based on rules. IDS detects intrusions; IPS prevents them.

- **Q.4(B) Windows:** AD (Centralized management), GPO (Policy enforcement). [13]

- **Q.7 Short Notes:** VPN (Encrypted tunnel), DoS (Crash service), Phishing (Fake emails).