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Printed Page:-4 **Subject Code:- BCSCY0411**

Roll. No:

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA
(An Autonomous Institute Affiliated to AKTU, Lucknow)
B.Tech
SEM: IV - THEORY EXAMINATION (2025 - 2026)
Subject: Fundamentals of Cyber Security

Time: 3 Hours **Max. Marks: 100**

General Instructions:

IMP: *Verify that you have received the question paper with the correct course, code, branch etc.*

1. *This Question paper comprises of* ***three Sections -A, B, & C.*** *It consists of Multiple Choice Questions (MCQ's) & Subjective type questions.*

2. *Maximum marks for each question are indicated on right -hand side of each question.*

3. *Illustrate your answers with neat sketches wherever necessary.*

4. *Assume suitable data if necessary.*

5. *Preferably, write the answers in sequential order.*

6. *No sheet should be left blank. Any written material after a blank sheet will not be evaluated/checked.*

SECTION-A 20

1. Attempt all parts:-

(1.1) Availability means:(CO1, K1) 1

(a) Data is always correct
(b) Data is accessible when needed
(c) Data is hidden
(d) Data is encrypted

(1.2) Identify the domain responsible for securing IoT devices. (CO1, K2) 1

(a) Network Security
(b) IoT Security
(c) Cloud Security
(d) Application Security

(1.3) Identify malware that replicates without requiring a host file (CO2, K2) 1

(a) Virus
(b) Worm
(c) Trojan
(d) Spyware

(1.4) Select attack that steals session cookies (CO2, K1) 1

(a) SQLi
(b) DoS
(c) XSS
(d) Trojan

(1.5) Example of Behavioral biometric (CO3, K1): 1

(a) Fingerprint
(b) Iris
(c) Typing pattern
(d) Retina

(1.6) Stateful firewall tracks:(CO3, K1) 1

(a) Only IP
(b) Only ports
(c) Active connections
(d) Files

(1.7) A networking device responsible for forwarding data packets between different networks based on logical addressing operates at which layer? (CO4, K2) 1

(a) Data link layer
(b) Transport layer
(c) Network layer
(d) Physical layer

(1.8) Name the practice of developing software in a way that avoids vulnerabilities such as buffer overflows and injection attacks.(CO4, K1) 1

(a) Coding
(b) Secure coding
(c) Debugging
(d) Compiling

(1.9) The Indian law that provides legal recognition to electronic transactions and addresses cyber crimes is the:(CO5, K2) 1

(a) IT ACT, 2000
(b) IPC
(c) DPDP ACT,2023
(d) BNS

(1.10) Converting readable information into an unreadable form to prevent unauthorized access is known as:(CO5, K1) 1

(a) Decryption
(b) Encryption
(c) Plain Text
(d) Secret Key

2. Attempt all parts:-

(2.1) State the importance of security awareness. (CO1, K1) 2

(2.2) Identify role of spyware in cyber security aspect (CO2, K2) 2

(2.3) Define incident response with example. (CO3, K1) 2

(2.4) Illustrate with suitable example how encryption and VPNs enhance security. (CO4, K2) 2

(2.5) Explain Cyber Bullying and mention its impact on users. Explain concept with example (CO5, K2) 2

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SECTION-B 30

Answer any one of the following:-

(3.1) Compare and contrast Threat, Vulnerability, and Risk using examples. (CO2, K4) 6

(3.2) Outline IoT Security along with associated risks. (CO2, K2) 6

Answer any one of the following:-

(3.3) Analyze different spoofing techniques used in cyber attacks. (CO2, K4) 6

(3.4) Explain the working of clickjacking attack with example. (CO2, K2) 6

Answer any one of the following:-

(3.5) Compare and contrast IDS and IPS in detail.(CO3, K4) 6

(3.6) Explain incident response lifecycle with suitable example. (CO3, K2) 6

Answer any one of the following:-

(3.7) Discuss the concept of ports and protocols and compare how HTTP HTTPS and FTP differ in terms of functionality and security (CO4, K2) 6

(3.8) Network 10.0.0.0/8 is subnetted into /24; calculate the total number of subnets formed and the number of hosts available in each subnet, and explain why such subnetting is useful in large organizations. (CO4, K3) 6

Answer any one of the following:-

(3.9) Explain Section 43 and Section 66 of the IT Act and describe their significance in cyber crime control. (CO5, K2) 6

(3.10) Describe Digital Hygiene and explain its importance in maintaining cyber safety with suitable example. (CO5,K2) 6

SECTION-C 50

4. Answer any one of the following:-

(4.1) Provide an in-depth note on the CIA Triad and its role in cyber security. (CO1, K2) 10

(4.2) Highlight Application Security along with relevant example. (CO1, K2) 10

5. Answer any one of the following:-

(5.1) Explain Denial-of-Service (DoS) and Distributed Denial-of-Service (DDoS) attacks with architecture. (CO2, K2) 10

(5.2) Discuss phishing attack techniques and methods to detect and prevent them. (CO2, K4) 10

6. Answer any one of the following:-

(6.1) Compare and contrast DAC, MAC, RBAC in real-world scenarios. (CO3, K4) 10

(6.2) Analyze challenges in implementing RBAC.(CO3, K4) 10

7. Answer any one of the following:-

(7.1) Highlight the importance of patch management and software updates and show how they help prevent cyber attacks with a case study. (CO4, K2) 10

(7.2) Compare IPv4 and IPv6 including addressing scheme advantages limitations and real world applications with a case study. (CO4, K4) 10

8. Answer any one of the following:-

(8.1) Explain Multi-Factor Authentication and describe its importance in system security. (CO5, K2) 10

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(8.2)	Describe Password Hygiene and best practices for password security and explain importance of strong authentication methods. (CO5, K2)	10