Printed Page:- 04 **Subject Code**:- **ACSBS0603**

Roll. No:

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA

(An Autonomous Institute Affiliated to AKTU, Lucknow)

B.Tech

SEM: VI - THEORY EXAMINATION (2023 - 2024)

Subject: Information 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-a. In order to ensure the security of the data/ information, we need to _____ the data:(CO1) 1

(a) Encrypt

(b) Decrypt

(c) Delete

(d) None of the above

1-b. Which type following UNIX account provides all types of privileges and rights which one can perform administrative functions (CO1) 1

(a) Root

(b) Client

(c) Guest

(d) Administrative

1-c. Why are the factors like Confidentiality, Integrity, Availability, and Authenticity considered as the fundamentals. (CO2) 1

(a) They help in understanding the hacking process

(b) These are the main elements for any security breach

(c) They help to understand the security and its components in a better manner

(d) All of the above

1-d. In order to ensure the security of the data/ information, we need to encrypt the data using _____: (CO2) 1

(a) Cryptographic algorithm

(b) Hill climbing algorithm

(c) A* algorithm

(d) None of the above

1-e. Point out the wrong statement a) Abstraction enables the key benefit of cloud computing: shared, ubiquitous access b) Virtualization assigns a logical name for a physical resource and then provides a pointer to that physical resource when a request is made c) All cloud computing applications combine their resources into pools that can be assigned on demand to users d) All of the mentioned (CO3) 1

(a) c

(b) a,c

(c) b

(d) All of These

1-f. Existence of weakness in a system or network is called _____.(CO3) 1

(a) Threat

(b) Vulnerability

(c) Exploit

(d) Attack

1-g. _____ is the process of retaining or keeping of data at a secure place for long-term storage (CO4) 1

(a) Data rolls

(b) Data collections

(c) Private search engines

(d) None of These

1-h. It is necessary to use _____ for maintaining searched data privacy (CO4) 1

(a) Encryption and IT audit

(b) Digital privacy

(c) Authentication

(d) All of These

1-i. An audit log is an example of what type of control. (CO5) 1

(a) Detection

(b) Preventive

(c) Recovery

(d) Containment

1-j. Malicious software, commonly known as _____(CO5) 1

(a) Logic

(b) Code

(c) Malware

(d) Both option1 and 2

2. Attempt all parts:-

2.a. Explain the process of threat identification in any system. (CO1) 2

2.b. Explain different type of firewall used in a system for Information security. (CO2) 2

2.c. Define formal methods used for a system design. (CO3) 2

2.d. Explain the term Data privacy with respect to information security. (CO4) 2

2.e. Explain the importance of security architecture in the operating system security. (CO5) 2

SECTION B **30**

3. Answer any <u>five</u> of the following:-

3-a. Explain the DDoS attack with example. Explain the different techniques to prevent DDoS attacks. (CO1) 6

3-b. Explain the MITM attack with example. Define the techniques to prevent MITM attacks. (CO1) 6

3-c. Discuss how information security is viewed as a social science justify your answer. (CO2) 6

3-d. Discuss what are the approaches used for implementing information security. (CO2) 6

3.e. Explain confinement problem of system design with respect to information security. (CO3) 6

3.f.	Explain intrusion detection for a system with suitable example. (CO4)	6
3.g.	Explain the security architecture of an operating system. Describe main security parameter for a operating system (CO5)	6

SECTION C **50**

4. Answer any <u>one</u> of the following:-

4-a.	Explain Security Life Cycle in detail with proper example.[CO1]	10
4-b.	Explain Security violation and threats. (CO1)	10

5. Answer any <u>one</u> of the following:-

5-a.	Explain roll-based and task-based models in detail with proper example.(CO2)	10
5-b.	Explain temporal and spatial-temporal models in detail with example. (CO2)	10

6. Answer any <u>one</u> of the following:-

6-a.	Describe Building systems with assurance with regard to information security. (CO3)	10
6-b.	Describe access control and information flow in a secure system in detail with example and diagram. (CO3)	10

7. Answer any <u>one</u> of the following:-

7-a.	Describe one case study involving digital forensics with respect to information security. (CO4)	10
7-b.	Describe security specifications and security architecture of any enterprise. Briefly explain with the help of a case study. (CO4)	10

8. Answer any <u>one</u> of the following:-

8-a.	Write down the responsibilities of a database administrator when it comes to database security. (CO5)	10
8-b.	Differentiate between an integrity constraint and a database constraint with respect to Operating Systems Security. (CO5)	10