

# NATIONAL FORENSIC SCIENCES UNIVERSITY, GOA

## SCHOOL OF FORENSIC SCIENCES

### M.Sc. Cyber Security - Semester -I Term Assessment-I

#### TERM ASSESSMENT – I

#### ARTIFICIAL INTELLIGENCE

(CTMSCS SI P4)

Date: 22.09.2022

Time: 12:15pm to 1:00pm

Max. Marks: 25

175

#### Q. 1. Multiple Choice Questions (1 mark each)

[10 Marks]

- ✓ 1. Vector  $c$  is linearly independent of vectors  $a$  and  $b$  if and only if it is  
 a) Impossible to find scalar values of  $\alpha$  and  $\beta$  such that  $c = \alpha a + \beta b$   
 b) Possible to find scalar values of  $\alpha$  and  $\beta$  such that  $c = \alpha a + \beta b$   
 c) Three vectors can never be linearly independent  
 d) None of the above

- ✓ 2. The magnitude of vector  $v = (3, 4)$  is \_\_\_\_\_  
 a) 4    b) 1    c) 5    d) 25

✓ 25

- ✓ 3. The number of vectors in a basis for the vector space is called \_\_\_\_\_ of vector space  
 a) Area    b) Dimension    c) Size    d) None of the above

- ✓ 4. A \_\_\_\_\_ matrix is always square and equal to its own transpose.  
 a) Lower triangular    b) Symmetric    c) Upper triangular    d) None of the above

- ✓ 5. Which one of the following holds true in probability, where  $\Omega$  is sample space and  $A$  is any event?  
 a)  $P(\Omega) = 1$     b)  $0 \leq P(A) \leq 1$     c) Both a and b    d) None of the above

- ✓ 6. Given 2 events A and B, the conditional probability  $P(A | B)$  is given as \_\_\_\_\_  
 a)  $\frac{P(A \cap B)}{P(B)}$     b)  $\frac{P(A \cup B)}{P(B)}$     c)  $P(A \cup B)$     d) None of the above

- ✓ 7. Which of the following is used to measure the spread of data?  
 a) Variance    b) Mean    c) Median    d) Mode

- ✓ 8. Midrange is calculated as \_\_\_\_\_  
 a) Average of the data    b) Average of largest and smallest value    c) Middle value    d) None of the above

- ✓ 9. If A and B are two sets and  $A = B$ , then which one of the following holds true?  
 a) A is subset of B    b) B is subset of A    c) Both a and b    d) None of the above

- ✓ 10. If A and B are two independent events then \_\_\_\_\_  
 a)  $P(A \cap B) = P(A)P(B)$     b)  $P(A \cap B) = P(A \cup B)$     c)  $P(A) = P(B)$     d) None of the above

#### Q.2. Answer the following questions (3 marks each)

[3x5=15 Marks]

- ✓ 1. Explain how correlation is used in analysing the relationship between two variables.
- ✓ 2. Solve the system of linear equation  $x - 2y = 1$  and  $3x + 2y = 11$  using Cramer's rule.
- ✓ 3. Discuss in detail any three measures of central tendency with respect to data distribution.
- ✓ 4. Define orthogonal matrix. Prove that for any orthogonal matrix  $Q$ ,  $Q Q^T = Q^T Q = I$
- ✓ 5. Consider an experiment of tossing a fair coin 2 times. Let X be the number of heads obtained in 2 tosses. Answer the following with respect to this experiment.  
 a) What is the sample space?  
 b) What are the values for the random variable X? 0, 1, 2  
 c) Give the probability of random variable taking on values in its range (Induced probability function)

✓ 3/2

12

**Q-1 Attend all Questions:**

(10)

1. TTL stands for \_\_\_\_\_  
a) Tunnel to Leave      b) Time to Leave  
c) Transport to Live    d) None
2. Which layer provides the services to user?  
a) Session layer      b) application layer  
c) Presentation layer    d) physical layer
3. Which of the following protocols uses both TCP and UDP?  
a) FTP      b) DNS  
c) SMTP      d) Telnet
4. Which layer 4 protocol is used for a Telnet connection?  
a) IP      b) TCP  
c) TCP/IP      d) UDP
5. DoS is abbreviated as \_\_\_\_\_.  
a) Denial of Service    b) Distribution of Server  
c) Distribution of Service    d) Denial of Server
6. ARP Stands for \_\_\_\_\_.  
a) Address Resolution Protocol    b) Address Report Protocol  
c) Access Resolution Protocol    d) Address Resolution Packets
7. Which of the following are possible vulnerabilities in a database?  
a) To delete table data    b) Using the DROP command  
b) SQL injection    c) All of the above
8. Which of the following most closely simulates the actions of a real world attacker/hacker?  
a) Vulnerability assessment    b) Security audit  
b) Penetration testing    d) none of the above
9. \_\_\_\_\_ is a weakness that can be exploited by attackers.  
a) System with Virus    b) System without firewall  
c) Vulnerabilities    d) strong password
10. Risk and vulnerabilities are the same things.  
a) True    b) False

**Q-2 Write any five Questions:**

(15)

1. How TCP/UDP Protocol works?
2. What is fingerprinting web applications?
3. Describe Terminology (any three)  
a. CVE  
b. CWE  
c. CVSS  
d. Secure Source Code Review Details.
4. What is VAPT lifecycle?
5. Describe Web authentication mechanisms, fuzzing in detail.
6. What is Subdomains enumeration?

NATIONAL FORENSIC SCIENCES UNIVERSITY, GOA  
M.S.C. CYBER SECURITY & DFIS  
SEMESTER I

TERM ASSESSMENT - 1

CYBER SECURITY AUDIT AND COMPLIANCE (CTMSCS SI P2)

Date: 21.09.2022

Time: 12:15 to 1:00

Marks: 25

(10)

(15)

**Q-1: Attend All Questions:**

(10)  
6/10

- ✓ Which of the following components is not part of IT compliance?  
a) IT audit      c) control development  
b) security assessment      d) IT compliance assessment
- ✓ In computer security, which of the following means that computer system assets can be modified only by authorized parties?  
a) Confidentiality      c) Integrity  
b) Availability      d) Authenticity
- ✓ Data encryption is primarily used to ensure confidentiality.  
a) True      b) False
- Functions of Internal auditors include  
✓ a) Systems reviews that are part of an on-going Internal auditor program  
b) Efficiency/cost effectiveness audits of different areas within an organization  
c) Both A&B  
d) None
- ✓ Risk control Matrix is developed in which step of IS audit  
a) Analysis      b) Planning  
c) Fieldwork      d) Reporting
- ✓ A biometric fingerprint scanner is an example of which of the following?  
a) Two-factor authentication      c) Three-factor authentication  
b) Single-factor authentication      d) None
- The primary responsibility of the information security steering committee is:  
✓ a) Governance and performance maintain      c) Information security policy development  
b) Information security control implementation      d) None
- What data should be subject to a data classification Infrastructure?  
✓ a) Sensitive data      c) Critical data  
b) Classified data      d) all data
- The objectives of an IT audit include  
✓ a) Ensures asset safeguarding  
b) Ensures that the attributes of data or information are maintained  
c) Both (a) and (b)  
d) None of the above
- In which category does compromising confidential information fall?  
✓ a) Threat      c) Attack  
b) Bug      d) All

**Q-2 Write Every Questions**

(15)  
2/2

1. What is IT security assessment?  
(3)
2. What is compliance?  
(3)
3. What is an IT security audit?  
(3)
4. Seven domains of typical IT infrastructure.  
(3)
5. Explain IT Infrastructure Audit for compliance.  
(3)

# NATIONAL FORENSIC SCIENCES UNIVERSITY GOA CAMPUS

M.Sc. Cyber Security - Semester -I Term Assessment-I

**Subject Code: CTMSCS SJ P1**

Date: 21/09/2022

**Subject Name: Essentials of Cyber Security and Cyber Warfare**

**Time: 1 Hour**

Total Marks: 25

### **Instructions:**

1. Attempt all questions.
  2. Make suitable assumptions wherever necessary.
  3. Figures to the right indicate full marks.

**Q1. To Q10 Multiple Choice questions, each for 1 mark (10x1=10)**

## Marks

Select your appropriate answer:

**Q1** Which of the below is an internet fraud in which a consumer is digitally persuaded to reveal personal data by cybercriminals? **01 Mark**

- (i) MiTM attack
  - (ii) Phishing attack
  - (iii) Website attack
  - (iv) DoS attack
  - (v) System hijacking

**Q 2** What else is a command interpreter called?

01 Mark



**Q 3** What is bootstrapping called?

## 01 Mark



**Q 4** Who provides the interface to access the services of the operating system?

01 Mark

- (i) API  
(iii) Library  
(v) None of the above

(ii) System call  
(iv) Assembly instruction

**Q 5** Which of the following operating systems do you use for a client-server network?

## 01 Mark

- 2 (i) MAC  
(iii) Windows XP  
(iv) None of the above  
(ii) Linux  
(v) Windows 2000

Q6 Which of the following programs is loaded first when starting a computer?

## 01 Mark



(v) None of the above

Q 7 On average, \_\_\_\_\_ of all possible keys must be tried in order to achieve success with a  
brute-force attack. **01 Mark**

- (i) one-fourth  
(iii) two-thirds  
(y) All of the above

(ii) half  
(iv) three-fourths

**Q 8** Consider the following statements:

- A. Computer security is protection of the integrity, availability, and confidentiality of information system resources.
- B. Data integrity assures that information and programs are changed only in a specified and authorized manner.

Choose the appropriate answer:

- (i) Only A is True
- (ii) Only B is True
- (iii) Both A and B are True
- (iv) Only one statement is True at a time, not together.
- (v) Both the Statements are True.

**Q 9** A \_\_\_\_\_ level breach of security could be expected to have a severe or catastrophic adverse effect on organizational operations, organizational assets, or individuals.

- (i) Low
- (ii) Normal
- (iii) Moderate
- (iv) High
- (v) None of the above

**Q 10** An assault on system security that derives from an intelligent act that is a deliberate attempt to evade security services and violate the security policy of a system is a(n) \_\_\_\_\_.

- (i) risk
- (ii) asset
- (iii) attack
- (iv) vulnerability
- (v) countermeasure

**Q11 to Q15 Descriptive 3 marks for each question (5x3=15)**

**Q11** Consider different types of users in the Windows OS and explain the privilege escalation in the Windows OS. **03 Marks**

**Q12** What is virtualization? Consider the example of any virtual platform. **03 Marks**

Consider the following scenario for the Windows Passwords: (for Q 13-14)

S.No.	Username	Password	HASH
01	User1	NFSU_GOA_123	ASDFGHJKL987
02	User2	Nfsu_gandhinagr_456	ZXCVBNMP654
03	User3	Nf\$u	QWERTYUI321

**Q13** With respect to the above table, comment on the password strength and security as per the standard policy and guidelines. Also identify the strong password from the above table. **03 Marks**

**Q14** With respect to the above table, explain the possible attacks on the HASH. How you will overcome this problem? **03 Marks**

**Q15** Explain following examples/terms with reference to Windows OS: **03 Marks**

- (i) SID: S-1-2-0 Local
- (ii) MyDomain\StegnerB01
- (iii) System audit ACE