A **Reg. No. :** | | | | | | | | | | |

Question Paper Code: 96C04

B.E./B.Tech. DEGREE EXAMINATION, NOV 2023

Sixth Semester

Computer Science and Business Systems

19UCB604 - INFORMATION SECURITY

(Regulations 2019)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. What is "theft of service"? CO1- U

   (a) Unauthorized modification of data. (b) Unauthorized reading of data.

   (c) Unauthorized use of resources. (d)Unauthorized destruction of data.

2. Which component of the CIA triad ensures that information is accessible to authorized users when they need it? CO1 -U

   (a) confidentiality (b) Integrity (c) Availability (d) All the above

3. Which access control model uses a set of rules to determine whether to grant or deny access to a resource? CO1-U

   (a) Mandatory Access Control (b) Role-Based Access Control

   (c) Discretionary Access Control (d) All of the above

4. Which access control model is based on the idea of assigning roles to users and granting access based on their roles? CO1-U

   (a) Mandatory Access Control (b) Role-Based Access Control

   (c) Discretionary Access Control (d) All of the above

5. Which of the following is a critical component of a secure system design? CO1-U

   (a) Regular vulnerability assessments (b) Strong passwords

   (c) Frequent system updates (d) All of the above

6. What is the purpose of system evaluation? CO1-U

(a) To identify system failures and bugs.

(b) To ensure the system meets user requirements and expectations

(c) To improve the efficiency and performance of the system.

(d) To increase the security of the system.

7. Which of the following is not a characteristic of a logic-based system? CO1-U

(a) Formal rules for reasoning

(b) Use of inference rules

(c) Uncertainty handling mechanisms

(d) Representation of knowledge in a declarative manner

8. What is the purpose of two-factor authentication (2FA)? CO1-U

(a) To allow users to use multiple devices to access a system

(b) To prevent unauthorized access to a system by requiring two different forms of authentication

(c) To encrypt data transmissions between a user and a system

(d) To provide an additional layer of protection against malware

9. What is the most common security threat to an operating system? CO1-U

(a) Malware (b) Hardware failure (c) Human error (d) Natural disaster

10. Which of the following is an example of a security policy that can be enforced by an operating system? CO1-U

(a) Password complexity requirements (b) Antivirus software installation

(c)Regular system backups (d)Network traffic monitoring

PART – B (5 x 2= 10Marks)

11. List the principles of a software design. CO1-U

12. Define Spatio-Temporal model CO1-U

13. Analyze the strengths and weaknesses of confinement problem in information security, and propose improvements CO3-Ana

14. List any two IDS. Mention its category of classification CO1-U

15. What are the Four Critical Elements of Security Architecture? CO1-U

PART – C (5 x 16= 80Marks)

16.	(a)	Explain critical characteristics of information in order to achieve security?	CO1- U	(16)
		Or		
	(b)	Write about the lifecycle provides a good foundation for any security program?	CO1-U	(16)
17.	(a)	How confidentiality polices is been practiced and make a detailed note on it?	CO1-U	(16)
		Or		
	(b)	Discuss any two Policies with its benefits and key components.	CO1-U	(16)
18.	(a)	A healthcare organization has recently implemented a new electronic health record system. Apply the security of this system in terms of protecting patient data.	CO2- App	(16)
		Or		
	(b)	A new employee named John joined the agency. John is a manager, but he has a history of unauthorized access to sensitive information in his previous job. The agency has decided to implement a stricter access control policy for John. Can the agency implement a stricter access control policy for John using the model?	CO2-App	(16)
19.	(a)	Give brief notes on Intrusion detection with its features?	CO1-U	(16)
		Or		
	(b)	(i) Write down the application of network security (ii) Explain the term enterprise security specification (iii) How would you relate digital forensics to information security (iv) Define the term Data Privacy	CO1-U	(16)
20.	(a)	How would you explain operating system security in terms of information security?	CO1-U	(16)
		Or		
	(b)	Develop a comprehensive database security plan for a large organization, including risk assessment, threat modeling, and implementation of security controls such as access control, encryption, auditing and monitoring, backup and recovery, and vulnerability management.	CO1-U	(16)