Total No. of Questions: 21

Enrollment No : _____

MEDICAPS UNIVERSITY

Faculty of Science / Engineering

End Semester Examination May 2025

CA3CO16 Network Security

Programme	:	BCA / BCA-MCA (Integrated)	**Branch/Specialisation**	:	-
Duration	:	3 hours	**Maximum Marks**	:	60

Note: *All questions are compulsory. Internal choices, if any, are indicated. Assume suitable data if necessary. Notations and symbols have their usual meaning.*

Section 1 (Answer all question(s))

Marks CO BL

Q1. What does CIA in security stand for? **1 1 1**

- (●) Confidentiality, Integrity, and Availability
- ( ) Confidentiality, Information, and Authentication
- ( ) Cybersecurity, Integrity, and Access Control
- ( ) Cryptography, Internet Security, and Authorization

Q2. What type of attack involves an unauthorized user gaining access to a system? **1 1 1**

- ( ) Phishing
- ( ) Denial-of-Service
- (●) Unauthorized Access
- ( ) Social Engineering

Q3. The process of converting plaintext into ciphertext is called- **1 1 1**

- ( ) Decryption
- (●) Encryption
- ( ) Hashing
- ( ) Key generation

Q4. The Hill Cipher is based on- **1 1 1**

- (●) Matrix multiplication
- ( ) Modular arithmetic
- ( ) XOR operations
- ( ) Bitwise shifting

Q5. Symmetric key cryptography uses: **1 1 1**

- (●) One key for encryption and decryption
- ( ) Two different keys
- ( ) Hashing
- ( ) Digital signatures

Q6. AES-256 means the key size is- **1 1 1**

- ( ) 128 bits
- ( ) 92 bits
- (●) 256 bits
- ( ) 512 bits

Q7. Which one is not an asymmetric encryption algorithm? **1 1 1**

- (●) AES
- ( ) RSA
- ( ) ECC
- ( ) Diffie-Hellman

Q8. The public key in RSA is used for: **1 1 1**

- ( ) Decryption
- (●) Encryption
- ( ) Hashing
- ( ) Signing

Q9. Which protocol ensures secure file transfer? **1 1 1**

- ( ) FTP
- (●) SFTP
- ( ) HTTP
- ( ) SMTP

Q10. What is the main purpose of firewalls? **1 1 1**

- ○ Encrypt messages
- ◉ Monitor and filter network traffic
- ○ Detect viruses
- ○ Block spam

Section 2 (Answer all question(s))

Marks CO BL

Q11. What are the fundamental principles of network security? **4 2 1**

Rubric	Marks
four principles each one mark	4

Q12. (a) Describe the various types modern nature of attacks in security. **6 1 1**

Rubric	Marks
each type with description 2 marks	6

(OR)

(b) Classify different types of security attack.

Rubric	Marks
each type with description 2 marks	6

Section 3 (Answer all question(s))

Marks CO BL

Q13. What is a Polygram substitution cipher? How does it different from a monoalphabetic cipher? **4 2 2**

Rubric	Marks
Definition and Explanation of Polygram Substitution Cipher	2
How does it different from a monoalphabetic cipher	2

Q14. (a) List four difference between substitution and transposition techniques in cryptography? Write steps to encrypt the message "SECURITY" with a shift of 5 by applying concept of Caesar cipher. **6 3 3**

Rubric	Marks
four difference between substitution and transposition techniques in cryptography each with one mark	4
steps to encrypt the message "SECURITY" with a shift of 5 by applying concept of Caesar cipher..	2

(OR)

(b) Describe the Rail-Fence cipher. Write steps to encrypt the text "HELLO WORLD" using a depth of 3 by applying concept of Rail-Fence cipher.

Rubric	Marks
each steps have one mark	6

Section 4 (Answer all question(s))

Marks CO BL

Q15. Describe the types of Encryption Algorithms Modes. **4 2 2**

Rubric	Marks
each type one mark	4

Q16. (a) Explain the steps involve in Advanced Encryption Standard (AES) with one example. **6 3 2**

Rubric	Marks
each step with example one marks each	6

(OR)

(b) Explain the steps involve in data encryption standard (DES) with one example.

Rubric	Marks
each step with example one marks each	6

Section 5 (Answer all question(s))

Marks CO BL

Q17. List four difference between Symmetric and Asymmetric key cryptography. **4 2 2**

Rubric	Marks
each difference one mark	4

Q18. (a) What is a digital signature? Write down the steps followed in creating a digital signature. **6 3 2**

Rubric	Marks
Digital Signature	1
steps followed in creating a digital signature	5

(OR)

(b) Explain the steps involve in RSA algorithm with one example.

Rubric	Marks
each step one mark	6

Section 6 (Answer any 2 question(s))

Marks CO BL

Q19. Describe TCP/IP. **5 3 2**

Rubric	Marks
description with model	5

Q20. List the different types of Internet Security Protocols and explain any two. **5 3 2**

Rubric	Marks
types of Internet Security Protocols	1
one explanation two mark	4

Q21. What is network security? What are four different types of network security? **5 3 2**

Rubric	Marks
Network Security	1
four different types of Network Security	4

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