

Code No.: EC851PE

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**CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS**

**IV-B.TECH-II-Semester End Examinations (Regular) – April - 2024
NETWORK SECURITY AND CRYPTOGRAPHY
(ECE)**

[Time: 3 Hours]

[Max. Marks: 70]

Note: This question paper contains two parts A and B.

Part A is compulsory which carries 20 marks. Answer all questions in Part A.

Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART-A

(20 Marks)

1. a) Define a security attack and give an example. [2M]
- b) What is Simplified DES? [2M]
- c) What are the key differences between DES and Triple DES? [2M]
- d) What is the significance of the placement of the encryption function within a security system? [2M]
- e) What are the basic principles of public key cryptography? [2M]
- f) Define prime and relatively prime numbers. [2M]
- g) What is an MD file and its role in hashing? [2M]
- h) Differentiate between Pretty Good Privacy (PGP) and S/MIME for electronic mail security. [2M]
- i) What is the primary goal of IP Security (IPSec) [2M]
- j) What are the core principles behind the design of a firewall? [2M]

PART-B

(50 Marks)

2. Compare and contrast classical encryption techniques with modern encryption techniques. [10M]
- OR**
3. Explain the Strength of DES and the factors that contribute to its security. [10M]
 4. Discuss the principles and workings of the International Data Encryption Algorithm (IDEA) and Blowfish. [10M]
- OR**
5. Explain the term 'traffic confidentiality' in the context of network security. [10M]
 6. Describe how Elliptic Curve Cryptography can be used in the implementation of a secure communication system. [10M]
- OR**
7. Discuss Fermat's and Euler's theorems and their significance in the field of cryptography. [10M]
 8. Discuss about the security of hash functions in detail. [10M]
- OR**
9. Discuss the role of digital signatures in the authentication of digital documents. [10M]
- 10.a) Evaluate the processes involved in a Secure Electronic Transaction. [5M]
 - b) Explain the processes of authentication? [5M]
- OR**
11. Discuss the various types of threats posed by intruders, viruses, and worms to computer systems and networks. [10M]
