Code No.: CY514PE/IT511PE | R20 | H.T.No. | | | 8 | R | | | | | |

CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS
III–B.TECH–I–Semester End Examinations (Supply) - December- 2024
CRYPTOGRAPHY & NETWORK SECURITY
(CSC& IT)

[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.

PART-A **(20 Marks)**

1. a) What is the MAN in the middle attack? [2M]
   b) Write about Steganography? [2M]
   c) How to convert block ciphers into stream ciphers? [2M]
   d) Define Cipher Based Chaining mode? [2M]
   e) List out the properties of hash function for message authentication? [2M]
   f) List three approaches to Message Authentication? [2M]
   g) What is difference between transport mode and tunnel mode? [2M]
   h) List the S/MIME services. [2M]
   i) What is a digital signature and what is its purpose? [2M]
   j) List the Web security threats. [2M]

PART-B **(50 Marks)**

2. Explain the Network security model with diagram. [10M]

OR

3. Compare and contrast cryptography and Steganography. [10M]

4. Consider Diffie-Hellman Scheme with a common prime q=11, and primitive root α=2 [10M]
   i) if user 'A' has public key $Y_A = 9$, What is A's private key X_A.
   ii) if user 'B' has public key $Y_B = 3$, What is shared secret key K .

OR

5. Explain Block cipher design principles? [10M]

6. Explain approaches for Digital Signatures based on Public key Encryption and Digital Signatures Scheme (DSS)? [10M]

OR

7. Give various Hash functions. Discuss secure hash Algorithm with suitable Examples? [10M]

8. What are different cryptographic algorithms used in S/MIME? Explain how S/MIME is better than MIME? [10M]

OR

9. Give IP Security architecture with neat diagram? [10M]

10. Explain about secure electronic transaction? [10M]

OR

11. What is firewall? Explain its design principles and types with example? [10M]

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