

Code No: R204105Y

R20

SET - 1

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY GURAJADA VIZIANAGARAM
IV B. Tech I Semester Regular/Supplementary Examinations OCT/NOV 2025
CRYPTOGRAPHY AND NETWORK SECURITY

(OPEN ELECTIVE)

Time: 3 hours

Max. Marks: 70

Answer any **FIVE** Questions. **ONE** Question from **Each unit**
All Questions Carry Equal Marks

UNIT-I

1. a) Define security goals and list the main services provided by cryptography. [7M]
b) Explain different types of cryptographic attacks with simple examples. [7M]
(OR)
2. a) What are cryptographic mechanisms? Explain their role in network security. [7M]
b) Analyze the importance of mathematics in cryptography in detail? [7M]

UNIT-II

3. a) Explain the structure and operations of Advanced Encryption Standard (AES). [7M]
b) Describe the working steps of Data Encryption Standard (DES). [7M]
(OR)
4. a) Compare symmetric and asymmetric key cryptography with examples. [7M]
b) Evaluate why AES is more secure than DES. [7M]

UNIT-III

5. a) What is public key cryptography? Write the basic steps in RSA algorithm. [7M]
b) Explain the key generation and encryption process in RSA with a simple example. [7M]
(OR)
6. a) Write short notes on Elliptic Curve Cryptography (ECC). [7M]
b) Analyze the advantages and limitations of asymmetric encryption. [7M]

UNIT-IV

7. a) What is a hash function? Explain its use in message authentication. [7M]
b) Describe how digital signatures ensure integrity and non-repudiation. [7M]
(OR)
8. a) Define key management and explain its importance in secure communication. [7M]
b) Propose a simple method to securely distribute keys among users. [7M]

UNIT-V

9. a) Explain how SSL/TLS ensures security at the transport layer. [7M]
b) Describe the working of IPsec protocol at the network layer. [7M]
(OR)
10. a) What is PGP? Explain its main features in email security. [7M]
b) Evaluate the importance of blockchain and cryptography in system-level security. [7M]
