Course Code: 23MC3T13

BONAM VENKATA CHALAMAYYA INSTITUTE OF TECHNOLOGY & SCIENCE

(AUTONOMOUS)

II – MCA I - Semester Regular/Supplementary Examinations (BR23), Jan - 2026

CRYPTOGRAPHY AND NETWORK SECURITY(MCA)

Time: 3 hours Max. Marks: 70

Answer any Five Questions One Question for One UNIT
ALL the Question Carry Equal Marks

	UNIT-I	**Marks**	**CO**	**BL**
1.a)	Explain about Mathematics of Symmetric Key Cryptography.	7M	CO1	BL2
b)	Briefly explain the security services and mechanisms defined for network security	7M	CO1	BL1
	OR			
2.a)	What are Security Goals? Explain	7M	CO1	BL2
b)	Illustrate Data Encryption Standard	7M	CO1	BL3
	UNIT-II	**Marks**	**CO**	**BL**
3.a)	Explore the Elliptic Curve Cryptosystem (ECC) and its significance in modern cryptography.	7M	CO2	BL2
b)	Explain Rabin Cryptosystem in detail	7M	CO2	BL3
	OR			
4.a)	Explain the step-by-step process of key generation, encryption, and decryption in RSA	7M	CO2	BL2
b)	Explain Elliptic curve cryptography algorithm for encryption and decryption.	7M	CO2	BL2
	UNIT-III	**Marks**	**CO**	**BL**
5.a)	Write briefly about Hash Functions Based on Cipher Block Chaining.	7M	CO3	BL1
b)	Explain about SHA-3 Algorithm.	7M	CO3	BL2
	OR			
6.a)	Explain about NIST Digital Signature Algorithm.	7M	CO3	BL2
b)	Explore the applications of cryptographic hash functions in detail.	7M	CO3	BL2
	UNIT-IV	**Marks**	**CO**	**BL**
7.a)	Write short notes about Kerberos.	7M	CO4	BL1
b)	Explore the role of symmetric encryption in securing remote user authentication processes and highlight potential vulnerabilities.	7M	CO4	BL2
	OR			
8.a)	Write a short note on decentralized key control.	7M	CO4	BL1
b)	Discuss the key distribution problem and the risks associated with securely sharing secret keys between parties.	7M	CO4	BL2

	UNIT-V	Marks	CO	BL
9.a)	Describe E-Mail Threats.	7M	CO5	BL1
b)	Discuss the various threats to email security including phishing, malware and email spoofing	7M	CO5	BL6
	OR			
10.a)	Explore how encryption, digital signatures and secure protocols contribute to the overall security of email communication	7M	CO5	BL2
b)	Write a short note on Security Payload Encapsulation.	7M	CO5	BL1

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