R20 Regulation *Subject code: 3E6GC*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A+' Grade)

B.Tech VI Semester Supplementary Examinations, April 2026

CRYPTOGRAPHY

(CSE(AI&ML))

Maximum Marks: 70 Date: 21.04.2026 Duration: 3 hours

Note: **1.This question paper contains two parts A and B.**
2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
3. Part B consists of 5 Units. Answer any one full question from each unit.
4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks (10X2M=20 Marks)		Marks	CO	BTL
1	What is the number theory?	2M	1	L1
2	Find the number of trailing zeros in the 100!	2M	1	L1
3	Define Cipher Block Chaining (CBC) mode.	2M	2	L1
4	Define electronic codebook (ECB).	2M	2	L1
5	What is the function of a pseudo random generator?	2M	3	L1
6	Which algorithm is used to generate stream ciphers?	2M	3	L1
7	Define Euler's theorem and it's application.	2M	4	L1
8	Specify the reason why asymmetric cryptography is not suitable for huge data?	2M	4	L1
9	Compare the difference between public key and private key cryptosystem.	2M	5	L1
10	What is meant by Message Authentication?	2M	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
11	Distinguish Groups, Rings and fields in detail.	10M	1	L2
	OR			
12	Solve gcd (98, 56) using Extended Euclidean algorithm. Write the algorithm.	10M	1	L2
13	Explain various substitution techniques with suitable examples.	10M	2	L2
	OR			
14	a) Explain the transposition ciphers in detail. b) Compare and Contrast between Symmetric and Asymmetric key cryptography.	5M 5M	2	L2
15	Explain the Pseudo-Random-Sequence Generators with neat diagram.	10M	3	L2
	OR			
16	Discuss the Linear Congruential Generators with neat diagram.	10M	3	L2
17	Explain Chinese Remainder Theorem in cryptography with example.	10M	4	L2
	OR			
18	Use Euler's theorem to find a number between 0 and 28 with congruent to 6 modulo 35.	10M	4	L2

19	Explain Digital signature scheme (DSS) and Digital Signature Algorithm (DSA) in detail.	10M	5	L2
	OR			
20	Describe the steps in message digest generation in Secure Hash Algorithm in detail.	10M	5	L2

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