R22 Regulation *Subject code: 4E8FB*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech VIII Semester Regular Examinations, May 2026

CRYPTOGRAPHY AND NETWORK SECURITY

(IT)

Maximum Marks: 60 Date:06.05.2026 Duration: 3 hours

Note: **1.This question paper contains two parts A and B.**
2. Part A is compulsory which carries 10 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	Marks	CO	BTL
All the following questions carry equal marks (10X1M=10 Marks)				
1.a)	List the security services.	1M	1	L1
b)	Define integrity in information security.	1M	1	L1
c)	State the block cipher?	1M	2	L1
d)	Define digital signature.	1M	2	L1
e)	Brief the Message Authentication Code (MAC)?	1M	3	L1
f)	What is a Certificate Authority (CA)?	1M	3	L1
g)	Define handshake protocol in TLS.	1M	4	L1
h)	What is eavesdropping in wireless networks?	1M	4	L1
i)	State the S/MIME.	1M	5	L1
j)	Differentiate tunnel mode and transport mode.	1M	5	L1
	Part-B			
Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
2	a. Compare substitution and transposition techniques with examples. b. Explain passive and active attacks with suitable examples.	5M 5M	1	L2 L2
	OR			
3	a. Analyze the differences between symmetric and asymmetric key cryptography. b. Compare cryptography and steganography.	5M 5M	1	L4 L2
4	Explain the AES algorithm with neat diagram.	10M	2	L2
	OR			
5	a. Discuss the RSA algorithm with key generation. b. Let q=353 and α=3. Xa=97, Xb=233. Use Diffie Hellman Key exchange algorithm to find Ya, Yb and Secret key K.	5M 5M	2	L3 L3
6	a. Brief the HMAC algorithm with its structure and working. b. Explain the Elgamal Digital Signature Scheme with steps.	5M 5M	3	L2 L2
	OR			
7	Explain the Kerberos authentication protocol with a neat diagram.	10M	3	L2

8	a. Elaborate the TLS protocol and its working phases. b. Summarize the IEEE 802.11 architecture and components.	5M 5M	4	L3 L2
	OR			
9	Evaluate the importance of HTTPS in modern web applications.	10M	4	L3
10	a. Explain the working of Pretty Good Privacy (PGP). b. Illustrate the IPSec architecture in detail.	5M 5M	5	L2 L2
	OR			
11	a. Explain the Internet Key Exchange (IKE) protocol and its phases. b. Describe the Authentication Header (AH) and its working.	5M 5M	5	L2 L3