Roll No:													

BTECH

(SEM. VI) THEORY EXAMINATION 2025-26

CRYPTOGRAPHY & NETWORK SECURITY

TIME: 3 HRS **M.MARKS: 70**

Note: Attempt all Sections. In case of any missing data; choose suitably.

SECTION A

1. Attempt *all* questions in brief. **02 x 7 = 14**

Q no.	Question	CO	Level
a.	Define Cryptography. What are its main goals?	1	K1
b.	Differentiate between symmetric and asymmetric encryption.	2	K2
c.	What is a digital signature?	3	K1
d.	Define hash function and its properties.	2	K2
e.	What is SSL/TLS?	4	K1
f.	Explain the concept of firewall.	5	K2
g.	What is public key infrastructure (PKI)?	3	K2

SECTION B

2. Attempt any *three* of the following: **07 x 3 = 21**

Q no.	Question	CO	Level
a.	Explain classical encryption techniques with suitable examples.	1	K2
b.	Describe DES algorithm with its working and limitations.	2	K3
c.	Explain RSA algorithm with key generation and encryption steps.	3	K3
d.	Discuss different types of attacks in network security.	4	K2
e.	Explain the role of digital certificates in secure communication.	3	K3

SECTION C

3. Attempt any *one* part of the following: **07 x 1 = 07**

Q no.	Question	CO	Level
a.	Explain AES algorithm and its advantages over DES.	2	K3
b.	Discuss block cipher modes of operation (ECB, CBC, CFB, OFB).	2	K3

4. Attempt any *one* part of the following: **07 x 1 = 07**

Q no.	Question	CO	Level
a.	Explain message authentication and MAC techniques.	3	K3
b.	Explain the working of Secure Hash Algorithm (SHA-1 or SHA-256) with suitable diagram.	2	K3

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5. Attempt any *one* part of the following: 07 x 1 = 07

Q no.	Question	CO	Level
a.	Explain public key cryptography with Diffie-Hellman key exchange.	3	K3
b.	Discuss digital signature standards and applications.	3	K3

6. Attempt any *one* part of the following: 07 x 1 = 07

Q no.	Question	CO	Level
a.	Explain IP security (IPSec) architecture and protocols.	4	K3
b.	Describe SSL/TLS protocol in detail.	4	K2

7. Attempt any *one* part of the following: 07 x 1 = 07

Q no.	Question	CO	Level
a.	Explain intrusion detection system (IDS) and its types.	5	K2
b.	Discuss different types of firewalls and their working.	5	K3