# CBCS SCHEME

USN

15CS61

# Sixth Semester B.E. Degree Examination, Dec.2019/Jan.2020 Cryptography, Network Security and Cyber Laws

Time: 3 hrs. Max. Marks: 80

Note: Answer any FIVE full questions, choosing ONE full question from each module.

#### Module-1

- a. What do you mean by cyber attack? List and explain main motives of launching cyber attacks.

  (08 Marks)
  - b. Using Extended Euclidean algorithm find the inverse of 12 modulo 79.

2 a. Design known plain test attack to obtain the key used in the Vigenere cipher. (08 Marks)

b. Consider a Hill cipher m = 3 (block size = 3) with key k shown below:

$$\mathbf{k} = \begin{pmatrix} 25 & 3 & 7 \\ 5 & 9 & 21 \\ 11 & 8 & 13 \end{pmatrix}$$

- (i) What is the cipher text corresponding to the plaintext = (VOW)?
- (ii) What is the plain text corresponding to the ciphertext = (TQX)?

(08 Marks)

(08 Marks)

#### Module-2

a. List and explain RSA operations.

(08 Marks)

- b. The modulus in a toy implementation of RSA is 143
  - (i) What is the smallest value of a valid encryption key and the corresponding decryption key?
  - (ii) For the computed encryption key and plaintext = 127, what is the corresponding ciphertext? (08 Marks)

## OR

- In what way are the properties of the cryptographic hash the one way property and collision resistance relevant to the security provided by the MAC? Explain. (08 Marks)
  - b. Consider the digital signature created using the Signer's private key operation but without the bash function i.e., sign(m) = E<sub>A.pr</sub>(m)

Demonstrate how a forged signature may be created using this definition of a digital signature. (08 Marks)

### Module-3

a. What do you mean key management? Explain the fields of an X.509 certificate.
 b. List and explain PKI Architectures.
 c. Define Dictionary Attacks. Explain Attack types.
 (06 Marks)
 (04 Marks)

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# OR

b. Design the Needham – Schroeder protocol.

b. Define Kerberos. Explain Kerberos message sequence.

c. Explain SSL Record Layer Protocol.

(06 Marks)

(05 Marks)

(05 Marks)

1 of 2

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## Module-4

a	a. Explain how each key in 802.11i was derived and where it is	used. (06 Marks)
b	b. Define Firewall. List and explain main functions of a firewall	l. (06 Marks)
C	c. Classify Intrusion Detection Systems based on their functional	ality. (04 Marks)

#### OR

8	a.	What is the role of a Bloom Filter in packet logging?	(04 Marks)
	b.	Define SOAP. Explain SOAP messages in HTTP packets.	(08 Marks)
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c. Demonstrate WS-Trust relationship between entities involved in international trade.

(04 Marks)

# Module-5

		List and explain IT act aim and object		(04 Marks)
	b.	Explain (i) Secure electronic record	(ii) Secure digital signature	(04 Marks)
		List and explain Functions of a contro		(08 Marks)

#### OR

10	a.	List and explain offences with reference to computer system.	(06 Marks)
	b.	When network service providers not to be liable under IT Act? Explain.	(04 Marks)
	C	What are miscellaneous provisions of IT Act? Explain.	(06 Marks)

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