Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VII (NEW) EXAMINATION – WINTER 2017

Subject Code: 2170709 **Date:07/11/2017**

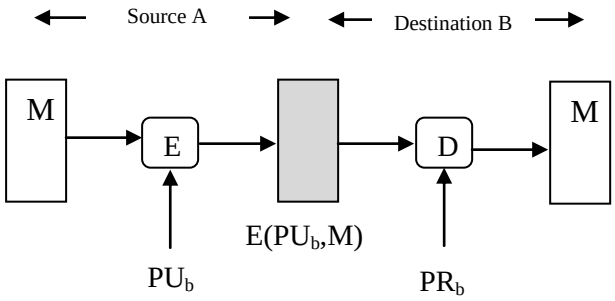
Subject Name: Information and Network Security

Time: 10:30 AM TO 01:00 PM **Total Marks: 70**

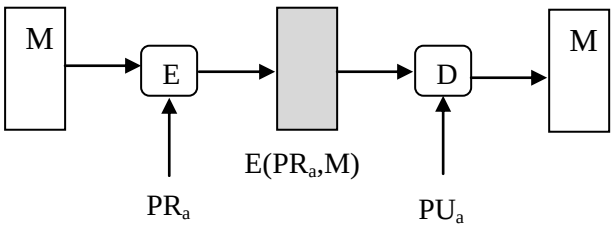
Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
1. **Figures to the right indicate full marks.**

			MARKS
Q.1	**(a)**	Discuss the following terms in brief: - Passive attack - Cryptanalysis	**03**
	(b)	What are the essential ingredients of a symmetric cipher?	**04**
	(c)	Explain transposition techniques with appropriate example.	**07**
Q.2	**(a)**	What are the differences between stream cipher and block cipher?	**03**
	(b)	Which of the following figure provides authentication (only) and which provides confidentiality only? Justify your answer in brief.	**04**



(Figure-1)



(Figure-2)

Where M is plain text message, E is encryption function, D is decryption function, PR_a and PR_b are private keys of Source-A and Destination-B respectively while PU_a and PU_b are public keys of Source-A and Destination-B.

	(c)	ExplainPlayfair Cipher in detail. Find out cipher text for the following given plain text and key. Key = GOVERNMENT Plain text = PLAYFAIR	**07**

OR

	(c)	Discuss Data Encryption Standard with neat sketches.	**07**
Q.3	**(a)**	Explain Avalanche effect in DES.	**03**
	(b)	Write a brief note on hill cipher.	**04**
	(c)	Explain AES encryption in detail.	**07**

OR

Q.3	**(a)**	State the basic difference(s) between message authentication code and hash function.	**03**
	(b)	What is meant by meet-in-the-middle attack in double DES? Explain the same in brief.	**04**
	(c)	Discuss the following block cipher modes of operation in detail with neat sketches: - Cipher block chaining mode - Counter mode	**07**
Q.4	**(a)**	Briefly explain source repudiation and destination repudiation.	**03**
	(b)	Enlist the practical applications of hashing.	**04**
	(c)	Discuss RSA Algorithm with suitable example.	**07**

OR

Q.4	**(a)**	List the requirements of Public Key Cryptography.	**03**
	(b)	Calculate the shared secret (K_A and K_B) key using Diffie Hellman Key Exchange Algorithm. Take q=23, $\alpha = 5$, $X_A = 6$ and $X_B = 15$.	**04**
	(c)	Write a detailed note on Secure Hash Algorithm.	**07**
Q.5	**(a)**	Explain the concept of Realm in Kerberos in brief.	**03**
	(b)	Briefly discuss web security threats.	**04**
	(c)	Explain various general categories of schemes for the distribution of public keys.	**07**

OR

Q.5	**(a)**	Explain HTTPS in brief.	**03**
	(b)	Briefly discuss the working of SSL Record Protocol.	**04**
	(c)	Elaborate any one approach to Digital Signatures.	**07**

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