Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

MCA - SEMESTER–VI • EXAMINATION – SUMMER 2013

Subject Code: 640001 **Date: 21-05-2013**

Subject Name: Fundamentals of Networking (FON)

Time: 10.30 am - 01.00 pm **Total Marks: 70**

Instructions:

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

Q.1 **(a)** Define Computer Network. List and discuss design issues for the layers? **07**

(b) 1) Write a note on Fast Ethernet. **04**

2) Do as directed. **03**

i) Broadcast transmission with one sender and one receiver is sometimes called _____.

ii) TCP is a _____ protocol. (Connection Oriented, Connection Less)

iii) A collection of interconnected networks is called an _____.

Q.2 **(a)** 1) Classify Network according to their scale. **03**

2) Explain Bit Stuffing method in brief **04**

(b) **i)** Consider a noiseless channel with a bandwidth of 3000 Hz transmitting a signal with two signal levels. Then calculate maximum bit rate of the transmission channel? **04**

ii) Discuss MACAW protocol in detail. **03**

OR

(b) List out different types of transmission media. Discuss advantages and disadvantages of fiber Optics over the copper wire. **07**

Q.3 **(a)** i) Give example of following terms: **03**

a) Mono Alphabetic Substitution Cipher.

b) LISTEN as a transport service primitive.

ii) Explain VSAT in detail. **04**

(b) i) Write a short note on Transmission Impairments. **04**

ii) Differentiate between Circuit Switching and Packet Switching. **03**

OR

Q.3 **(a)** Discuss Sliding Window Protocol in brief. **07**

(b) i) Explain MAHO in brief. **02**

ii) Discuss Carrier Sense Multiple Access Protocols. **05**

Q.4 **(a)** Compare different issues of virtual circuit subnet and datagram subnets. **07**

(b) Write a note on 802.11 MAC Sublayer Protocol. **07**

OR

Q.4 **(a)** Differentiate between adaptive and non adaptive routing. Explain Distance Vector Routing algorithm with example. **07**

Q.4	**(b)**	1. Differentiate between following terms: A. SMTP and POP 3. B. Network Services and Transport Services	**04**
		2. What is the role of transposition cipher for network security? Explain with example.	**03**
Q.5	**(a)**	1. What is the need of advanced encryption standard (AES)? List Functions used in AES.	**04**
		2. Explain symmetric and asymmetric connection release using transport service primitives.	**03**
	(b)	1. List Bluetooth profiles for networking. Also state their functionalities.	**03**
		2. Define Hash Function (Message Digest). Also list four properties of message digest.	**04**

OR

Q.5	**(a)**	Compare features of public and private key cryptography. Also explain RSA algorithm.	**07**
	(b)	1. How does three way handshake protocol solve the problem of delayed duplicate? Explain the protocol.	**04**
		2. Give example of following terms : Domain, Sub-domain & Zones	**03**

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