

**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: **04**  
 A. SMTP and POP 3.  
 B. Network Services and Transport Services
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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