

GUJARAT TECHNOLOGICAL UNIVERSITY**MCA - SEMESTER-VI • EXAMINATION – WINTER 2013****Subject Code: 640001****Date: 09-12-2013****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) Answer the following questions in one or two sentences. **07**

1. How numbers of required check / redundant bits (r) are decided for a given data bits of size (m) in Hamming Code?
2. What is the drawback of Manchester Encoding technique?
3. What is frame bursting in Gigabit Ethernet?
4. What is Station keeping in satellite communication?
5. What is crosstalk? How can we reduce it in UTP?
6. Define the term cryptanalysis.
7. What is the usefulness of timer in data communication?

- (b)**
1. Explain the terms RTS and CTS for wireless transmission. **02**
 2. Point out the difference between congestion control and flow control. **02**
 3. Explain following three Domain Resource Records' types. **03**
(a) SOA, (b) CNAME and (c) MX

Q.2 (a) 1. Compute Hamming Code for bit pattern 0101001. Consider leftmost 0 as a first bit. **05**

2. In Sliding window protocol, how Pipelining helps us to utilize the maximum channel capacity? **02**

- (b)**
1. Explain GO-BACK-N protocol. **05**
 2. Write the difference between different sources used for signaling in Fiber Optic. **02**

OR

- (b)** Explain Refraction and Critical angle properties of Light rays. How these properties play crucial role to transmit the signal in Fiber Optic Cable? Explain structure and types of Fiber Optic along with their pros and cons. **07**

Q.3 (a) 1. Explain POP3 and IMAP protocol. **04**

2. Explain Hidden station and Exposed station problem. **03**

- (b)** Explain CSMA/CD and its limitation. **07**

OR

Q.3 (a) Describe frame structure of 802.11 frames. **07**

- (b)** 1. What is Two-army Problem? How is it related to connection closing? **04**

2. What is NAV? What is the usefulness of NAV in wireless transmission? **03**

Q.4 (a) 1. Explain the terms relevant to Congestion Control: (1) ECN (2) RED **04**

2. Compare Connection-oriented and Connectionless services. **03**

- (b) Explain the link state routing protocol in detail. **07**
- OR**
- Q.4 (a)** 1. Write the difference between 802.11 and 802.16 network. **04**
 2. What is Milk and Wine policy in Load Shedding during congestion control? **03**
- Q.4 (b)** Explain OSI reference model in detail. **07**
- Q.5 (a)** 1. Explain working application of S-BOX. **04**
 2. Explain One time Pad with example along with its pros and cons. **03**
- (b)** Explain Digital Signature using Public Key Cryptography in detail. **07**
- OR**
- Q.5 (a)** What is the role of Digital Signature? Explain Symmetric key Digital Signature implementation with Big Brother theory in details. **07**
- (b)** 1. Explain Cipher Feedback Mode. How single bit error affects the other bytes? **04**
 2. Explain working application of Mono alphabetic substitution cipher with example. **03**
