

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
MCA – SEMESTER-IV EXAMINATION – WINTER 2015

Subject Code: 640001

Date: 30-11-2015

Subject Name: Fundamentals of Networking

Time: 10.30 a.m. To 01.00 p. m.

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. **07**
- (1) The bandwidth of medium is depends on what?
 - (2) Name the fundamental cryptographic principles.
 - (3) Name the characteristics of electromagnetic waves.
 - (4) What is total internal reflection?
 - (5) Define term frame bursting in gigabit Ethernet.
 - (6) Define term resolver at application layer.
 - (7) Give full form of SMTP.
- (b)** (I) Explain bit stuffing with appropriate example. **04**
- (II) Explain the characteristics of UTP cable. **03**
- Q.2 (a)** Explain OSI reference model with its all seven layers in details. **07**
- (b)** (I) Explain properties of a channel. **04**
- (II) Explain resource record with respect to DNS. **03**
- OR**
- (b)** (I) Explain RSA with appropriate example. **04**
- (II) Explain the need of share resources. **03**
- Q.3 (a)** (I) Explain duties of transport layer in brief. **04**
- (II) Explain cipher block chaining mode. **03**
- (b)** (I) Explain admission control algorithm to prevent congestion. **04**
- (II) Explain three way handshaking at transport layer. **03**
- OR**
- Q.3 (a)** (I) Compare POP3 and IMAP. **04**
- (II) Explain optimality principal for routing at network layer. **03**
- (b)** (I) Explain requirements of a good routing algorithm in brief. **04**
- (II) Explain any three usual TCP timers at transport layer. **03**

- Q.4 (a)** (I) Explain RTS and CTS with respect to hidden station and exposed station problem. **04**
(II) Explain the process of selective repeat. Why is it named so? **03**
(b) (I) Explain types of connections supported by classic Ethernet. **04**
(II) Explain process level addressing at transport layer. **03**

OR

- Q.4 (a)** (I) Explain CRC for error detection with suitable example of your choice. **04**
(II) What are sliding windows? How are they used in data communication? **03**
(b) (I) Differentiate 802.11 and 802.16. **04**
(II) Explain normal frame structure of 802.16 in brief. **03**
- Q.5 (a)** (I) Explain distance vector routing in brief. **04**
(II) Explain count-to-infinity problem at network layer. **03**
(b) (I) Explain transposition cipher with suitable example of your choice. **04**
(II) Explain triple DES with suitable example of your choice. **03**

OR

- Q.5 (a)** (I) Differentiate multimode fiber and single mode fiber. **04**
(II) Explain the limitation of CSMA/CD. **03**
(b) (I) Discuss important issues related to wireless transmission. **04**
(II) Explain the benefit of link aggregation. **03**
