Seat No.:	Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. - SEMESTER - I • EXAMINATION - WINTER 2012

Subject code: 715304 Date: 11-01-2013

Subject Name: Advanced Computer Networks

Time: 02.30 pm – 05.00 pm Total Marks: 70

Instructions:

- 1. Attempt question 1, which is compulsory and answer any five from the rest.
- 2. Make suitable assumptions wherever necessary.
- 3. Figures to the right hand indicate the marks.

Q. No. 1 Briefly answer the following:

[2 Marks X 10 = 20 Marks]

- a) Explain simplex, half-duplex & full-duplex communications.
- b) What are the functions of MAC?
- c) How secret key is different from public key?
- d) Briefly explain bit stuffing and byte stuffing.
- e) What do you understand encapsulation in the layers of OSI model?
- f) What is multicast? What is the difference between Unicast and Multicast?
- g) What is HIPPI standard?
- h) Enumerate the difference between public key and private key algorithms?
- i) What are the addresses we use at data link layer, network layer and transport layer in OSI model?
- j) What is the support for QoS in IPv6?

Q. No. 2 [4+3+3 Marks]

- a) What is the necessity of using 7 layers concept in OSI model? Explain the functioning of 7 layers of OSI model.
- b) What are the critiques of TCP/IP model?
- c) Distinguish between a router and a bridge.

Q. No. 3 [4+3+3 Marks]

- a) Explain the persistent and non-persistent CSMA techniques. Enumerate the difference between Aloha protocols and CSMA protocols.
- b) Explain the working of FDDI.
- c) Explain the different types of modems.

Q. No. 4 [4+3+3 Marks]

- a) What is the subnet work address if the destination address is 200.45.34.56 and the subnet mask is 255.255.240.0?
- b) Explain the IEEE 802.11 wireless LANs.
- c) Discuss the error correction and detection techniques in Data Link Layer.

Q. No. 5 [4+3+3 Marks]

- a) Briefly explain RSA algorithm with suitable example.
- b) Explain Deffie-Hellman key exchange.
- c) What is key distribution? How are the key distributed in private key algorithms?

Q. No. 6 [4+3+3 Marks]

- a) Explain the operations of Mobile IP.
- b) Explain the block cipher modes of operation.
- c) Give a note on digital signatures and digital certificates.

Q. No. 7 [4+6 Marks]

- a) What are problems with IP multicasting in IPv4?
- b) Explain the different features of IPv6? What are the differences between IPv4 and IPv6? Explain the strategies of tunnelling from IPv4 to IPv6.

Q. No. 8 [4+(2x3) Marks]

- a) Explain the format of IPv6 header and security issues in IPv6.
- b) Explain the following terms given below:
 - i. IPSec
 - ii. SSL algorithm
 - iii. MD5 algorithm
