GUJARAT TECHNOLOGICAL UNIVERSITY
M. E. - SEMESTER – I • EXAMINATION – WINTER • 2013

Subject code: 712604N   **Date: 30-12-2013**
Subject Name: Computer Communication and Networking
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: Periodic Signals, Bandwidth of a Signal, Bit rate, Baud rate. Calculate **07**
the Baud rate for given bit rate and type of modulation:
   I.   6000 bps, 8-PSK
   II.   4000 bps, 4-QAM
   III.   2000 bps, FSK

(b) Explain the following networking devices. **07**
   I.   Repeaters   II. Bridges

Q.2 **(a)** Explain the categories of network Topology in detail. **07**
(b) Explain Stop-and-Wait ARQ protocol. **07**
OR
(b) Explain Sliding Window Protocol using go-back-n ARQ method. **07**

Q.3 **(a)** What is Redundancy? Find the VRC (Vertical Redundancy Check) and LRC **07**
(Longitudinal Redundancy Check) for the following block of data using both
even and odd parity.
11100111 11011101 00111001 10101001

(b) What is CSMA/CD? Explain the format of the MAC frame in CSMA/CD. **07**
OR
Q.3 **(a)** Explain the Hamming code when   a seven bit ASCII code is used as a Data bits. **07**
(b) Explain the Distance Vector Routing algorithm which is used to calculate the **07**
shortest path between two routers.

Q.4 **(a)** What is Datagram? Explain the IP Datagram format in detail. **07**
(b) Explain the TCP/IP protocol which supports electronic mail on the Internet. **07**
OR
Q.4 **(a)**   1. What is the class of each of the following IP addresses? **07**
      I.   10011101 10001111 11111100 11001111
      II.   11110101 10010101 10101101 11101011
  2. Explain the UDP (User Datagram Protocol) of transport layer in TCP/IP.
(b) Explain DNS in the Internet. **07**

Q.5 **(a)** What is Cryptography? Explain the Categories of cryptography. **07**
(b) Explain piconet and scatternet in Bluetooth. Draw the Bluetooth protocol stack **07**
and explain Radio Layer in detail.
OR
Q.5 **(a)** What is URL? State the difference between Hypertext and Hypermedia. Draw **07**
and explain the architecture of Browser.
(b) What is Cipher? Explain the Rotation Cipher, Shift Cipher, and Transposition **07**
Ciphers with examples in Symmetric-key Cryptography.
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