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Third Semester MCA Degree Examination, June/July 2014
Computer Networks

Time: 3 hrs.

Max. Marks:100

Note: Answer any FIVE full questions.

1.
 - a. What is a computer network? What are its goals and applications? Discuss. (08 Marks)
 - b. What is multiplexing? Explain STDM, FDM and statistical multiplexing. (08 Marks)
 - c. Briefly explain LAN and WAN. (04 Marks)

2.
 - a. Discuss OSI network architecture, with a neat diagram. (10 Marks)
 - b. Write the block diagram of network adaptor and discuss its components. (05 Marks)
 - c. Explain spread spectrum techniques. (05 Marks)

3.
 - a. What is encoding? Show the NRZ, NRZI and Manchester encoding for the following bit pattern. 0010111101000010. (06 Marks)
 - b. Explain bit oriented protocol (HDLC) with its frame format. (06 Marks)
 - c. Suppose we want to transmit a message 10011010 and protect it from errors using the CRC polynomial $x^3 + x^2 + 1$ (1101)
 - i) Use polynomial long division to determine the message that should be transmitted
 - ii) Suppose the leftmost bit of the message is inverted due to noise on the link. What is the result of the receiver's CRC calculation? How does the receiver know there is an error? (08 Marks)

4.
 - a. Explain the stop and wait algorithm with neat diagrams showing timeline for four different scenarios. (10 Marks)
 - b. What is Ethernet? Explain the Ethernet transmitter algorithm with diagrams showing worst case scenarios. (10 Marks)

5.
 - a. With neat diagrams, explain virtual circuit switching and datagram. (10 Marks)
 - b. Explain the IPV4 packet header, with suitable diagram. (10 Marks)

6.
 - a. Explain the distance vector algorithm, with an example. (10 Marks)
 - b. Explain the process of connection establishment and termination using three-way handshake algorithm. (10 Marks)

7.
 - a. Discuss the resource allocation taxonomy. (10 Marks)
 - b. Discuss the issues that affects the QoS of VOIP. (10 Marks)

8. Write short notes on
 - a. Wi – Fi (802.11)
 - b. Routing for mobile hosts
 - c. Bridges and LAN switches
 - d. DNS. (20 Marks)

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