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07MCA32

Third Semester MCA Degree Examination, December 2010
Computer Networks

Time: 3 hrs.

Max. Marks:100

Note: Answer any FIVE full questions.

- 1 a. What is a computer network? Explain any three applications of it. (10 Marks)
b. What is multiplexing? Explain SIDN, FDN and statistical multiplexing. (10 Marks)
- 2 a. Explain the functions of different layers of an OSI model, with a suitable diagram. (10 Marks)
b. What is a data encoding? Show the NRZ, Manchester, and NRZI encoding for the bit pattern 0010111101000010.
Assume that the NRZI signal starts out low. (05 Marks)
c. Explain the spread spectrum technique. (05 Marks)
- 3 a. Explain the clock-based framing (SONET) with frame format. (10 Marks)
b. Suppose we want to transmit the message 1011001001001011 and protect it from errors using the CRC polynomial $x^8 + x^2 + x' + 1$.
i) Use polynomial long division to determine the message that should be transmitted.
ii) Suppose the left most 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? (10 Marks)
- 4 a. Explain the sliding window algorithm, in detail. (10 Marks)
b. What is an Ethernet? Explain the Ethernet transmitter algorithm, in detail. (10 Marks)
- 5 a. Explain the switching approach source routing. (10 Marks)
b. Briefly explain the spanning tree algorithm. (10 Marks)
- 6 a. Explain the IPV4 packet header, with a suitable diagram. (10 Marks)
b. Explain the distance vector algorithm, with an example. (10 Marks)
- 7 a. Explain briefly :
i) Classless routing (CIDR)
ii) Interdomain routing (BGP). (10 Marks)
b. Explain the TCP header format, with a suitable diagram. (10 Marks)
- 8 Write short notes on :
a. Remote login
b. HTTP
c. UDP
d. Wi – Fi (802.11) (20 Marks)

