Seventh semester B.E. Degree Examination, Dec.09/Jan.10   06EC71

COMPUTER COMMUNICATION NETWORKS

Time: 3 hrs   **Max. Marks:100**

PART-A

1 a. Show the layer representation in the TCP/IP model and the OSI model and explain.(10M)
  b. Give a brief overview of SS7 Signaling.(5M)
  c. Match the following functions to the appropriate layers in the OSI model.
    1) Dividing the transmitted bit stream into frames.
    2) Determining the route to be used through the subnet.
    3) Reliable process to process message delivery.
    4) Format and code conversion services.
    5) Accessing the World Wide Web.(5M)

2 a. Explain the selective repeat sliding window protocol with necessary figures.(10M)
  b. A channel has a bit rate of 4 kbps and a Propogation delay of 20 msec. For what range of
    frame sizes does stop and wait protocol give an efficiency of at least 50%.(6M)
  c. Perform bit stuffing on the given bit stream 0110111110111111101111111010. Assume flag
    as 01111110.(4M)

3 a. Explain CSMA and show the behavior of the three persistence methods of CSMA.
    Compare the vulnerable times in CSMA and CSMA/CD.(10M)
  b. 10,000 stations are competing for the use of a single slotted ALOHA channel. The average
    Station makes 18 requests/ hour. A slot is 125μsec. What is the approximate total channel
    load?(5M)
  c. In a CDMA system the four chip sequences are:
    A=(-1-1-1+1+1-1+1+1)
    B=(-1-1+1-1+1+1+1-1)
    C=(-1+1-1+1+1+1-1-1)
    D= (-1+1-1-1-1-1+1-1) in bipolar form.
    If the received sequence is (-1+1-3+3+1-1-1+1) what is the data transmitted by the four
   stations.(5M)

4 a. Give the format for the IEEE 802.3 frame for Ethernet. What are the minimum and
    maximum frame lengths?
  b. Identify if the following 802.3 MAC addresses are unicast, multicast or broadcast.
        1) 47:20:1B:2E:08:EE
        2) EE:FF:10:01:11:00
        3) FF:FF:FF:FF:FF:FF.(3M)
  c. What are the hidden and exposed station problems in wireless Lans's. Give solutions for
    each. (10M)

PART-B

5 a. Explain each of the following in brief.
    1) Passive Hub 2) repeater 3) bridge 4) router 5) gateway 5) gateway.(10M)
  b. Give the IPV4 datagram format and explain its fields.(10M)

6 a. What are the differences between Class full addressing and classes addressing in IVP4.(10M)

   b. An ISP is granted a block of addresses starting with 190.100.0.0/16. The ISP needs to
      distribute these addresses to the group of customers as follows:
      1) First group has 64 customers, each needs 256 addresses
      2) Second group has 128 customers, each needs 128 addresses
      3) Third group has 128 customers, each needs 64 addresses. Design the sub blocks and find
         out how many addresses are still available after these allocations.(10M)

7 a. Explain the distance vector routing for the following example.
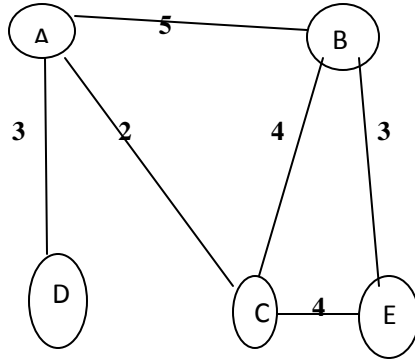
   b. Compare multicasting with multiple unicasting. Differentiate between source based tree and
      group shared tree approach used in multicast routing.(10M)

8 a. Describe a TCP connection and explain a TCP connection establishment using three way
      handshaking.(10M)

   b .Explain recursive resolution and iterative resolution in name address resolution.(10M)

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