

**Second Semester M.Tech. Degree Examination, May/June 2010**  
**Computer Networks**

Time: 3 hrs.

Max. Marks:100

**Note: Answer any FIVE full questions.**

- 1
  - a. Define the term computer networks. List and explain key elements of a protocol. (10 Marks)
  - b. Suppose we want to transmit the message 1011001001001011 and protect it from errors using the CRC – 8 polynomial  $x^8 + x^2 + x^1 + 1$ .
    - 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 transmission link. What is the result of the receiver's CRC calculation? How does the receiver know that an error has occurred? (10 Marks)
  
- 2
  - a. What is socket? Explain create socket function. (06 Marks)
  - b. Suppose the following sequence of bits arrive over a link : 01111101011111001011100111110100111110101011011101111111. Show the resulting frames after any stuffed bits have been removed. Indicate any errors that might have been introduced into the frame. (10 Marks)
  - c. What are the entries in virtual circuit table? Explain. (04 Marks)
  
- 3
  - a. Hosts A and B are each connected to a switch S via 10-Mbps links as in figure 3(a). The propagation delay on each link is  $20\mu s$ . S is a store – and – forward device, It begins retransmitting a received packet  $35\mu s$  after it has finished receiving it. Calculate the total time required to transmit 10,000 bits from A to B. i) as a single packet ii) as two 5,000 – bit packets sent one right after the other. (10 Marks)

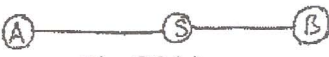


Fig.Q3(a)

  - b. Define the following terms : i) Node ii) Jitter iii) Passive open iv) Runt frame v) Delay X bandwidth product. (10 Marks)
  
- 4
  - a. Write the valuable functions of clock signal. (04 Marks)
  - b. Where DWDM equipment is used? Briefly explain the working principle. (06 Marks)
  - c. With a block diagram, explain sliding window algorithm. (10 Marks)
  
- 5
  - a. Explain the concept of silly window syndrome. (10 Marks)
  - b. With a diagram, explain routing for mobile host. (10 Marks)
  
- 6
  - a. With a diagram, explain segmentation and reassembly in ATM networks. (10 Marks)
  - b. List the duties of physical layer and data link layer. (06 Marks)
  - c. Give the major functions of NIC. (04 Marks)
  
- 7
  - a. Write a note on remote procedure call. (10 Marks)
  - b. Explain random early detection congestion avoidance mechanism. (10 Marks)
  
- 8
  - a. Explain RTP header format. (10 Marks)
  - b. Write short notes on : i) Virtual private network ii) Tunneling protocol. (10 Marks)