

left most bit, show that this CRC will help detect the error. (6)

OR

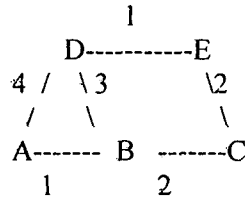
b) (i) Discuss the medium access protocol for Ethernet. Why is this technique not suitable for wireless networks? (10)

(ii) Suppose the following sequence of bits arrive over a link :

0110101111101010011111101100111110

Show the resulting frame after any stuffed bits have been removed. Indicate any errors that may have been introduced into the frame. (6)

14. a) (i) Explain link-state routing protocol using the following sample network. (10)



(ii) Consider sending a 4000-byte datagram that has arrived at a router R1 that needs to be sent over a link that has an MTU size of 1500 bytes to R2. Then it has to traverse a link with an MTU of 1000 bytes. Let the identification number of the original datagram be 351. How many fragments are generated? What are the parameters associated with these fragments? (6)

OR

b) (i) Discuss the RARP and DHCP protocols used to assign IP addresses to nodes in a network. (10)

(ii) Devise a subnet addressing scheme for our university if we are assigned only 1 IP address – 150.25. The following LANs are to be accommodated :

- RCC – 2 LANs of 1000 systems each
- SCSE – 2 LANs of 500 systems each
- ECE – 1 LAN of 250 systems

Show the entries to be used at the routers. (6)

15. a) (i) Discuss the state transition diagram of TCP connection establishment and termination. (10)

(ii) Assume that TCP implements an extension that allows window sizes much greater than 64 KB. Suppose that you are using this extended TCP over a 1Gbps link with a latency of 100ms to transfer a 10MB file, and the TCP receive window is 1MB. If TCP sends a 1KB packets (Assuming no congestion and no lost packets): (6)

- How many RTTs does it take until slow start opens the send window to 1 MB ?
- How many RTTs does it take to send the file ?
- What is the effective throughput for the data transfer ?

OR

b) (i) Discuss in detail about the adaptive retransmission mechanisms used in TCP. (10)

(ii) Consider a router having 3 input flows and one output. It receives the following packets at about the same time in the order listed. Give the order in which the packets are transmitted for fair queuing and weighted FQ disciplines. (WFQ : Flow 2 – Twice, Flow 1 – One, Flow 3 - One) (6)

Packet :	1	2	3	4	5	6	7	8
Size :	100	100	150	160	260	180	170	110
Flow :	1	1	1	2	2	2	3	3