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B.TECH (PART TIME) DEGREE EXAMINATION APRIL/MAY 2014
Information Technology
PTIT9303- COMPUTER NETWORKS
REGULATIONS: 2009
IV SEM

Time: 3 HOURS

Max Marks: 100

Answer All the Questions

PART-A (10x2=20 Marks)

1. Given the block of data D 101011010101 and the generator G is 111010. Produce the CRC code generated by the transmitter.
2. Give an example to show two-dimensional parity can correct 1 bit error.
3. Define token rotation time.
4. What is runt frame in Ethernet?
5. How is DHCP server contacted by a configuring host?
6. How does the TCP's fast retransmit mechanism work?
7. Compare credit based and rate based explicit congestion signaling approach.
8. What aspect of IP addresses makes it necessary to have one address per interface, rather than just one per host?
9. When is ICMP redirect message used?
10. What are the five tuples of name server?

PART-B (5x16=80 Marks)

11. (i) A linear cyclic code has a generator(CRC) polynomial
 $g(X) = 1 + X + X^2 + X^4 + X^5 + X^8 + X^{10}$
- Find the check bits to be sent along the message polynomial $m(X) = 1 + X^2 + X^4$
 - Is $R(X) = 1 + X^4 + X^6 + X^8 + X^{14}$ a code polynomial? (6)
- (ii) Explain the network architecture of internet protocol. (6)
- (ii) Compare CDMA with hybrid time and frequency multiple access techniques. (4)
- 12 a (i) Compare bridges and switches. (6)
- a (ii) Explain the timed token algorithm in FDDI and how does it maintain valid token in the topology? (10)

OR

12. b (i) Consider a bus LAN with a number of equally spaced stations with a data rate of 10Mbps and a bus length of 1km.
- What is the mean time to send a frame of 1000 bits to another station, measured from the beginning of transmission to the end of reception? Assume a propagation speed of 200m/ μ s.
 - If two station begin to transmit at exactly the same time, their packets will interfere with each other. If each transmitting station monitors the bus during transmission, how long does it need to wait before it notices interference? (8)

b(ii) Explain MACA in a wireless LAN. (8)

13. a (i) Explain the IPv4 packet format and how does the header conveys the IP fragmentation with the header? (10)

a (ii) Consider the VC switches shown in the figure 1 below. If the VCI tables have the following entries, list all endpoint-to-endpoint connections.

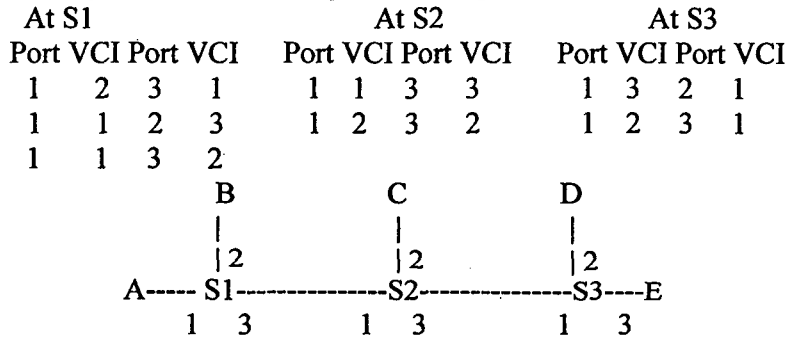


Figure 1

(6)

OR

13. b (i) Explain the path attributes and the routing policy of BGP. (10)

b (ii) Design a subnet addressing scheme for our department with one address 200.150.20. Individual networks to be supported: room 1 : 100 systems, room 2 : 50 systems, room 3 : 25 systems, room 4 : 10 systems. Give the subnet mask, range of addresses, subnet address for each subnet. (6)

14 a (i) Compare the operations of Go-Back-N and selective repeat protocol. (8)

a (ii) Define the three way handshake of the TCP initialization protocol in detail, using time outs. Explain how it avoids misunderstandings caused by a delayed packet. (8)

OR

14 b (i) Explain the transport layer congestion control approaches. (6)

b (ii) Flow A,B,C,D are processed at one of the output of a routes. For each packet, the time it arrives its label are indicated in the fig 2. Specify the order of packet transmission, using weighted fair queuing scheduler. The scheduler scans the flows, starting from A. Assume flows A,B,C,D all given a weightage of 1,2,1 and 2 respectively of the output capacity. (10)

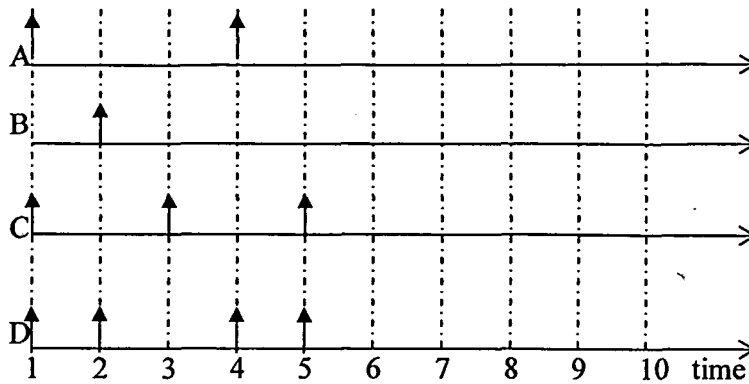


Figure 2

15. a (i) Compare FTP and TFTP. (6)
- a (ii) Explain how SMTP transfer message from one host to the other. (10)

OR

15. b (i) Explain SNMP protocol and what are the ten group of variables in its information Base? (8)
- b (ii) Explain IMAP state transition diagram. (8)