Bengal Engineering &Science University, Shibpur
B.E. (ETC) Examination, 2013
Part-IV 8th Semester
Sub : (ET 802) COMPUTER NETWORK AND COMMUNICATION

Full Marks – 70. Time – 3 Hrs.

The questions are of equal value
Answer any THREE questions from each group.
TWO marks are reserved for neatness in each group.

GR.A

1. Explain with block diagrams the functioning of a simple data transmission circuit. How frame relay and Asynchronous transfer mode was developed from the concept of packet switching? What are the design factors relating to the transmission medium determine the signal rate and distance?

4+3+4

2. What are the advantages of packet switching over circuit switching? What are the different approaches to packet switching? What is flooding and what are its remarkable properties?

4+3+4

3. Describe with relevant diagrams the LAN protocol architecture. What are the different asynchronous approaches in the Medium access control? Describe the MAC frame format with relevant diagrams.

4+3+4

4. What are the different types of transmission channels used in ISDN? Describe the ISDN protocol architecture with relevant architecture. What are user level and network level signaling used in ISDN?

3+4+4

5. What is B-ISDN? What are principles based on which B-ISDN are implemented? Describe the ATM cell structure .What consists of the overall protocol architecture of ATM networks?

3+3+3+2

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GR.B

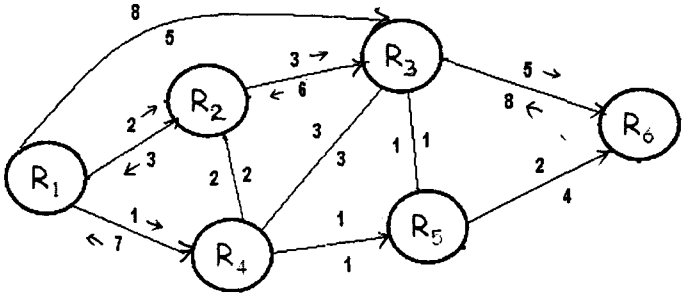
1. Discuss the functions of seven layer OSI internet model. Write short notes on Token ring and CSMA/CD .

[5+6]

2. (a) For pattern 110101 and Message 1010001101 Find CRC. Describe with diagram Stop and Wait ARQ protocol. For Stop and Wait Flow control find out the utilization of the line.
(b)Establish the relation between throughputs to total traffic in ALOHA protocol. In S ALOHA system calculate the probability of data packet , assume that total traffic rate 10 packet/s, and packet duration is 10 ms. and probability of new message is (k = 1).

[7+4]

3. Write Dijkstra's algorithm, using this algorithm solve the following graph, where R_1 is the source node.



[11]

4. a) Change the following IP address from dotted-decimal notation to binary notation.
111.56.45.78.
b) Given the network address 17.0.0.0, find the class, the block, and the range of the addresses.
c) What is the subnetwork address if the destination address is 200.45.34.56 given that the subnet mask is 255.255.240.0?
d) A company is granted the site address 201.70.64.0 (class C). The company needs six subnets. Design the subnets.

[2+2+3+4]

5. What is the difference between public key and private key in cryptography? With proper example write RSA algorithm. Why RSA is secure?

[4+6+1]