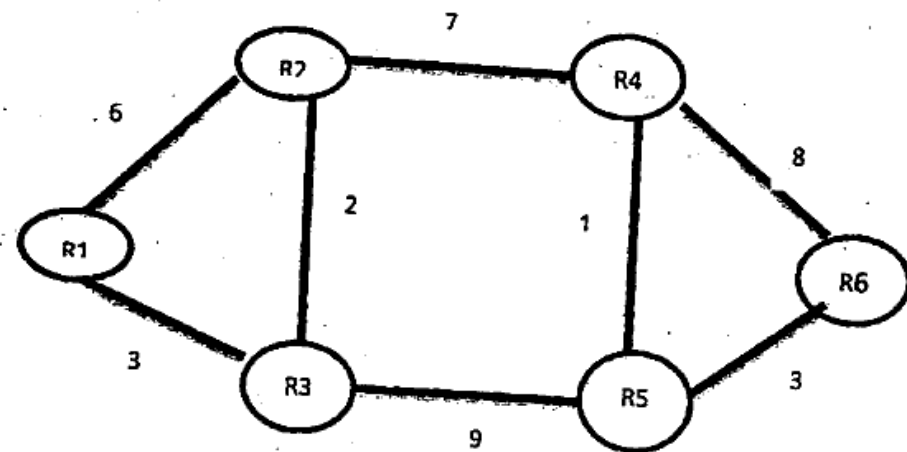


8. Consider a network with 6 routers R1 to R6 connected with links having weights as shown in the following diagram.



All the routers use the distance vector based routing algorithm to update their routing tables, each router starts with its routing tables. Each router starts with its routing table initialized to contain an entry for each neighbor with the weight of the respective connecting link. After all the routing tables stabilized, how many links in the network will never be used for carrying any data

Code : 051813

B.Tech. 8th Semester Exam., 2017

Computer Networks

Time : 3 hours

Full Marks : 70

Instructions :

- (i) The marks are indicated in the right-hand margin.
- (ii) There are **EIGHT** questions in this paper.
- (iii) Attempt **FIVE** questions in all.
- (iv) Questions No. 1 is compulsory.

1.

2×7=14

- (i) In the string 219.46.123.107, what is the network address of the host we are looking for ?
 - a) 219.46.123.0
 - b) 107.123.0.0
 - c) 107.123.46.0
 - d) 107.0.0.0
- (ii) When a host knows its IP address but not its physical address, it can use
 - a) RARP
 - b) ICMP
 - c) ARP
 - d) IGMP
- (iii) Which of the following is a valid host for network 192.168.10.32/28?

- a) 192.168.10.39
- b) 192.168.10.47
- c) 192.168.10.14
- d) 192.168.10.54

(iv) Identify the class of IP address 191.1.2.3

- a) Class A b) Class B
- c) Class C d) Class D

(v) For stop and wait ARQ for n data packets sent, acknowledgements are needed

- a) n b) 2n
- c) n-1 d) n+1

(vi) For a 4 bit sliding window the sequence number can range from

- a) 1 to 16 b) 0 to 7
- c) 0 to 15 d) 8 to 15

(vii) The 1-persistent CSMA/CD can be considered as a special case of p-persistent approach with p equal to

- a) 0.1 b) 0.5
- c) 1.0 d) 2.0

2. (a) Explain in brief the various types of network topologies. Calculate the number of links in each topology for n devices. 4+3

Code : 051813

2

- (b) Suppose the message 11001001 is to be transmitted using the CRC polynomial x^3+1 to protect it from errors. The message that should be transmitted is? Explain. 7

3. Why Flow control is needed? Explain in brief the flow control strategies. If 5 bit sequence number is zero. What would be the sequence number of the 100th frame, if go back N-ARQ is used? 3+4+7

4. Describe ARQ protocol. What are the difference between classless and classfull address. Describe Link State Routing algorithm. 5+5+4

5. Describe with proper example and diagram Leaky Bucket and Token Bucket algorithm for congestion control. Differentiate between Datagram packet switching and virtual circuit packet switching. 8+6

6. Short note: 3.5×4=14

- 1. Frame format of HDLC protocol
- 2. Point to Point Protocol
- 3. OSI Model
- 4. File Transfer Protocol

7. Difference between circuit switching and packet switching. Describe different types of transmission media. 7+7=14

Code : 051813

3

P.T.O.