Roll No. .....
Printed Pages : 3

35114

BT-5 / D-17

COMPUTER NETWORKS

Paper-CSE-303N

Time allowed : 3 hours] *[Maximum marks :75*

Note : *Attempt five questions selecting at least one question from each section.*

Section-I

1. (a) With a neat sketch explain the OSI reference model. 8
   (b) Compare the preference of TCP/IP and ISO/OSI model. 7

2. (a) Describe in brief about the physical layer. 5
   (b) Explain briefly about the Ethernet 802.3. 5
   (c) Explain about Token Bus and Token Ring. 5

Section-II

3. (a) Explain in detail, how sliding window protocol is used in HDCC for full duplex lines with window size 4. 7
   (b) Give the functions of Repeater, Switch and Hub. 4
   (c) Why do you need routing protocols ? Explain the operation of any two routing algorithms. 4

4. (a) Determine the maximum distance between any pair of stations in a CSMA/CD network with a data rate of 10 Mbps, for the correct operation of collision detection process, assuming the frame size to be 512 bits. What should

be the maximum distance, if the data rate is increased to 1 Gbps ? 2 stations A and B, connected to opposite ends of a 10-Mbps CSMA/CD network, start transmission of long frames at times t1 = 0, and t2 = 3 μs respectively. Determine the instants when A hears the collision and B hears the collision. Signal propagation speed may be assumed as 2 × 108 m/s. 10

(b) Discuss the limitations of bridges. 5

Seetion-III

5. (a) What is the need for ICMP ? Mention any four ICMP message and their purpose. 8
   (b) Find the class of each IP address given suitable explanation. a. 227.12.14.87 b. 193.14.56.22 c. 14.23.120.8 d. 252.5.15.111 e. 134.11.78.56 f. 000 000 00 11110000 11111111 00110011 g. 10000000 1111 0000 11111111 00110011. 7

6. (a) Explain Unicast and Multicast forwarding protocols for routing. 7
   (b) What is the subnet work address if the destination address is 200.45.34.56 and the subnet mask is 255.255.240.0 ?
   (c) What is the need for adaptive routing algorithms ? 4

Seetion-IV

7. (a) Suppose TCP operates over a 1-Gbps link, utilizing the full bandwidth continuously. How long will it take for the sequence numbers to wrap around completely ?

Suppose an added 32-bit timestamp field increments 1000 times during this wrap around time, how long will it take for the timestamp field to wraparound. 8

(b) Differentiate symmetric key and Asymmetric key cryptography. Explain the RSA cryptosystem. 7

8. Write short notes on :

(i) FDDI 5

(ii) E-Mail 5

(iii) Wireless LAN 5