Roll No. ..... Total Pages : 03

BT-6/J-22 46166

COMPUTER NETWORKS

PC-CS-304E

Time : Three Hours] [Maximum Marks : 75

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit.

Unit I

1. (a) What are the advantages that packet switching have over circuit switching ? 6

   (b) Explain TDM, FDM, WDM, TDMA and FDMA along with unique advantages and features of each. 9

2. (a) Consider a 3 kHz channel with 8-level signaling. Obtain and compare bit rate to channel capacity at 20 dB SNR. 9

   (b) Explain different types of transmission media and their advantages. 6

Unit II

3. (a) In a LAN, which MAC protocol has a higher efficiency : ALOHA or CSMA-CD ? Justify your answer. 9

(b) Why framing is required ? Explain any *two* framing methods with example. 6

4. (a) Explain, how error is detected and corrected in digital transmission ? 9

(b) Give the differences between *p*-persistent, 1-persistent and non-persistent CSMA-CD. 6

Unit III

5. (a) What are private IP address ranges ? Why private IP addresses are needed ? What is the advantage of subnetting ? 9

(b) Describe the working of DHCP and ARP. 6

6. (a) Describe various uses of ICMP. 9

(b) Explain the differences between distance vector and link state routing. 6

Unit IV

7. (a) TCP uses a three-way handshake for connection setup. Explain, why TCP does not use to two-way handshake ? What extra functionality is gained in a three-way handshake that is not possible with a two-way handshake ? 9

(b) Explain the importance of user authentication, integrity and crytography. 6

8. (a) Explain the working of SNMP. Describe any *three* message types out of several available in SNMP. 9

(b) What is the difference between leaky bucket and token bucket algorithms ? Discuss the two algorithms. 6