53 (CS 402) CPNW

2019

COMPUTER NETWORKS

Paper : CS 402

Full Marks : 100

Time : Three hours

The figures in the margin indicate full marks for the questions.

*Answer **any five** questions.*

1. *(a)* Briefly explain the following protocols :

   (i) Go-Back-N

   (ii) Selective Repeat. 5+5=10

   (b) What are the basic roles of topologies in Computer Networking ? Explain different network topologies with their merits and demerits. 2+8=10

2. *(a)* Find the codeword using CRC ; given data word 101110 and generator (pattern) 1001. 6

Contd.

(b) How channel throughput is doubled in slotted ALOHA in comparison to pure ALOHA ? 6

(c) Explain CSMA/CD protocol with diagram. 8

3. (a) A stop-and-wait protocol uses 100 *kbps* link, which has the round trip propagation delay 250 *ms*. Find out the percentage of time the sender is blocked for acknowledgement, if the frame size is 1000 *bits*. 4

(b) Discuss CDMA with the help of an example. 10

(c) What do you mean by routing ? Differentiate between static and dynamic routing. 2+4=6

4. (a) An organization is granted the block 130.56.0.0/16. The administrator wants to create 1024 subnets. 10

(i) Find the number of addresses in each subnet.

(ii) Find the subnet mask.

(iii) Find the first and last address in the first subnet.

(iv) Find the first and last address in the last subnet.

(b) Explain link-state routing algorithm with a suitable example. 10

5. (a) Write the differences between circuit switching and packet switching. 6

(b) What do you understand by "three-way handshake" ? Explain TCP segment header. Differentiate between TCP and UDP protocols. 4+7+3=14

6. (a) What is meant by congestion ? Discuss different approaches to control congestion. 2+8=10

(b) What is the advantage of traffic shaping ? Describe the token bucket algorithm. What is the difference between token bucket and leaky bucket algorithm ? 2+4+4=10

7. Write short notes on the following : ***(any four)*** 5×4=20

(i) DNS

(ii) SNMP

(iii) Remote login

(iv) ATM network

(v) IPv6

(vi) NAT

(vii) Bit stuffing and byte stuffing.