Total number of printed pages:02 **Programme(UG)/5th Semester/UCSE501**

2023

COMPUTER NETWORK

Full Marks : 100

Time : Three hours

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

*Answer **any five** questions.*

1. a) Explain TCP Header with a diagram. 10

   b) Describe the functions of different layers in the OSI model. 10

2. a) Describe Token Bucket and Leaky Bucket techniques. 10

   a) Briefly describe the three traditional switching methods. Which one is most common today? 10

3. a) Which fields in the IPv4 header are related to Fragmentation? Why does fragmentation happen? Explain fragmentation in IPv4 packets with a diagram. 15

   b) Which fields of the IPv4 header change from router to router? 2

   c) Calculate the HLEN (in IPv4) value if the total length is 1200 bytes, 1176 of which is data from the upper layer. 3

4. a) Describe the implementation of Traceroute command with ICMP and UDP packets. 10

   b) Compare and contrast Stop and Wait ARQ, Go Back N ARQ and Selective Repeat ARQ. 10

5. a) An ISP is granted a block of addresses starting with 120.60.4.0/22. The ISP wants to distribute these blocks to 100 organizations with each organization receiving just eight addresses. Design the subblocks and give the slash notation for each subblock. Find out how many addresses are still available after these allocations. 15

b) Compare IPv4 and IPv6 addressing schemes. 5

6. Compare Distance Vector and Linked State Routing. Define Count to Infinity Problem. Discuss the solutions to the Count to Infinity problem. 20

7. Write short notes on the following (Any Two): 20

a) Quality of Service

b) Domain Name System

c) Address Resolution Protocol

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