Roll No. ....

M.C.A./M.Sc. Semester I Examination 2024-25
Computer Science/Applications
CS-206: Computer Networks

Time : Three hours   Max. Marks : 70

(Write your Roll No. at the top immediately on the receipt of this question paper)

NOTE: Answer any <u>five</u> questions. Question number <u>one</u> is compulsory.

1) Write a short note on any **four** out of six techniques: 3.5 x 4 =   [14]

    a) Dynamic Host Configuration Protocol (DHCP)
    b) User Datagram Protocol (UDP)
    c) Subnet Mask
    d) TELNET
    e) File Transfer Protocol (FTP)
    f) Symmetric and Asymmetric keys

2) a) Discuss the Reverse Address Resolution Protocol (RARP).   [6]
    b) An ISP is granted the block 80.70.56.0/21. The ISP needs to allocate addresses for two   [8]
      organizations each with 500 addresses, two organizations each with 250 addresses, and three
      organizations each with 50 addresses.
       I. Find the number and range of addresses in the ISP block.
       II. Find the range of addresses for each organization and the range of unallocated addresses.

3) a) What is a routing table in network layer? Discuss the common fields in a routing table.   [6]
    b) In an IPv4 datagram, the M bit is 0, the value of HLEN is 10, the value of total length is 400 and   [8]
      the fragment offset value is 300. What will be the position of the datagram, the sequence
      numbers of the first and the last bytes of the payload?

4) a) What is Transmission Control Protocol (TCP)? Discuss its features in details.   [6]
    b) Describe the working of Link State Routing protocol with suitable diagrams.   [8]

5) a) What is Congestion Control? Discuss the Open-Loop Congestion Control techniques.   [6]
    b) What is Quality of Service (QoS)? Discuss the techniques to improve QoS.   [8]

6) a) What is Domain Name System (DNS)? What do you understand by Domain Name Space?   [6]
    b) What is Simple Network Management Protocol (SNMP)? Describe the functions of SNMP.   [8]

END