(E(comp.)/sem-V/ C.N./ R-19-C-scheme/ 09/06/25

[Time: 3 Hours] [Marks:80]

N.B

(1) **Question no. 1 is compulsory.**
(2) **Attempt any 3 from the remaining questions.**
(3) **Assume suitable data if necessary.**
(4) **Figures to right indicate full marks.**

Q.1 **Attempt any four of the following**

a) What are frames? Explain any 2 framing methods in detail. 5
b Explain TCP Timers. 5
c Explain the need of DNS? What are DNS name spaces? 5
d Compare the OSI & TCP/IP reference models. 5
e What is the use of checksum? Explain the CRC steps to calculate the checksum. 5
f Compare Subnet and Supernet? A network on the Internet has a subnet mask of 255.255.192.0. What is the maximum number of hosts it can handle? 5

Q.2 **Attempt the following**

a Compare and contrast coaxial cable & fiber optics cable? A 2 km long broadcast LAN uses CSMA has 10^9 bps bandwidth and uses CSMA/CD. The signal travels along the wire at 400000 km/s. What is the minimum packet size that can be used on this network? 10
b Explain the open loop congestion control and closed loop congestion control policies in detail. 10

Q.3 **Attempt the following**

a An ISP is granted a block of addresses starting with 190.100.0.0/16 (65,536 addresses). The ISP needs to distribute these addresses to three groups of customers as follows: 10

a. The first group has 64 customers: each need 256 addresses.

b. The second group has 128 customers: each need 128 addresses.

c. The third group has 128 customers: each need 64 addresses.

Design the subblocks and find out how many addresses are still available after these allocations

b Explain the TCP connection establishment and Connection release. 10

Q.4 **Attempt the following**

a Compare and Contrast TCP and UDP protocol? Explain the header format used at the transport layer by TCP protocol. 10
b Enlist and elaborate the issues in designing the layered protocol architecture 10

Q.5 **Attempt the following**

a Explain the concept of sliding protocol? Explain the selective repeat protocol with example? Compare the performance of Selective repeat & Go-back-N protocol. 10
b Explain Distance vector routing? Also elaborate the count to infinity problem and its solution. 10

Q.6 **Write a short note on**

a. ARP & RARP 10
b DNS 10

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Q.P. Code :- 81286

Program Code :- 1T00735.