Q.P. Code : 5650

(3 Hours)   [Total Marks : 80

1. Question No 1 is compulsory.
2. Attempt any three out of the remaining five questions.

Q1. (a) Discuss the design issues for various layers   05
    (b) Compare various types of network topologies   05
    (c) Differentiate between an IP address and a MAC or physical address. What is   05
         the need to map IP address to MAC address? Explain which protocol does this.
         Similarly give a protocol which does reverse mapping.
    (d) What is subnetting? What are the default subnet masks? Find the subnet   05
         address if the IP address is 129.31.72.24 and subnet mask is 255.255.192.0.

Q2. (a) What is controlled access for collision control? Explain all the methods of   10
         controlled access.
Q2. (b) What is the maximum window size allowed for selective repeat ARQ?   10
         Explain why with appropriate scenario.

Q3. (a) What are the different types of routing algorithms? When would we prefer to   10
         use hierarchical routing over Link state routing?

Q3. (b) What is traffic shaping? Explain leaky bucket algorithm and compare it with   10
         token bucket algorithm.

Q4. (a) What are transport service primitives? Discuss in brief   10
    (b) Explain IPv4 header format in detail. If value at HLEN field is 1101 find the   10
         size of option and padding field?

Q5 (a) What is congestion control? Explain various congestion prevention policies.   10

Q5 (b) Write in brief about: 10
    i)   PPP Frame format
    ii)   CSMA/CD

Q6. Write short notes on: (any two)   20
    i)   TCP connection management
    ii)   Internetworking Devices
    iii)   Border Gateway Protocol

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