(3 Hours) **[Total Marks: 80]**

N.B.: (1) Question No. 1 is compulsory.
(2) Solve any three questions from remaining five questions.
(3) Draw neat diagrams and assume suitable data wherever necessary. Justify your assumptions.

1. Attempt any **four**: **20**
   (a) Explain the four levels of addresses used in computers.
   (b) Coaxial cable is much less susceptive to interference and cross talk than twisted pair. Why?
   (c) What is sliding window? Where is it applicable?
   (d) Explain leaky bucket to control congestion in network traffic.
   (e) Identify the class of each addresses.
   i)14.23.120.8 ii)252.5.15.111 iii)200.58.20.165 iv)128.167.23.20 v) 205.16.37.32

2. (a) Draw the OSI layer architecture. Explain the function of each layer and show the path of actual and virtual communication between the layers. **10**
   (b) What is a transparent bridge? How the process of learning in this bridge takes place. Explain the Spanning tree algorithm to solve looping problem. **10**

3. (a) Explain Persistence methods with neat diagram. **04**
   (b) Explain CSMA/CD with a flow diagram. **06**
   (c) What are the two common configurations used in HDLC? Draw and explain the HDLC frame format with separate diagram for control field format for each different frame. **10**

4. (a) Compare Stop and Wait, Selective Repeat and Go-Back-N protocols for a noisy channel **10**
   (b) Compare Circuit Switching, Packet Switching and Message Switching **10**

5. (a) List three transition strategies to move from IPV4 to IPV6. Explain the difference between tunneling and dual stack during transition period. **10**
   (b) What is Fragmentation in IPV4? Explain the fields related to fragmentation in head format. **06**
   (c) Find the first addresses, last addresses and number of addresses of the following IP addresses:- i) 205.16.37.39/28 ii) 123.56.77.29/27 **04**

6. Write Short note on **(any four)** **20**
   i) DSL
   ii) FDDI
   iii) TCP header format
   iv) Distance Vector Routing
   v) Congestion Control
