(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.

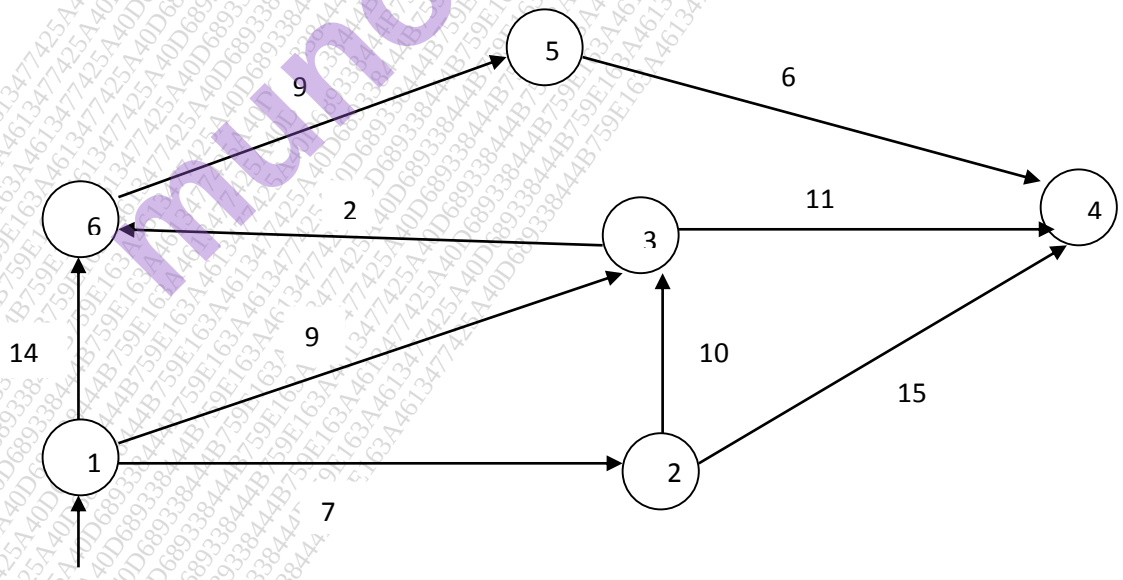
1. Attempt any **four**: **20**
   (a) What do you mean by multiple access? Compare between CSMA/CD and CSMA/CA.
   (b) Compare between circuit switching and packet switching.
   (c) What are the different type of network addresses ? Explain each with an example.
   (d) Explain xDSL with a neat diagram.
   (e) Compare IPv4 and IPv6.

2. (a) Describe in detail physical transmission media for computer communication networks. **10**
   (b) Explain ISO-OSI reference model with a neat diagram. **10**

3. (a) Explain with neat diagram the connection establishment and connection termination in TCP using Three way Handshaking **10**
   (b) Explain IPv6 datagram format with a neat diagram. Also explain transition from IPv4 to IPv6 **10**

4. (a) What are the conditions to be satisfied by a good CRC generator polynomial? **10**
   For P= Predetermined divisor= 110101 (LSB) and
   D= K bit block of data= 1010001101 (LSB). Find the CRC.
   (b) Explain different types of ARQ techniques . Compare their merits and demerits **12**

5. (a) Apply Dijkstra's and Bellman Ford Algorithm to the given network and find the least cost path between the source node 1 to all other nodes: **10**



Source Node

6. (a) Explain LAN protocol architecture with IEEE 802 reference. Sketch the general MAC frame and LLC PDU structure. Explain the functions of different fields. **10**
   (b) Draw HDLC frame format. Explain each frame in detail. Also explain data transparency and Data transfer modes in HDLC **10**
