Time: 3 Hrs **Marks: 80**

N.B.: (1) Question No. **1 is compulsory**.

(2) Solve any **three questions** from the **remaining five**

(3) Figures to the right indicate full marks

(4) Assume suitable data if necessary and mention the same in answer sheet.

Q.1 Attempt any four **[20]**

a) Differentiate between Bus Topology and Ring Topology.
b) Explain the fields related to fragmentation in IP datagram.
c) The following is a dump of a TCP header in hexadecimal format :
05320017 00000001 00000000 500207FF 00000000
i) What is the source port number?
ii) What is the destination port number?
iii) What is the length of the header?
iv) What is the type of segment?
v) What is the window size?
d) Explain Bit Stuffing framing method.
e) Short note on HFC.

Q.2 a) Explain three way handshaking for connection establishment and connection termination in TCP . **[10]**
b) Explain the Classfull addresses of IPV4 with net-id and host-id. **[10]**

Q.3 a) Classify Multiple access protocols. Discuss various scheduling medium access control techniques. **[10]**
b) Explain Distance Vector Routing Algorithm. **[10]**

Q.4 a) Explain Congestion control in TCP. **[10]**

b) Explain the functions of each layer of the OSI-RM model. **[10]**

Q.5 a) Explain the various types of frames in HDLC. **[10]**
b) Explain in detail the Physical media used for computer communication. **[10]**

Q.6 Attempt any four. **[20]**

a) Short note on WiMax.
b) Explain the functions of Data Link Layer.
c) Explain Quality of service in terms of flow characteristics.
d) Compare between Pure ALOHA and Slotted ALOHA.
e) List and explain various Timers in TCP.

****