

**Time: 3 Hours**

**Marks: 80**

Note before:

- 1) Question no. 1 is compulsory
- 2) Attempt any three from the remaining questions
- 3) Assume suitable data wherever necessary

- Q.1. Answer any FOUR: 20
- a) Explain various LAN topologies with neat diagram.
  - b) What is meant by the terms bit stuffing and byte stuffing?
  - c) Write a note on Bellman Ford Algorithm.
  - d) Explain ALOHA and slotted ALOHA.
  - e) An ISP is granted a block of addresses starting with 120.60.4.0/22. The ISP wants to distribute this block to 95 organizations with 8 addresses each. Design sub blocks and give the slash notations for each sub block. Find how many addresses are still available after these allocations.
  - f) Compare connection oriented and connection less services with examples
- Q.2.a. Write a note on sliding window protocol. 10
- b. Explain the function of MAC and LLC sub layers. 10
- Q.3.a. Draw and explain IPv4 header. Compare IPv4 and IPv6. 10
- b. Write a short note on ICMP. 10
- Q.4.a. Describe three way handshake in TCP. Why do we have it only in TCP and not in UDP. 10
- b. Explain how TCP handles error control and flow control? 10
- Q.5.a. State and explain various types of frames in HDLC. 10
- b. Explain OSI and TCP/IP and explain the function of each layer. 10
- Q.6. Write short note on (any two): 20
- a) Berkley API
  - b) CSMA/CD and CSMA/CA
  - c) Domain Name Server