

Duration: 3hrs

[Max Marks:80]

- N.B. : (1) Question No 1 is Compulsory.
(2) Attempt any three questions out of the remaining five.
(3) All questions carry equal marks.
(4) Assume suitable data, if required and state it clearly.

- 1** Attempt any FOUR **[20]**
- a Discuss guided media used in computer networking.
 - b Compare between distance vector routing and link state routing.
 - c Explain error control in computer network.
 - d Explain the persistent strategies of CSMA.
 - e Explain Domain name system.
- 2** a Explain the need for a layered protocol architecture in computer networks. **[10]**
Elaborate on each layer of the OSI model.
- b Explain HDLC (High-Level Data Link Control) in data communication. Discuss its key features, frame structure, and the roles of the different frame types in HDLC. Highlight its significance in network communication. **[10]**
- 3** a An organization is granted the block 211.17.180.0/24. The administrator wants to create 32 subnets. **[10]**
- 1) Find the subnet mask.
 - 2) Find the number of addresses in each subnet.
 - 3) Find the first and last address in subnet 1.
 - 4) Find the first and last addresses in subnet 32.
- b Explain fragmentation in Computer network also compare IPv4 with IPv6. **[10]**
- 4** a Compare the TCP header and the UDP header. List the fields in the TCP header that are not part of the UDP header. Give a reason for each missing field. **[10]**
- b Explain Go-Back-N ARQ and Selective Repeat ARQ **[10]**
- 5** a Explain classfull IP addresses. Justify why subnetting is required. **[10]**
- b What are the different components of an e-mail system? What are the features of SMTP protocol. **[10]**
- 6** Write Short Note on any four. **[20]**
- a) Berkeley API
 - b) Fast speed LAN
 - c) LAN topologies
 - d) Open loop congestion control
 - e) Ethernet switch