(3 Hours) **[Total 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 4 questions [20]
a) Compare circuit switching and packet switching.
b) Illustrate byte count framing method in Data link Layer.
c) Explain the tools to achieve Error control in TCP.
d) How the medium access with Collision avoidance (MACA) protocol works in wireless LAN?
e) Describe Border Gateway protocol (BGP) as a inter-domain Routing protocol?

Q.2 a) Explain Link state Routing protocol with the help of building of Link state packets and distribution of link state packets. [10]
b) Explain HDLC frame format. Describe configuration and response modes supported by HDLC protocol. [10]

Q.3 a) Draw TCP header and explain the meaning of various fields associated with it. [10]
b) What are the different types of CSMA protocols? Explain 1-persistant CSMA protocol. [10]

Q.4 a) The following is a dump of a UDP header in hexadecimal format. [10]
CB84000D001C001C
(i) What is the source port number?
(ii) What is the destination port number?
(iii) What is the total length of the user datagram?
(iv) What is the length of the data?
(v) Is the packet directed from a client to a server or vice versa?
b) Explain Go back N protocol with suitable diagram. [10]

Q.5 a) Explain the function of Repeater, hub, bridge, routers and switches in details and mention in which layer they work. [10]
b) A company is granted the site address 181.56.0.0 (class B). The company needs 1000 subnets. Design the subnets. [05]
c) A bit stream **10011001 11100010 00100100 10000100** is transmitted to the receiver. Apply checksum error detection scheme and check whether data will be accepted at receiver or not? [05]

Q.6 Short notes on: (Attempt any four) [20]
a) IPv4 datagram
b) Point to Point Protocol (PPP)
c) Digital Subscriber Line (DSL)
d) OSI Model
e) Adaptive tree walk Protocol

****