

(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-persistent CSMA protocol. [10]

Q.4 a) The following is a dump of a UDP header in hexadecimal format. [10]

**CB8400D001C001C**

- (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

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