BT-6/M-20   **36156**

COMPUTER NETWORKS

Paper–IT-306 N

Time : Three Hours]   [Maximum Marks : 75

Note : Attempt *five* questions in all taking at least *one* question from each unit.

UNIT–I

1. (a) Differentiate between LAN, MAN, WAN and wireless networks in terms of working principle / technology, capacity and network diameter. (7)

   (b) Explain the roles played by physical layer and network layer in OSI model. (4)

   (c) Explain the concept of protocol data unit and encapsulation. (4)

2. (a) Explain the working of 10base5, 10base10, 10baseT and 100baseFX LAN technologies. (9)

   (b) Describe the functioning of router and switch. (6)

UNIT–II

3. (a) Describe the concept of internet protocol, IP address and subnet. (6)

   (b) Explain following protocols– SMTP, SNMP, ARP. (9)

4. (a) Explain why congestion occurs and how TCP is able to handle it? Describe congestion control mechanism in detail in TCP. (9)

(b) What is IPv6 protocol? How is it different and better (both) from IPv4? (6)

UNIT–III

5. (a) What are different encoding methods? Sketch the Manchester encoding for the bit stream : 0001110101.

(b) What are CRC and parity based error handling methods? Sixteen-bit messages are transmitted using a Hamming code. How many check bits are needed to ensure that the receiver can detect and correct single-bit errors?

(6,9)

6. (a) What do you mean by flow control? Explain sliding window protocol. (9)

(b) Discriminate between the sending window and receiving window sizes for a link and how are they are related with : Selective-repeat protocol and Go-Back-N protocol. (6)

UNIT–IV

7. (a) Describe the connection establishment procedure of TCP. (6)

(b) Explain ATM adaptation layer in detail. (9)

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8. (a) Explain the concept of subnetting. Explain with the help of examples. (6)

(b) Discuss the functioning of DHCP, RIP and OSPF. (9)

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