

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. (9)
- (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)

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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