

2056
B.E. (Information Technology)
Fourth Semester
PCIT-402: Computer Networks

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. I which is compulsory and selecting two questions from each Unit.

x-x-x

I. Answer the following:-

- a) Explain the concept of Quality of Service (QoS) in networking.
- b) What is a network topology? Explain star and bus topology
- c) Explain the concept of subnetting in IP addressing.
- d) Differentiate between analog transmission and digital transmission.
- e) Explain the concept of packet forwarding and routing in the network layer. (5x2)

UNIT - I

- II. a) Explain the basic concepts of computer networks. Discuss different types of networks such as LAN, MAN, WAN, and Wireless Networks.
- b) Describe the different types of transmission media used in computer networks. (6,4)
- III. a) Explain the TCP/IP reference model and compare it with the OSI model.
- b) Compare IEEE 802.3, IEEE 802.4, and IEEE 802.5 standards. (2x5)
- IV. a) Explain flow control mechanisms in the Data Link Layer. Describe Stop-and-Wait and Sliding Window protocols.
- b) Explain the working principle of ALOHA and CSMA protocols. (6,4)

UNIT - II

- V. a) Discuss multiplexing techniques and their applications.
- b) Explain UDP protocol and compare it with TCP in terms of performance and reliability. (2x5)
- VI. a) Explain Distance Vector routing algorithm.
- b) Explain Network Management protocol and its working principle. (2x5)
- VII. a) Describe Domain Name System (DNS) architecture and resolution process.
- b) Discuss TCP flow control and congestion control mechanisms. (2x5)

x-x-x