

Code No: MC2022/20

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY-GURUJADA VIZIANAGARAM

MCA II- Semester Regular & Supplementary Examinations, June- 2025

COMPUTER NETWORKS

Time: 3 Hours

Max. Marks: 70

Question Paper consists of FIVE units, each carrying 14 marks
Each unit has TWO questions; either of them should be answered
All parts of a question must be answered at one place.

UNIT-I

1. a) Compare the OSI and TCP/IP reference models, highlighting their similarities and differences. 7M
- b) Explain the different types of guided transmission media with their characteristics. 7M

(OR)

2. a) Describe the various network topologies and their applications. 7M
- b) Discuss the concepts of bandwidth, latency, and throughput in the context of the physical layer. 7M

UNIT-II

3. a) Explain the concept of framing in the data link layer and describe two methods of framing. 7M
- b) Discuss the differences between error detection and error correction, with examples of codes used for each. 7M

(OR)

4. a) Describe the working of the stop-and-wait protocol for a noisy channel. 7M
- b) Compare and contrast the go-back-n and selective repeat sliding window protocols. 7M

UNIT-III

5. a) Explain the pure ALOHA and slotted ALOHA protocols, and compare their throughput. 7M
- b) Describe the CSMA/CD protocol used in Ethernet. 7M

(OR)

6. a) Discuss the differences between static and dynamic channel allocation in LANs. 7M
- b) Explain the frame structure of IEEE 802.11 wireless LANs. 7M

UNIT-IV

7. a) Explain the store-and-forward packet switching mechanism. 7M
- b) Describe the distance vector routing algorithm with an example. 7M

(OR)

8. a) Discuss the causes of congestion in networks and explain one congestion control algorithm. 7M
- b) Explain the concept of IP addressing and subnetting. 7M

UNIT-V

9. a) Explain the differences between UDP and TCP. 7M
- b) Describe the process of establishing and terminating a TCP connection. 7M

(OR)

10. a) Discuss the working of the Domain Name System (DNS). 7M
- b) Explain how email is transferred using SMTP and POP3/IMAP. 7M