

M. Tech. Distributed & Mobile Computing Examination, 20241st year, 1st Semester**SUBJECT: - Computer Networking Protocols & Techniques**

Time: Three hours

Full Marks: 100

| No. of Questions | Answer any <i>five</i> questions. | Marks |
|------------------|--|-----------------|
| 1. | Compare between: a) End-to-end and Hop-by-hop. b) TCP and UDP. c) Circuit switched network and packet switched network. d) Star and mesh topology. | 5x4 |
| 2. | a) What is internetworking? Mention the user support layers and hardware support layer in OSI model. b) What were the issues that prevented the OSI model to take over the world? c) What is a service model? What are the essential features that needs to be there in a service model? | 3+6 4 4+3 |
| 3. | a) What is the role of address in a packet travelling through datagram network? What are the goals of a good routing algorithm? b) What is piggybacking? What are the advantages and disadvantages of piggybacking? c) Briefly discuss about data link layer design issues? | 2+6 2+6 4 |
| 4. | a) Discuss stop and wait protocol. b) Explain about the Carrier Sense Multiple Access Protocols? c) Explain virtual-circuit network. | 8 8 4 |
| 5. | a) Discuss about concept of i) leaky bucket algorithm and ii) token bucket algorithm with neat diagram. b) What is congestion? What are the reasons of congestion in a network? Discuss ways to reduce congestion. c) Discuss one technique to improve the QoS in a congested network. | 8 2+3+4 3 |
| 6. | a) What are the basic objectives of network security? Explain the seven layers of security. b) What are the various types of attacks? Explain any two with suitable examples. c) Explain the various categories of cryptography. | 4+4 3+6 3 |
| 7. | a) Discuss the key establishment problem. b) Suppose Alice and Bob agreed on p as 7 and g as 5. Find the value of secret keys? c) Explain man in the middle attack with example. | 4 6 10 |