

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VII EXAMINATION – SUMMER 2025

Subject Code:2171008

Date:16-05-2025

Subject Name:Data Communication and Networking

Time:02:30 PM TO 05:00 PM

Total Marks:70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

- Q.1** (a) List out the Uses of Computer Networks. **03**
(b) Compare the Hub, Switches and Routers and Bridges in details. **04**
(c) What do subnetting and supernetting mean? Explain subnetting with suitable example. **07**
- Q.2** (a) Explain the DHCP protocol. **03**
(b) Compare circuit switching and packet switching with suitable diagram **04**
(c) List the various Duties of Transport Layer. Compare TCP and UDP. **07**
- OR**
- (c) What is the need for sliding window? Explain Go back N protocol. **07**
- Q.3** (a) List the functions of Network layer. **03**
(b) Explain PAN, LAN, MAN and WAN. **04**
(c) Explain the channel allocation problem and discuss the solution for it. **07**
- OR**
- Q.3** (a) List the functions of Transport layer. **03**
(b) Compare Pure ALOHA and Slotted ALOHA protocols. **04**
(c) Explain single bit error Detection and Correction algorithm with Example. **07**
- Q.4** (a) Explain TCP operation. Also enlist the uses of TCP. **03**
(b) Compare the IPv4 and IPv6 protocols. **04**
(c) Explain addressing at network layer. How are different classes defined for addressing at network layer? **07**
- OR**
- Q.4** (a) Write note on Adhoc network. **03**
(b) Define: Repeater, Hub, Bridges and Router. **04**
(c) Explain types of Routing Protocols. Differentiate Link state and Distance Vector Routing. **07**
- Q.5** (a) Explain VLAN. **03**
(b) Explain CSMA/CD protocol in detail. **04**
(c) Write a short note on VoIP. **07**
- OR**
- Q.5** (a) What is Domain Name System? Explain it with resource records. **03**
(b) Define cryptography. Explain any one method of symmetric key cryptography. **04**
(c) What is Digital Signature? List the methods used for Digital Signature and explain them in detail. **07**
