

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI (NEW) EXAMINATION – SUMMER 2023****Subject Code:3161007****Date:12-07-2023****Subject Name:Computer Networks****Time:10:30 AM TO 01:00 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) Explain Local Area Network (LAN). **03**
 (b) Discuss Error Detection and Error Correction. **04**
 (c) Draw and explain ISO OSI reference model. **07**
- Q.2** (a) Draw and explain data delivery from Hop to Hop, Source host to Destination host, and Process to Process. **03**
 (b) Define: Connection-Less Service, Connection-Oriented Service, Acknowledged Service and Unacknowledged Service. **04**
 (c) Write a note on Transmission Media. **07**
- OR**
- (c) Draw and explain various network topologies with examples. **07**
- Q.3** (a) Explain Flow Control and Error Control. **03**
 (b) Compare Circuit Switching vs. Packet Switching **04**
 (c) Write a note on HDLC protocol. **07**
- OR**
- Q.3** (a) Explain bit stuffing. **03**
 (b) What is ARQ? Compare link layer ARQ protocols. **04**
 (c) Classify multiple Access Protocols. Explain Pure ALOHA and Slotted ALOHA with necessary diagrams. **07**
- Q.4** (a) Explain Cyclic Redundancy Check (CRC) with example. **03**
 (b) Draw and explain IPV4 header. **04**
 (c) Explain CSMA/CA protocol with necessary diagrams. **07**
- OR**
- Q.4** (a) Explain Classful IP addressing scheme. **03**
 (b) Compare TCP vs. UDP. **04**
 (c) Explain Bluetooth Technology. **07**
- Q.5** (a) What is Network Address Translation (NAT)? Justify the need for NAT. **03**
 (b) Draw and Explain TCP Header. **04**
 (c) Write a note on Domain Name System (DNS). **07**
- OR**
- Q.5** (a) What is Cryptography? List out various Ciphers. Explain any one in detail. **03**
 (b) Explain Shortest Path Algorithm. **04**
 (c) What is congestion and congestion control? Why it is required? List out and explain various policies used for the congestion control. **07**