

Seat No./Enrollment No.: _____

GUJARAT TECHNOLOGICAL UNIVERSITY
BACHELOR OF ENGINEERING – SEMESTER 6 – EXAMINATION – SUMMER 2026

Subject Code: 3161007

Date: 29/05/2026

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) What is Data Communication? Explain need for Data Communication with examples. **03**
(b) Explain Local Area Network (LAN). **04**
(c) List out and explain various network topologies with necessary diagrams. **07**
- Q.2** (a) Explain in brief about Fibre Optic Cable. **03**
(b) Briefly explain Switch and Router with necessary figures and examples. **04**
(c) What is ISO? Compare OSI model vs TCP/IP model. **07**
- OR**
- Q.2** (c) Write a short note on Ethernet Technology. **07**
- Q.3** (a) What is Flow Control and Error Control? **03**
(b) Explain Stop and Wait Protocol with necessary diagrams. **04**
(c) What is Framing? Explain Bit Stuffing and Character Stuffing techniques in detail. **07**
- OR**
- Q.3** (a) Explain Channel Allocation problem. Classify Multiple Access Protocols. **03**
(b) What is Sliding Window Protocol? Explain Selective Repeat Protocol. **04**
(c) Write a note on HDLC protocol. **07**
- Q.4** (a) What is IP Address? Compare Classful addressing vs. Classless addressing. **03**
(b) Compare Circuit Switching vs. Packet Switching. **04**
(c) Explain Pure ALOHA and Slotted ALOHA with necessary diagrams. **07**
- OR**
- Q.4** (a) What is Routing? Compare Static Routing vs. Dynamic Routing. **03**
(b) Explain Bluetooth Technology in detail. **04**
(c) Explain any one routing protocol in detail with necessary diagrams. **07**
- Q.5** (a) List out major responsibilities of Transport Layer? Explain Process to Process Communication. **03**
(b) Explain classes of IP addressing. **04**
(c) Explain Network Security in detail. **07**

OR

Q.5

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| (a) Explain Firewall. Also discuss need of Firewall in Network Security. | 03 |
| (b) Compare TCP vs. UDP. | 04 |
| (c) Explain Domain Name System (DNS) in detail with necessary examples. | 07 |
