

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VI EXAMINATION – SUMMER 2025

Subject Code:3161007

Date:28-05-2025

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.

MARKS

- Q.1**
- | | | |
|-----|--|-----------|
| (a) | Explain Local Area Network (LAN). | 03 |
| (b) | Compare Error Detection vs. Error Correction. | 04 |
| (c) | Draw and explain ISO OSI model and list out major functionalities of all the layers with necessary diagrams. | 07 |

- Q.2**
- | | | |
|-----|--|-----------|
| (a) | Compare OSI model vs. TCP/IP model. | 03 |
| (b) | Compare Circuit Switching vs. Packet Switching. | 04 |
| (c) | Classify and explain Transmission Media in detail. | 07 |

OR

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|-----|--|-----------|
| (c) | What is Network topology? Explain various network topologies with necessary diagrams and examples. | 07 |
|-----|--|-----------|

- Q.3**
- | | | |
|-----|--|-----------|
| (a) | Discuss bit stuffing and unstuffing in detail. | 03 |
| (b) | Explain Go-Back-N ARQ. | 04 |
| (c) | Write a note on HDLC protocol. | 07 |

OR

- Q.3**
- | | | |
|-----|--|-----------|
| (a) | Explain Sliding Window Protocol. | 03 |
| (b) | Write a short note on Ethernet technology. | 04 |
| (c) | Discuss channel allocation problem. Explain Slotted ALOHA with necessary diagrams. | 07 |

- Q.4**
- | | | |
|-----|---|-----------|
| (a) | What is Congestion? Classify Congestion Control Algorithms. | 03 |
| (b) | Explain Hub, Bridge, Switch and Router. | 04 |
| (c) | What is Routing? Explain Shortest path algorithm in detail. | 07 |

OR

- Q.4**
- | | | |
|-----|---|-----------|
| (a) | Compare TCP vs. UDP. | 03 |
| (b) | Explain Bluetooth technology. | 04 |
| (c) | What is IP address? Explain various classes of IP addresses with example. | 07 |

- Q.5**
- | | | |
|-----|---|-----------|
| (a) | What is Cryptography? List out various ciphers. | 03 |
| (b) | Draw and explain IPV4 header with necessary diagrams. | 04 |
| (c) | Explain Domain Name System (DNS). | 07 |

OR

- Q.5**
- | | | |
|-----|---|-----------|
| (a) | Discuss various social issues related to security over Internet. | 03 |
| (b) | Write a note on HTTP. | 04 |
| (c) | What is Network Security? Explain any one security algorithm in detail. | 07 |