

Seat No./Enrollment No.: _____

GUJARAT TECHNOLOGICAL UNIVERSITY
BACHELOR OF ENGINEERING – SEMESTER 5 – EXAMINATION – SUMMER 2026

Subject Code: 3152011

Date: 21/05/2026

Subject Name: Computer Networking for Mechatronics Engineers

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) Define Switch, Hub and Router **03**
 - (b) List two advantages and two disadvantages of having international standards for network protocols **04**
 - (c) Explain OSI Reference Model. **07**
- Q.2**
- (a) Differentiate Simplex, Half duplex and Full duplex Communication. **03**
 - (b) Explain Design Issues for Data link layer. **04**
 - (c) Explain TCP/IP Reference model with suitable diagram. **07**
- OR
- Q.2**
- (c) Compare the approaches of channel allocation using frequency division multiplexing (FDM) and time division multiplexing (TDM). **07**
- Q.3**
- (a) Define Unicasting, Broadcasting and Multicasting. **03**
 - (b) What security protocols are commonly used in Wireless LANs? **04**
 - (c) Explain Link State routing Algorithm. **07**
- OR
- Q.3**
- (a) What are Port addresses? Explain types of Port addresses. **03**
 - (b) Explain Transport Layer in brief. **04**
 - (c) Explain Distance Vector Algorithm. **07**
- Q.4**
- (a) Write full forms: ARP, ICMP, RARP, DHCP, ATM and ISDN. **03**
 - (b) Compare IPv4 and IPv6. **04**
 - (c) Explain OSPF with example. **07**
- OR
- Q.4**
- (a) Define Ethernet, Fast Ethernet and Gigabit Ethernet. **03**
 - (b) What is the shortest path routing algorithm, and how does it work? **04**
 - (c) What is IP address? Explain sub netting with example. **07**
- Q.5**
- (a) Difference between Symmetric Cryptography and Asymmetric Cryptography. **03**
 - (b) Can a machine with a single DNS name have multiple IP addresses? How could this occur? **04**

- (c) Explain the structure and function of the Domain Name System (DNS). **07**
How does it resolve domain names to IP addresses?

OR

- Q.5** (a) Define Digital Signature. Explain Different types of Digital signature. **03**
- (b) Explain WWW and DNS. **04**
- (c) Explain Public key Algorithm – RSA. **07**
