

GUJARAT TECHNOLOGICAL UNIVERSITY

BE(MINOR)- SEMESTER-VI EXAMINATION – SUMMER 2025

Subject Code:116AL01

Date:10-06-2025

Subject Name:Data Communication and Embedded Systems in Electrical Vehicles

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) State requirements for bus systems.	03
(b) Discuss the coupling of networks in vehicular network.	04
(c) Explain classification of bus system.	07
Q.2 (a) What is embedded network?	03
(b) State importance of communication in automation.	04
(c) Discuss design of embedded system.	07
OR	
(c) Discuss application of buses in vehicular networks.	07
Q.3 (a) What is VANET?	03
(b) Write advantages and disadvantages of MOST Bus Bluetooth.	04
(c) Write short note on Flex Ray.	07
OR	
Q.3 (a) Give full form of below (1) LIN (2) VANET (3) TCP	03
(b) Compare CAN and CAN-FD.	04
(c) Write short note on Lin Bus.	07
Q.4 (a) What is network protocol?	03
(b) What is TCP/IP protocol?	04
(c) Define IEEE 802.11P. Explain it with neat diagram.	07
OR	
Q.4 (a) Explain the ARP (Address Resolution Protocol).	03
(b) Describe how message transfer through CAN bus.	04
(c) Explain the standard CAN data frame.	07
Q.5 (a) How does the architecture of ECUs affect their communication with bus interfaces?	03
(b) Describe TTCAN.	04
(c) Discuss advantage and disadvantages of CAN bus.	07
OR	
Q.5 (a) What is CAN open?	03
(b) Describe SAE J1939.	04
(c) What are the latest trends in vehicular networking? Explain advantages of new car networking protocols.	07
