Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VII (NEW) EXAMINATION – SUMMER 2022

Subject Code:3171112 Date:06/06/2022

Subject Name:Automotive Electronics

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.**

			Marks
Q.1	(a)	Explain Electric motor actuators used in automobile.	03
	(b)	Explain Effect of Exhaust Gas Recirculation on Performance	04
	(c)	Explain Idle speed control with relevant diagram	07
Q.2	(a)	Explain Crankshaft Angular Position Sensor in detail.	03
	(b)	Write short note on Evolution of automotive electronics	04
	(c)	Explain the working of Fuel Injector and pulse mode fuel control signal with relevant diagrams and waveforms.	07
		OR	
	(c)	Draw & Explain block diagram of battery operated electric vehicles.	07
Q.3	(a)	Why there is need of Electronics in automobile?	03
	(b)	Explain working of Optical Crankshaft Position Sensor.	04
	(c)	Explain CAN protocol in detail.	07
		OR	
Q.3	(a)	Explain how Alternators used in vehicles.	03
	(b)	Define.. Torque, Power and Fuel Consumption	04
	(c)	With neat diagram explain electronic ignition control system.	07
Q.4	(a)	Explain following sensor 1. MAP 2. EGO 3. TAS	03
	(b)	Explain working of Exhaust gas oxygen sensor.	04
	(c)	Explain Effect of Air/Fuel Ratio on Performance	07
		OR	
Q.4	(a)	Explain following sensor 1. Knock 2. ECT 3. Air Bag Sensor	03
	(b)	Explain Electronic steering control.	04
	(c)	What are the seven mode of fuel control? Explain with neat diagram digital engine control system.	07
Q.5	(a)	Explain Antilock braking system.	03
	(b)	With neat block diagram explain EGR Control.	04
	(c)	Explain the different strokes for Four stroke SI Engine, with suitable diagram?	07
		OR	
Q.5	(a)	Explain Digital Cruise Control.	03
	(b)	Explain Effect of Spark Timing on Performance	04
	(c)	What is hall effect? Explain Position sensor using principal of hall effect. Compare with magnetic reluctance sensor.	07