Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

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

Subject Code:3171112 Date:07-01-2023

Subject Name:Automotive Electronics

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)**	Differentiate open loop and closed loop control systems.	**03**
	(b)	Briefly explain the working of a typical relay.	**04**
	(c)	Describe the working of breaker less ignition system with neat diagram.	**07**
Q.2	**(a)**	Differentiate hot spark plug from cold spark plug.	**03**
	(b)	What do you mean by Electromagnetic interference?	**04**
	(c)	With the aid of a neat sketch explain the construction and theory of operation of a typical oxygen sensor used in vehicle.	**07**
		OR	
	(c)	Write notes on the following: i) Manifold Air Pressure Sensor. ii) EMI Suppression. iii) Integrated engine control.	**07**
Q.3	**(a)**	How do you reduce head light dazzling?	**03**
	(b)	Give a list of the various types of sensors used in the MPFI petrol engine.	**04**
	(c)	Sketch and explain the working of solenoids and stepper motors as actuators in vehicle	**07**
		OR	
Q.3	**(a)**	How the Engine Speed can be monitored using a non contact type sensor?	**03**
	(b)	Explain electronics spark timing/control with as circuit diagram.	**04**
	(c)	Explain the constant current charging method of automotive batteries with a sketch.	**07**
Q.4	**(a)**	Explain Antilock Braking System?	**03**
	(b)	Differentiate Throttle body Injection and Multi port fuel injection system.	**04**
	(c)	Write about the various components of an electronic engine Management system.	**07**
		OR	
Q.4	**(a)**	State the advantages of D.C. generator.	**03**
	(b)	Draw & explain diagram of catalytic converter?	**04**
	(c)	With the aid of sketches explain the construction and working of Mass Air Flow sensors and Throttle position sensor used in vehicle.	**07**
Q.5	**(a)**	Explain the care and maintenance of automotive batteries.	**03**
	(b)	What is the need of altitude and ambient temperature compensation in an electronically managed engine?	**04**
	(c)	Write about the different types of triggering devices in a contact less ignition system.	**07**

OR

Q.5	**(a)**	What do you mean by third brush regulation?	**03**
	(b)	Explain EGR control with neat digram.	**04**
	(c)	Write notes on the following : i) Limitations of a Carburetor. ii) Fuel Injectors in Petrol engine. iii) Exhaust emission control.	**07**

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