Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE – SEMESTER- V EXAMINATION-SUMMER 2023

Subject Code: 3152009 Date: 28/06/2023

Subject Name: Automobile Engineering

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 tractive effort.	**03**
	(b)	Explain the types of force which oppose the motion of a vehicle.	**04**
	(c)	Explain Modification in Engine Design and operating parameters for Emission Control of SI Engine.	**07**
Q.2	**(a)**	Explain Application of IC Engines.	**03**
	(b)	Explain parts of an IC Engine which is used only in Patrol Engine.	**04**
	(c)	Define Detonation. Explain theory of Detonation and effect of Detonation.	**07**
		OR	
	(c)	Explain ignition lag on CI Engine.	**07**
Q.3	**(a)**	Define 1) Octane Number 2)Train Value 3) Camber	**03**
	(b)	In an epicyclic gear train, an arm carriestwo gears A and B having 36 and 45 teeth respectively. If the armrotates at 150 r.p.m. in the anticlockwise direction about the centreof the gear A which is fixed, determine the speed of gear B. If thegear A instead of being fixed, makes 300 r.p.m. in the clockwisedirection, what will be the speed of gear B ?	**04**
	(c)	Explain Torque Transmitting Capacity of Single Plate Clutch by Uniform Wear Theory.	**07**
		OR	
Q.3	**(a)**	State functions of Dual Mass Flywheel and give Advantage of it.	**03**
	(b)	Explain Continuously Variable Transmission.	**04**
	(c)	Explain function of Differential and give classification of it. Explain any one type of it in detail with neat sketch.	**07**
Q.4	**(a)**	Explain under steering and over steering.	**03**
	(b)	Explain function of Drop arm, Drag Link, Stub Axle and Track rod arm.	**04**
	(c)	Explain graphical analysis of Suspension System.	**07**
		OR	
Q.4	**(a)**	Explain braking efficiency.	**03**
	(b)	Explain factors affecting design and selection of suspension system.	**04**
	(c)	Explain Working principles, Features and advantages of Electronic Braking system.	**07**
Q.5	**(a)**	List limitations of ABS.	**03**

	(b)	Explain hybrid vehicles	**04**
	(c)	Explain Sensor used in Automobile.	**07**
		OR	
Q.5	**(a)**	Explain safety provisions made in Electric vehicle.	**03**
	(b)	Explain types of Battery used in Vehicle.	**04**
	(c)	Explain starting system of Automobile Vehicle.	**07**

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