Enrolment No./Seat No_____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–V EXAMINATION – SUMMER 2025

Subject Code:3150210 Date:20-05-2025

Subject Name:Automobile Engines

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)**	In what respect four stroke cycle CI engine differ from that of an SI engine?	**03**
	(b)	Draw the otto cycle on p-V and T-s diagrams and mark the various processes.	**04**
	(c)	Explain Valve timing diagram for 4-stroke C. I. Engine with neat sketch.	**07**
Q.2	**(a)**	What are different air fuel mixture on which an engine can be operated?	**03**
	(b)	Explain working principle of Mechanical fuel pump with neat sketch.	**04**
	(c)	With a neat sketch explain the working principle of a simple carburetor.	**07**
		OR	
	(c)	Explain throttle body injection system with neat sketch.	**07**
Q.3	**(a)**	Give difference between Air and solid injection system.	**03**
	(b)	Enlist properties of C.I engine fuels & define any three.	**04**
	(c)	Draw a schematic diagram of fuel feed pump and explain its working principle.	**07**
		OR	
Q.3	**(a)**	What is the purpose of using a governor in CI engines? What are the two major type of governors?	**03**
	(b)	What is the purpose of a fuel injector? Mention the various parts of an injector assembly.	**04**
	(c)	Explain construction and working of Fuel Injector with neat sketch.	**07**
Q.4	**(a)**	What are the various components to be lubricated in an engine?	**03**
	(b)	Compare the wet sump and dry sump lubrication system.	**04**
	(c)	Enlist types of cooling system & explain Thermo-syphon cooling system with neat sketch.	**07**
		OR	
Q.4	**(a)**	What is delay period and what are the factors that affect it?	**03**
	(b)	Explain factors affecting flame propagation in C.I. Engine.	**04**
	(c)	Explain the stages of combustion with P-θ diagram in S.I. engines	**07**
Q.5	**(a)**	How does the actual scavenging process differ from the theoretical one? Explain by means of suitable graph.	**03**
	(b)	What is meant by supercharging? What is its effect on engine performance?	**04**
	(c)	What is turbocharging? State the types of turbocharging and explain any one with neat sketch.	**07**

OR

Q.5	**(a)**	Explain the principle involved in the measurement of brake power.	**03**
	(b)	Briefly discuss the various efficiency terms associated with an engine.	**04**
	(c)	With a neat sketch, explain an Eddy current dynamometer.	**07**

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