Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–V (NEW) EXAMINATION – WINTER 2021

Subject Code:3150210 Date:20/12/2021

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.**

			MARKS
Q.1	**(a)**	Enlist the Requirements of modern fuel injection system.	**03**
	(b)	Give difference between four stroke & two stroke engine.	**04**
	(c)	Explain Valve timing diagram for S.I Engine with neat sketch.	**07**
Q.2	**(a)**	Explain Requirements of an automotive carburetor	**03**
	(b)	Explain working principle of Mechanical fuel pump with neat sketch.	**04**
	(c)	Explain MPFI system for petrol engine with neat sketch.	**07**
		OR	
	(c)	Explain construction & working of Solex Carburetor with neat sketch.	**07**
Q.3	**(a)**	Give difference between Air and solid injection system.	**03**
	(b)	Explain Mechanical governor with neat sketch.	**04**
	(c)	Explain CRDI system for diesel engine with neat sketch.	**07**
		OR	
Q.3	**(a)**	Enlist properties of C.I engine fuels & define any two.	**03**
	(b)	Explain Pneumatic governor with neat sketch.	**04**
	(c)	Explain different types of Injector nozzles with neat sketch.	**07**
Q.4	**(a)**	Define any three factors affecting detonation in S.I engine.	**03**
	(b)	Explain wet & dry lubrication system with neat sketch.	**04**
	(c)	Explain Stages of combustion in S.I Engine with pressure & crank angle ($P - \theta$) diagram.	**07**
		OR	
Q.4	**(a)**	Define any three engine lubricant properties	**03**
	(b)	Explain Knocking phenomenon in C.I engine.	**04**
	(c)	Enlist types of cooling system & explain Thermo-syphon cooling system with neat sketch.	**07**
Q.5	**(a)**	Define following (a) Indicated horse power (b) Brake horse power (c) Friction horse power	**03**
	(b)	Enlist types of supercharging methods & explain any one with neat sketch.	**04**
	(c)	Explain working principle of turbocharger with neat sketch & also state its advantages over supercharger.	**07**
		OR	
Q.5	**(a)**	Define scavenging & explain its importance in brief.	**03**
	(b)	Define following engine efficiencies: (a) Mechanical (b) Thermal (c) Volumetric (d) relative.	**04**
	(c)	What is heat balance sheet for an IC engine? Explain how it is prepared?	**07**

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