Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

PDDC - SEMESTER – V • EXAMINATION – WINTER 2012

Subject code: X 51904 **Date: 21/01/2013**

Subject Name: Internal Combustion Engine

Time: 02.30 pm - 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.**

Q.1	**(a)**	What do you mean by air standard cycle? List assumption for air standard cycle. Compare air standard and actual cycle for S I. engines.	**07**
	(b)	Explain working of a 4 stroke C.I. Engine on the Valve timing diagram.	**07**
Q.2	**(a)**	Discuss advantages and disadvantages of CNG as a IC engine fuel.	**07**
	(b)	Find the percentage change in efficiency of an Otto cycle having compression ratio of 10, if the Specific heat at constant volume decreases by 2 %.	**07**
		OR	
	(b)	What are desirable properties of I.C Engine Fuels?	**07**
Q.3	**(a)**	Describe a simple carburetor with sketch and explain the function of choke, venturi and throttle valve.	**07**
	(b)	Why Nozzles are required? Discuss types of nozzles with diagrams.	**07**
		OR	
Q.3	**(a)**	With a neat sketch explain Working and constructional detail of a Bosch fuel injection pump.	**07**
	(b)	Explain MPFI system with a neat diagram.	**07**
Q.4	**(a)**	What is ignition timing? Discuss various factors affecting ignition timing requirements.	**07**
	(b)	List out various component of Battery ignition system and explain in brief.	**07**
		OR	
Q.4	**(a)**	What is the effect of supercharging on performance of the engine?	**07**
Q.4	**(b)**	What do you understand by Knocking in S.I engine? Explain factors affecting knocking and methods to control Knocking.	**07**
Q.5	**(a)**	What are basic requirement of a good CI engine combustion chamber. Discuss different types of combustion chambers for CI engine.	**07**
	(b)	Explain emission of I.C engines and steps to control them.	**07**
		OR	
Q.5	**(a)**	Explain Wankle engine with a sketch.	**07**
	(b)	Describe methods to measure Indicated power of I.C Engine.	**07**

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