Seat No.: _____ *Enrolment No._____*

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. - SEMESTER – I • EXAMINATION – WINTER • 2013

Subject code: 711108N **Date: 06-01-2014**

Subject Name: Combustion Engineering

Time: 10.30 am – 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. **Draw neat sketch wherever required.**

Q.1	**(a)**	Explain stages of combustion with help of P – θ diagram for compression ignition engines.	**07**
	(b)	Explain "Knocking in C.I. engines."	**07**
Q.2	**(a)**	State and explain various methods to reduce knocking tendency of C.I. engines.	**07**
	(b)	State what are the requirements of good combustion chamber.	**07**
		OR	
	(b)	Draw various types of nozzles of C.I. engines.	**07**
Q.3	**(a)**	Classify various types of gaseous fuels.	**07**
	(b)	Classify fluidized Bed Combustion and explain any one.	**07**
		OR	
Q.3	**(a)**	Explain with neat sketch pre-combustion chamber.	**07**
	(b)	With neat sketch explain Battery Ignition System and state its limitations.	**07**
Q.4	**(a)**	State effect of Ignition advance angle on performance of S.I. engine.	**07**
	(b)	Explain various methods used to burn pulverized fuel.	**07**
		OR	
Q.4	**(a)**	Explain "Adiabatic Flame Temperature."	**07**
	(b)	Explain effect of excess air variation on combustion of solid fuels.	**07**
Q.5	**(a)**	"Cyclone Burner" Explain with neat sketch.	**07**
	(b)	Differentiate between Proximate Analysis and Ultimate Analysis of coal.	**07**
		OR	
Q.5	**(a)**	Explain difference between Higher Calorific Value and Lower Calorific Value of fuel.	**07**
	(b)	Describe the procedure to determine calorific value of fuel with the help of Bomb Calorimeter.	**07**

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