Seat No.: _____ *Enrolment No._____*

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. - SEMESTER – I • EXAMINATION – SUMMER • 2014

Subject code: 712104N **Date: 24-06-2014**

Subject Name: Combustion Engineering

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)**	Explain design considerations for combustion chambers in S I Engine.	**07**
	(b)	Explain factors affecting the delay period in C I Engine.	**07**
Q.2	**(a)**	List out different types of reactions during combustion. Explain any two.	**07**
	(b)	Explain first law analysis for steady state reacting system.	**07**
		OR	
	(b)	A hydrocarbon fuel has the following composition of dry products of combustion by volume: CO_2=12%, CO=0.5%, O_2=4%, and the rest N_2. Find the air/fuel ratio and the percent theoretical air.	**07**
Q.3	**(a)**	What do you mean by stoichiometric. Explain stoichiometric equation.	**07**
	(b)	Explain enthalpy of formation in brief.	**07**
		OR	
Q.3	**(a)**	Explain the effects of variable specific heat on air standard cycles.	**07**
	(b)	Explain chemical equilibrium in brief.	**07**
Q.4	**(a)**	Explain spray evaporation in brief.	**07**
	(b)	Explain coal combustion in brief.	**07**
		OR	
Q.4	**(a)**	Explain overall spray structure.	**07**
	(b)	Explain design considerations of coal burners.	**07**
Q.5	**(a)**	Discuss combustion generated pollutions.	**07**
	(b)	Explain M-combustion chamber.	**07**
		OR	
Q.5	**(a)**	Explain detonation of liquid gaseous mixtures.	**07**
	(b)	Explain abnormal combustion in brief.	**07**

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