Seat No.: _____ *Enrolment No._____*

GUJARAT TECHNOLOGICAL UNIVERSITY

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

Subject code: 711108 **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 mark.**

Q.1	**(a)**	What is ignition lag? Discuss the effect of engine variables on ignition lag.	**07**
	(b)	Discuss the effect of following engine variables on flame propagation: (i) Compression ratio (ii) Turbulence (iii) Engine speed	**07**
Q.2	**(a)**	Describe the phenomenon of detonation in S.I. engines.	**07**
	(b)	Discuss the general principles of S.I. engine combustion chamber design.	**07**
		OR	
	(b)	Explain: (i) Preignition (ii) Run away (iii) Wild ping.	**07**
Q.3	**(a)**	Discuss pollution due to combustion of coal in power plants.	**07**
	(b)	Explain M-combustion chamber with neat sketch.	**07**
		OR	
Q.3	**(a)**	Discuss the method for determination of theoretical air required for complete combustion of coal.	**07**
	(b)	Discuss various methods used in combustion of pulverized coal.	**07**
Q.4	**(a)**	Explain the phenomenon of diesel knock.	**07**
	(b)	Discuss the advantages and disadvantages of induction swirl.	**07**
		OR	
Q.4	**(a)**	Discuss the variables affecting fuel atomization and penetration.	**07**
Q.4	**(b)**	Explain effect of compression ratio on thermal efficiency and specific fuel consumption.	**07**
Q.5	**(a)**	Explain design considerations of coal burners.	**07**
	(b)	Explain fluidized bed combustion.	**07**
		OR	
Q.5	**(a)**	Explain with help of P-ɗ diagram combustion in C.I. Engine.	**07**
	(b)	Explain spray formation and characteristics.	**07**

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