Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME – SEMESTER-1 (NEW) EXAMINATION – WINTER 2016

Subject Code: 2711108 **Date:06/01/2017**

Subject Name: Combustion Engineering

Time: 2:30 pm to 5:00 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)**	Define Ignition limit. With the help of P-Ө diagram explain the stages of combustion in SI engine.	**07**
	(b)	Difference between knocking, Detonation and Pre – Ignition with diagram.	**07**
Q.2	**(a)**	Effect of engine operating variable on engine knocking.	**07**
	(b)	Explain physical delay and chemical delay period in CI engine with the help of P-Ө diagram.	**07**
		OR	
	(b)	Define combustion reaction and steady state 1st law of thermodynamics as applied to combustion reaction.	**07**
Q.3	**(a)**	Explain following terms. 1. Enthalpy of reaction. 2. Equivalent ratio.	**07**
	(b)	Write short note on different types of flames. Explain chain reaction and opposing reaction.	**07**
		OR	
Q.3	**(a)**	Define Ignition lag in SI engine and factors affecting Ignition lag in SI engine.	**07**
	(b)	What is difference between air swirl created in SI & CI engine. Explain combustion swirl in CI engine.	**07**
Q.4	**(a)**	Explain working of fluidized bed combustion with neat sketch.	**07**
	(b)	List Design consideration of coal burner.	**07**
		OR	
Q.4	**(a)**	Define 1. Wild ping 2. Rumble.	**07**
	(b)	Explain with diagram the different types of liquid fuel atomizer.	**07**
Q.5	**(a)**	Ricardo's turbulent combustion Chamber-Explain with neat sketch.	**07**
	(b)	Write short note on Pre - Combustion chamber for with neat sketch.	**07**
		OR	
Q.5	**(a)**	Discuss pollution of environment due to Diesel Engine operation.	**07**
	(b)	Method to identify pre- ignition in multi cylinder engine.	**07**

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