Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. - SEMESTER – II • EXAMINATION – SUMMER • 2013

Subject code: 1721105 **Date: 05-06-2013**

Subject Name: High Speed Diesel Engine

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.**

Q.1	**(a)**	Explain various stages of combustion is Diesel engine with fig.	**07**
	(b)	Explain Common Rail Direct Injection technique with fig.	**07**
Q.2	**(a)**	State and explain the functions of injection nozzles. Give its various types.	**07**
	(b)	Calculate for 4-cylinder, four stroke Diesel engine, the quantity of fuel to be injected per cylinder per cycle if the engine consumes 0.3 kg/kWh. The power developed by the engine is 375 kW at a speed of 200 rpm. Take sp. Gravity of fuel as 0.9.	**07**
		OR	
	(b)	Make comparison between direct and indirect combustion chambers. Explain Pre-combustion chamber in short.	**07**
Q.3	**(a)**	Define delay period. Explain the effect of various operating variables on it for diesel engine.	**07**
	(b)	Write short note on M combustion chamber.	**07**
		OR	
Q.3	**(a)**	State and explain the difference between actual and theoretical diesel cycle with fig.	**07**
	(b)	Explain distributor pump in detail.	**07**
Q.4	**(a)**	Discuss induction swirl, compression swirl and combustion swirl.	**07**
	(b)	Explain phases of spray formation in diesel engine.	**07**
		OR	
Q.4	**(a)**	Explain special features of agricultural and industrial engine.	**07**
	(b)	Write short note on turbo charging methods.	**07**
Q.5	**(a)**	Write short note on multi fuel engines	**07**
	(b)	Explain different criteria for turbo charger selection. Give various types of turbo chargers.	**07**
		OR	
Q.5	**(a)**	Explain latest developments of combustion chambers	**07**
	(b)	Explain necessity and limitations of turbo charging of diesel engine.	**07**

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