Seat No.: _____ **Enrolment No._____**

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VI (OLD) - EXAMINATION – SUMMER 2017

Subject Code: 161902 **Date: 16/05/2017**

Subject Name: Internal Combustion Engines

Time: 10:30 AM to 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)**	List all the engine performance parameters. Explain any three in detail.	**07**
	(b)	With neat diagram explain valve timing diagrams for four stroke diesel engine.	**07**
Q.2	**(a)**	What do you mean by term:"Supercharging". Explain Turbocharger.	**07**
	(b)	Discuss the effects of supercharging on engine power output and mechanical efficiency.	**07**
		OR	
	(b)	What are the different methods of scavenging? Explain.	**07**
Q.3	**(a)**	What is MPFI system? Explain with neat sketch.	**07**
	(b)	What is CRDI system? Explain with neat sketch.	**07**
		OR	
Q.3	**(a)**	Explain with sketch different types of nozzles used in C.I. Engines.	**07**
	(b)	What do you mean by "Carburetion". Discuss the factors affecting carburetion.	**07**
Q.4	**(a)**	What is Biodiesel? Discuss about its properties and use in engine.	**07**
	(b)	"Highly octane fuel increases engine efficiency." Is this statement True/False? Why?	**07**
		OR	
Q.4	**(a)**	Write a short note on: "Catalytic Converters."	**07**
	(b)	With neat diagram explain: Battery Ignition system.	**07**
Q.5	**(a)**	In a Morse test with four cylinder four stroke petrol engine, the following data were recorded; B.P. with all cylinders working = 32 kW B.P. with cylinder no. 1 cut off = 21.6 kW B.P. with cylinder no. 2 cut off = 22.3 kW B.P. with cylinder no. 3 cut off = 22.5 kW B.P. with cylinder no. 4 cut off = 23 kW Determine the I.P. of the engine. Also calculate mechanical efficiency of engine.	**07**
	(b)	Explain stages of combustion in S.I. Engine.	**07**
		OR	
Q.5	**(a)**	During trial on single cylinder four stroke diesel engine the following observations made: Cylinder Bore = 200mm Piston Stroke = 400mm Mean effective pressure = 6 bar Torque = 407 N-m Speed of engine = 250 rpm fuel consumption = 4 kg/hr. C.V. of Fuel = 43,000 KJ/kg. Calculate: (i) B.P. (ii) I.P.(iii) η mech (iv) η indicated thermal (v) b.s.f.c.	**07**
	(b)	Explain stages of combustion in C.I. Engine.	**07**

****