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Seat No.:	Enrolment No.

## GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. - SEMESTER – III • EXAMINATION – WINTER 2012

Subje	ect o	code: 732101 Date: 26/12/2012	
Subje	ect l	Name: Advanced Internal Combustion Engine	
Time	: 10	.30 am – 01.00 pm Total Marks: 70	
Instr	uct	ions:	
		Attempt all questions.	
		Make suitable assumptions wherever necessary.	
	3.	Figures to the right indicate full marks.	
Q.1	(a)	How the specific fuel consumption varies with power for (i) air standard	07
		cycle (ii) fuel air cycle (iii) actual cycle?	
	<b>(b)</b>		<b>07</b>
		a. Otto cycle  e. Ericsson cycle	
		<ul><li>b. Diesel cycle</li><li>c. Limited Pressure cycle</li><li>g. Stirling cycle</li></ul>	
		d. Joule or Brayton cycle	
Q.2	(a)	What is the present state of alcohols for use as an alternative fuel for I.C.	<b>07</b>
	<i>a</i> >	Engine?	0=
	<b>(b)</b>	Describe the rating of CI and SI Engine Fuel.  OR	07
	<b>(b)</b>	Explain Alternative fuel for IC Engine with pros and cons.	07
	(~)	Zipimi i zivimi ve tavi to zio Ziigimi vi im pros and consi	•
Q.3	(a)	Explain with neat sketch "Vacuum spark advance mechanism".	<b>07</b>
	<b>(b)</b>	Explain methods of generating air swirl in the CI engine.	<b>07</b>
Q.3	(a)	OR Define & Explain Knocking, Detonation & Ignition lag.	07
Ų.J	(b)		07
	()	a. Fuel-air ratio d. Compression ratio	
		b. Engine load e. Engine Speed	
		c. Turbulence	
Q.4	(a)	Explain hybrid propulsion system. State its advantages & limitations.	07
Q.1	(b)	Explain separately scavenged two stroke engines.	07
	` '	OR	
Q.4	(a)	Explain new materials for IC engine component.	07
	<b>(b)</b>	Explain optical methods for flame velocity measurement.	07
Q.5	(a)	Explain causes of Diesel smoke and control	07
Q.C	(b)	Describe Noise pollution & its control.	07
		OR	
Q.5	(a)	Explain emission in SI and compare it with Diesel emission	07
	<b>(b)</b>	Explain effect of engine emission on human health & biological sphere.	07

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