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Name:	
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Invigilator's Signature :	

CS/B.TECH(AUE)/SEM-8/AUE-821/2012 2012

ALTERNATIVE FUELS AND ENERGY SYSTEM

Time Allotted: 3 Hours Full Marks: 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

GROUP - A

(Multiple Choice Type Questions)

1. Choose the correct alternatives from the following:

 $10 \times 1 = 10$

- i) Gasohol is mixture of
 - a) 90% ethanol + 10% gasoline
 - b) 10% ethanol + 90% gasoline
 - c) 40% ethanol + 60% water
 - d) 90% methanol + 10% ethanol.
- ii) Stoichiometric air fuel ratio of a alcohol when compared to gasoline is
 - a) higher

b) lower

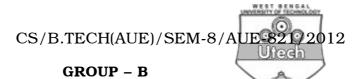
c) equal

d) none of these.

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	_			<u>Uitedh</u>		
iii)	Anti-knock character of methanol compared to ethanol					
	is			A Agentus (y' Kanylinfer Ital Explicate		
	a)	higner	b)	lower		
	c)	same	d)	none of these.		
iv)	Octane No. of LPG is about					
	a)	50	b)	70 – 80		
	c)	80 – 90	d)	105 – 115.		
v)	Self ignition temp. of diesel compared with gasoline is					
	a)	higher	b)	lower		
	c)	same	d)	none of these.		
vi)	Calo	orific value of CNG com	pare	d to LPG is		
	a)	higher	b)	lower		
	c)	same	d)	none of these.		
vii)	Viso	cosity of Raw Jatropha	oil in	centistokes unit is		
	a)	$4 \cdot 2$	b)	14.2		
	c)	38	d)	3.8.		
viii)) Fire point of bio-diesel is					
	a)	50°C	b)	1050°C		
	c)	180°C	d)	0°C.		
ix)	For high octane No. of a fuel, Flame speed is					
	a)	higher	b)	lower		
	c)	same	d)	none of these.		
x)	Steam reformation is a process of making					
	a)	bio-diesel	b)	CNG		
	c)	Hydrogen	d)	LPG.		



(Short Answer Type Questions)

Answer any three of the following.

 $3 \times 5 = 15$

- 2. What are the requirements of an ideal gasoline fuel?
- 3. State the temperature ranges of various fuels we get from crude oil during refining.
- 4. Compare hydrogen and petrol as a SI engine fuel.
- 5. What are the advantages of CNG as a SI engine fuel?
- 6. Write the basic features of solar cell.

GROUP - C

(Long Answer Type Questions)

Answer any *three* of the following. $3 \times 15 = 45$

- 7. a) Define the following properties of a fuel:
 - i) Fire point
 - ii) Calorific value
 - iii) Cloud point
 - iv) Aniline point.

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- b) Write the advantages and disadvantages of solar energy.
- 8. a) What is Bio-diesel?

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- b) Compare the various properties of diesel, raw jatropha and bio-diesel.6
- c) What are the advantages and disadvantages of biodiesel?

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9.	a)	What are the various methods of hydrogen storage?	3
	b)	Describe various methods of using hydrogen in	ю
		engines.	5
	c)	Hydrogen is a dangerous as well as a safe fuel. Why?	
			7
10.	a)	What are the differences between LPG & CNG?	3
	b)	Write the advantages and disadvantages of LPG.	5
	c)	Compare the various properties of Methanol, Ethan	ıol
		and Gasoline.	7
11.	a)	Discuss alcohol as an SI and a CI engine fuels.	7
	b)	Write the advantages and disadvantages of methan	ıol
		and ethanol.	8

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