	Utech
<i>Name</i> :	
Roll No.:	The State of State Line and Excellent
Invigilator's Signature :	

CS/B.TECH(AUE)/SEM-8/AUE-821/2010 2010

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 for 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) Relative density (air = 1) of LPG over CNG is
 - a) higher

b) lower

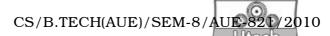
c) equal

d) difficult to predict.

8260 [Turn over

CS/B.TECH(AUE)/SEM-8/AUE-821/2010

iii)	Anti	-knock character	of methar	uned to ethanol	
111)	is	r knock character	or methal	The compared to contain a	
	a)	higher	b)	lower	
	c)	same	d)	none of these.	
iv)	Octa	ane no. of CNG is a	ıbout		
	a)	50	b)	70 - 80	
	c)	80 - 90	d)	115 - 125.	
v)	Auto ignition temperature of LPG compared with CNG is				
	a)	higher	b)	lower	
	c)	same	d)	none of these.	
vi)	Calorific value of Hydrogen in MJ/kg is about				
	a)	85	b)	95	
	c)	45	d)	120.	
vii)	Viscosity of Raw Jatropha oil in centistokes unit is			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.	
80			2		



- 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) biodiesel
- b) CNG
- c) Hydrogen
- d) LPG.

GROUP - B

(Short Answer Type Questions)

Answer any three of the following.

 $3 \times 5 = 15$

- 2. Explain the reasons of looking for alternative fuels for IC engines.
- 3. What are the differences between P-type and N-type semiconductors?
- 4. Compare vegetable oil and biodiesel as a fuel.
- 5. What are the disadvantages of methanol as an SI engine fuel?
- 6. Write the disadvantages of solar energy.

GROUP - C

(Long Answer Type Questions)

Answer any three of the following.

 $3\times15=45$

- 7. a) Define the following properties of a fuel:
 - i) Flash point
 - ii) Calorific Value
 - iii) Cetane no.
 - iv) Octane no.
 - v) Viscosity.

8

b) Write the values of above mentioned properties of biodiesel, LPG, Ethanol. 7

8260

3

[Turn over

CS/B.TECH(AUE)/SEM-8/AUE-821/2010

8.	a)	What is Biodiesel?	;		
	b)	Compare the various properties of diesel, raw jatropha			
		and biodiesel.	,		
	c)	What are the advantages and disadvantages of biodiesel?			
9.	a)	Describe how sunlight is converted into electricity in a	ı		
		solar cell.	;		
	b)	What are the advantages of using solar cell.	;		
	c)	Discuss the various methods of hydrogen production.	;		
10.	a)	Compare the properties between LPG & petrol.	,		
	b)	Write the advantages and disadvantages of CNG.	,		
	c)	Write the basic parts of an LPG kits.	,		
11.	a)	Discuss alcohol as an SI and CI engine fuels.	7		
	b)	Compare the properties of Gasoline, Methanol and	l		
		Ethanol. 8	;		

8260 4