



Name :

Roll No. :

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 × 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.



GROUP – B

(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. 8
- b) Write the advantages and disadvantages of solar energy. 7
8. a) What is Bio-diesel ? 3
- b) Compare the various properties of diesel, raw jatropha and bio-diesel. 6
- c) What are the advantages and disadvantages of bio-diesel ? 6

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9. a) What are the various methods of hydrogen storage ? 3
- b) Describe various methods of using hydrogen in IC 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, Ethanol and Gasoline. 7
11. a) Discuss alcohol as an SI and a CI engine fuels. 7
- b) Write the advantages and disadvantages of methanol and ethanol. 8

