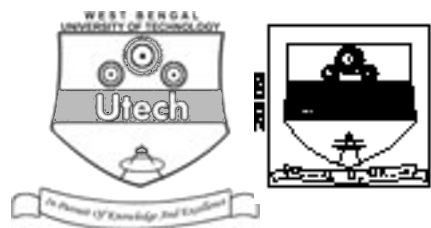


## ALTERNATE FUELS AND ENERGY SYSTEMS ( SEMESTER - 8 )

CS/B.TECH (AUE-NEW)/SEM-8/AUE-821/09



1. ....  
Signature of Invigilator

2. ....  
Signature of the Officer-in-Charge

Reg. No.

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Roll No. of the  
Candidate

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

CS/B.TECH (AUE-NEW)/SEM-8/AUE-821/09  
ENGINEERING & MANAGEMENT EXAMINATIONS, APRIL – 2009  
ALTERNATE FUELS AND ENERGY SYSTEMS ( SEMESTER - 8 )

Time : 3 Hours ]

[ Full Marks : 70

### INSTRUCTIONS TO THE CANDIDATES :

1. This Booklet is a Question-cum-Answer Booklet. The Booklet consists of **32 pages**. The questions of this concerned subject commence from Page No. 3.
2. a) In **Group – A**, Questions are of Multiple Choice type. You have to write the correct choice in the box provided **against each question**.  
b) For **Groups – B & C** you have to answer the questions in the space provided marked 'Answer Sheet'. Questions of **Group – B** are Short answer type. Questions of **Group – C** are Long answer type. Write on both sides of the paper.
3. **Fill in your Roll No. in the box** provided as in your Admit Card before answering the questions.
4. Read the instructions given inside carefully before answering.
5. You should not forget to write the corresponding question numbers while answering.
6. Do not write your name or put any special mark in the booklet that may disclose your identity, which will render you liable to disqualification. Any candidate found copying will be subject to Disciplinary Action under the relevant rules.
7. **Use of Mobile Phone and Programmable Calculator is totally prohibited in the examination hall.**
8. You should return the booklet to the invigilator at the end of the examination and should not take any page of this booklet with you outside the examination hall, **which will lead to disqualification**.
9. Rough work, if necessary is to be done in this booklet only and cross it through.

**No additional sheets are to be used and no loose paper will be provided**

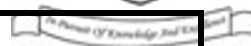
### FOR OFFICE USE / EVALUATION ONLY

Marks Obtained

	Group – A										Group – B					Group – C					Total Marks	Examiner's Signature
Question Number																						
Marks Obtained																						

.....  
Head-Examiner/Co-Ordinator/Scrutineer

8864 (25/04)



**DO NOT WRITE ON THIS PAGE**



**ENGINEERING & MANAGEMENT EXAMINATIONS, APRIL - 2009**  
**ALTERNATE FUELS AND ENERGY SYSTEMS**  
**SEMESTER - 8**



Time : 3 Hours ]

[ Full Marks : 70

**GROUP – A**

**( Multiple Choice Type Questions )**

1. Choose the correct alternatives for the following : 10 × 1 = 10

i) Steam reformation is a process of making

- |               |         |
|---------------|---------|
| a) Bio-diesel | b) CNG  |
| c) Hydrogen   | d) LPG. |

ii) For high Octane no. of a fuel, flame speed is

- |           |                   |
|-----------|-------------------|
| a) higher | b) lower          |
| c) same   | d) none of these. |

iii) Fire point of bio-diesel is

- |          |                            |
|----------|----------------------------|
| a) 50°C  | b) 1050°C                  |
| c) 180°C | d) zero degree centigrade. |

iv) Octane no. of LPG is about

- |            |               |
|------------|---------------|
| a) 50      | b) 70 – 80    |
| c) 80 – 90 | d) 105 – 115. |

v) Gasohol is mixture of

- |                               |
|-------------------------------|
| a) 90% ethanol + 10% gasoline |
| b) 10% ethanol + 90% gasoline |
| c) 40% ethanol + 60% water    |
| d) 90% metanol + 10% ethanol. |

of these.

- 

**( Short Answer Type Questions )**

$$3 \times 5 = 15$$

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5

**GROUP – C**

**( Long Answer Type Questions )**

Answer any *three* of the following questions.



3 × 15 = 45

- |     |      |  |   |
|-----|------|--|---|
| 7.  | a)   | Define the following properties of a fuel :                            | 8 |
|     | i)   | Fire point   |   |
|     | ii)  | Calorific value  |   |
|     | iii) | Cloud point  |   |
|     | iv)  | Aniline point.   |   |
|     | 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 |
| 9.  | a)   | What are the various methods of hydrogen storage ?                     | 3 |
|     | b)   | Describe the 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 SI and CI engine fuels.                             | 7 |
|     | b)   | Write the advantages and disadvantages of methanol and ethanol.        | 8 |

END