



### VI SEMESTER B. TECH (Open Elective)

### END SEMESTER MAKE UP EXAMINATIONS, JUNE 2018

### SUBJECT: INTRODUCTION TO ALTERNATIVE FUELS AND APPLICATIONS [MME 3285]

### REVISED CREDIT SYSTEM

Time: 3 Hours

MAX. MARKS: 50

#### Instruction to Candidates:

❖ Answer **ALL** the questions.

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|------|--|----|
| 1A.  | How alternative fuels are environment friendly fuels? Explain.                     | 03 |
| 1B.  | Is the Producer gas is renewable fuel? Explain with suitable reasons.              | 03 |
| 1C.  | List the properties of methanol and ethanol.                                       | 02 |
| 1.D. | What are the limitations of alternative fuels?                                     | 02 |
| 2A.  | How ethanol is produced using dry milling process? Explain.                        | 04 |
| 2B.  | Write a note on second generation bio-ethanol.                                     | 02 |
| 2C.  | What are the requirements of SI engine liquid fuels?                               | 02 |
| 2.D. | Explain the different methods of utilizing alternative liquid fuels in SI engines. | 02 |
| 3A.  | What are the advantages of biodiesel in a country like India?                      | 03 |
| 3B.  | What are the advantages of disadvantages of emulsified fuels?                      | 03 |
| 3C.  | Explain the role of blending of liquid fuels in CI engine.                         | 02 |
| 3D.  | What are the drawbacks of oxygen rich alternative fuels?                           | 02 |
| 4A.  | Discuss in detail the importance of biogas from an Indian perspective.             | 03 |
| 4B.  | Why hydrogen is referred as a "freedom fuel"?                                      | 02 |
| 4C.  | How starches, fats and proteins are converted into biogas? Explain.                | 03 |
| 4D.  | Write a note on dual fuel technique.   | 02 |
| 5A.  | What are the different types of configurations of hybrid vehicle                   | 02 |

- 5B.** With a neat sketch, explain the working of Direct Methanol Fuel Cell (DMFC). **03**
- 5C.** What are the benefits of series configuration hybrid vehicle? **02**
- 5D.** What are the advantages and disadvantages of fuel cells? **03**