

GUJARAT TECHNOLOGICAL UNIVERSITY
ME – SEMESTER II– • EXAMINATION – SUMMER 2015

Subject Code: 2723913**Date: 30/05/ 2015****Subject Name: ALTERNATIVE FUELS FOR TRANSPORTATION****Time: 2:30 to 5.00 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Write a short note on need for an alternative fuel **07**
(b) What are the significant properties required to be considered in case of liquid fuels used in automobiles? **07**
- Q.2** (a) What are the major advantages of alcohol fuels? **07**
(b) What do you mean by M85 and E85? Compare them. **07**
- OR**
- (b) Explain one method of production of ethanol fuel. **07**
- Q.3** (a) Explain the combustion characteristics required for alcohol blends in CI engine. **07**
(b) What are the properties of bio diesel that makes it suitable to be used as engine fuel? **07**
- OR**
- Q.3** (a) Enlist biodiesel formulation techniques. Explain any one in detail. **07**
(b) Enlist desirable properties in a vegetable oil as a fuel. Also state pros and cons of vegetable oil. **07**
- Q.4** (a) Explain how LPG can be used in SI and CI engines and discuss their performance characteristics. **07**
(b) Write a short note on CNG conversion kit. **07**
- OR**
- Q.4** (a) Compare gasoline with LPG **07**
(b) Write the chemical equation for esterification of vegetable oil and explain esterification process. **07**
- Q.5** (a) Discuss the availability and properties of the following fuels; (a) H₂ (b) CNG (c) LNG. **07**
(b) Explain precautions to be taken in handling hydrogen. **07**
- OR**
- Q.5** (a) Explain the process of biomass gasification with related chemical equations. **07**
(b) Evaluate the methods of storage of hydrogen. **07**