

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-VII(OLD) • EXAMINATION – WINTER 2016

Subject Code: 170205**Date: 18/11/2016****Subject Name: Alternative Fuels & Engines (Department Elective-I)****Time: 10:30 AM to 01:00 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) Explain briefly requirements and uses of biogas in I.C. engine. **07**
 (b) Write a short note on vegetable oil as an alternate fuel. **07**

- Q.2** (a) Write a short note on ‘LPG as an engine fuel’ for I.C. Engine. **07**
 (b) Explain the term calorific values of fuels and discuss advantages and disadvantages of gaseous fuel over liquid fuels. **07**

OR

- (b) Explain working of Wankel engine with neat sketch. **07**

- Q.3** (a) Write a short note on ‘CNG as an engine fuel’ for I.C. Engine. **07**
 (b) Write a short note on green house effect. **07**

OR

- Q.3** (a) Describe advantages & disadvantages and limitation of electric vehicles. **07**
 (b) Write a short note on biodiesel production process. **07**

- Q.4** (a) Explain different emission norms as per BS-I,II,III,IV for the engines in brief. **07**
 (b) Write a short note on eco friendly plastic fuels. **07**

OR

- Q.4** (a) Discuss advantages and disadvantage of Liquid Hydrogen as fuel for IC engine. **07**
 (b) Explain the requirements for the development of alternative fuels and discuss the barriers in implementing alternative fuels in India. **07**

- Q.5** (a) Explain the process of Esterification and its important role for fuels in I.C.Engines. **07**
 (b) Explain combustion process & production process of methanol. **07**

OR

- Q.5** (a) Explain the solar powered automobiles with its layout. **07**
 (b) Write a short note on fuel cell. **07**
