

GUJARAT TECHNOLOGICAL UNIVERSITY**B. E. - SEMESTER – VII • EXAMINATION – WINTER 2012****Subject code: 170205****Date: 28/12/2012****Subject Name: Alternative Fuels and Engines (DE-I)****Time: 10.30 am - 01.00 pm****Total Marks: 70****Instructions:**

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

- Q.1** (a) Define following terms: 05
(i) Pour point (ii) Flash Point (iii) Viscosity (iv) Octane No. (v) Cetane No.
(b) Discuss factors affecting Green house effect. 05
(c) Describe sources of fossil fuel with scope of availability. 04
- Q.2** (a) Describe the harmful effects of pollutants from exhaust gases of auto vehicle on atmosphere and human being. 07
(b) Discuss the emission norms and procedure for confirmation of Bharat Standard-IV 07
- OR**
- (b) What is carbon foot print? List the component of it. 07
Describe the procedure for Carbon credit calculation briefly.
- Q.3** (a) Explain the process of making biodiesel from vegetable oil. 07
(b) What is emulsification of alcohol with diesel? Describe emission improvement by blending of alcohol with diesel. 07
- OR**
- Q.3** (a) What are the effects on properties of diesel by blending it with biodiesel? 07
(b) Write merits and demerits of alcohol as a fuel for IC engine. 07
- Q.4** (a) Discuss layout of hydrogen car with neat sketch. 07
(b) What is fuel cell? Explain its power rating and performance. 07
- OR**
- Q.4** (a) Explain storage and transportation of hydrogen. 07
(b) Draw schematic layout of solar powered auto vehicle and give its advantages. 07
- Q.5** (a) Describe important components of hybrid vehicle. 07
(b) What is Eco plastic fuel? Discuss scope of it. 07
- OR**
- Q.5** (a) Explain working of one of rotary engine with diagram. 07
(b) Explain construction and working of Free piston engine with neat sketch 07
