

Seat No.: \_\_\_\_\_

Enrolment No. \_\_\_\_\_

**GUJARAT TECHNOLOGICAL UNIVERSITY**

**M. E. - SEMESTER – II • EXAMINATION – SUMMER • 2014**

**Subject code: 1721102**

**Date: 18-06-2014**

**Subject Name: Alternate Fuels and Energy**

**Time: 02:30 pm - 05:00 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) Enlist in brief Various Alternate fuels. What is the need of Alternate fuels in present scenario? **07**
- (b) Give comparison between LPG car and CNG car. What way these cars are different from a Petrol car and a Diesel car? **07**
- Q.2** (a) Give Merits and Demerits of Hydrogen as fuel in I.C. Engines. **07**
- (b) Discuss modifications required for operating a S.I. Engine on biogas. **07**
- OR**
- (b) Discuss properties of alcohols and explain any one method of its production. **07**
- Q.3** (a) Explain Construction and working of electric vehicle with neat diagram. Also state its limitations. **07**
- (b) Compare Conventional fuels with Alternate fuels. How can you say that novel fuels are eco friendly? **07**
- OR**
- Q.3** (a) Explain in brief Production and storage of hydrogen. **09**
- (b) Explain Performance and emission characteristics of CNG. **05**
- Q.4** (a) Explain process of biodiesel production from vegetable oil. **07**
- (b) Graphically compare the percentage effect of bio-diesel on specific fuel consumption, brake thermal efficiency and exhaust emissions. **07**
- OR**
- Q.4** (a) Discuss Ignition accelerators briefly. Write short on :-Optimum combustion in I.C. engines. **08**
- (b) State the relative merits and demerits of various Alternate fuels. **06**
- Q.5** (a) Explain use of methanol and gasoline blends in I.C.Engine. **07**
- (b) What do you understand by Fuel and Combustion? State important properties of various gaseous fuels. **07**
- OR**
- Q.5** (a) Write short note on Solar energy based vehicles. Also discuss latest development in automobile sector. **07**
- (b) Write note on Hybrid vehicles. **07**

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