B. Tech. 7th Semester (AUE) F. Scheme

Examination, December–2017

ALTERNATE FUELS AND ENERGY SYSTEMS

Paper–AUE-424-F

Time allowed : 3 hours] *[Maximum marks : 100*

Note : *Attempt **five** questions. All questions carry equal marks. The students have to attempt first common question, which is compulsory, and question from each of the four sections.*

1. (i) List out the properties of LPG.

(ii) List out the sources of alternate fuels.

(iii) What do you mean by oxygenerated fuels ?

(iv) What is the Main problems with alcohol – gasoline blends ?

(v) Enumerate the desirable properties of alcohol as engine fuel.

(vi) How the methanol manufactured from coal ?

(vii) What type of fuel delivery systems are used for hydrogen in SI engines ?

(viii) What are emission benefits of using hydrogen ?

(ix) What are the merits of using vegetable oils as fuels in CI engine ?

(x) What do you mean byhybrid vehicles ?

Section–1

2. Define alternative fuel. Discuss about the various alternate fuels for compression ignition engines. 20

3. List out the properties of CNG. Detail the hybrid technology which used in automobile sector. How does it help to the environment aspects ? 20

Section–2

4. Describe the raw materials required for manufacture of alcohol fuels. List out the modifications required to use methanol in SI engine. 20

5. How anhydrous alcohol is prepared ? Discuss the characteristics of vegetable oil and biodiesel and compare with the diesel. 20

Section–3

6. What are the properties of LPG fuel ? With the help of a neat diagram describe the working of a bio-gas plant. 20

7. Discuss the different aspects of hydrogen storage and handling. Also list out the safety aspects in hydrogen usage as a fuel in an IC engine. 20

Section–4

8. Explain the limitations in design consideration of electric vehicles. Discuss about the working of a hydrogen fuel cell, explaining about the reaction occurring in it. 20

9. Discuss about the advantages and disadvantages of various types of devices used in collection of solar energy. 20