



Reg. No. : .....

Name : .....



**Seventh Semester B.Tech. Degree Examination, April 2015  
(2008 Scheme)**

**08.706.21 EL III : ALTERNATE ENERGY SOURCES (MPU)**

Time : 3 Hours

Max. Marks : 100

- Instructions :** 1) Answer **all** questions from Part – A.  
2) Answer **one** question from **each** Module in Part – B.

**PART – A**

**(10×4=40 Marks)**

1. Bring out the socio economic relevance of Biogas plants in India.
2. What is a flex fuel vehicle ? List advantages and disadvantages.
3. Explain on the need for energy conservation in transportation sector.
4. What are the advantages and disadvantages of using hydrogen as fuel in automobiles from safety point of view ?
5. Compare the properties of LPG and gasoline with respect to their use in SI engines.
6. Differentiate between natural gas and producer gas.
7. List down applications of PV panels in automobiles.
8. What are the different types of batteries used in Electric vehicles ? Compare.
9. Differentiate between a Hybrid vehicle and an electric vehicle.
10. What is Biomass ? List methods to produce clean energy from biomass.

**PART – B**

**Module – I**

**(20×3=60 Marks)**

11. a) Explain the modifications necessary in an SI engine to use H<sub>2</sub> as fuel. **10**  
b) What is the importance of methanol as an automotive fuel ? Explain methods used for methanol production. **10**

OR



12. a) Explain the combustion characteristics of alcohols in SI engines. 10  
b) Explain various methods used in producing Hydrogen gas. 10

### Module – II

13. a) With a neat sketch explain the working of a floating dome type Biogas plant. Explain various stages in biogas production. 12  
b) Explain methods for producing Bio diesel from vegetable oil. 8

OR

14. a) What is a biodiesel blend ? What are the different blends used ? Compare the performance of bio diesel with diesel for CI engines. 12  
b) What is Producer gas ? How is it used in CI and SI engines ? 8

### Module – III

15. a) Explain the principle of photovoltaic conversion. 10  
b) Explain the parts, materials used and working of a flat plate solar thermal collector. 10

OR

16. a) What is the difference between a PV cell and a PV Module ? Explain the working of a PV Module. 10  
b) What is a Hybrid Vehicle ? Explain various layouts used for hybrids and compare. 10