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Reg. No. :

Name :

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

Elective – III : 08.706.21 : Alternate Energy Sources (MPU)

Time : 3 Hours

Max. Marks : 100

PART – A



Answer **all** questions.

1. Explain the need for energy conservation in transportation sector.
2. Differentiate between hybrid vehicle and an electric vehicle.
3. Discuss the water sensitivity of methanol as an engine fuel.
4. What is a fuel cell ? Explain.
5. Write short notes on : "The consumption and load of the vegetable oil". as an engine fuel.
6. State some properties of hydrogen as an I.C. engine fuel.
7. List down applications of PV panels in automobiles.
8. What is biomass ? List the methods to produce clean energy from biomass.
9. Explain the socio-economic relevance of biogas plants in India.
10. What are the various problems in long term preparation of vegetable oil ?
(10x4=40 Marks)

PART – B

Answer **any one** question from **each** Module.

Module – I

11. Describe briefly the cold starting properties of methanol with other type of fuels. 20

P.T.O.



12. a) What is the importance of methanol as an automotive fuel? Explain methods of methanol production. 10
- b) Briefly explain the modifications necessary in an SI engine to use H_2 as fuel. 10

Module – II

13. What is biodiesel blend? What are the different blends used? Compare performance compared to diesel for CI engines. 20
14. a) What is producer gas? How is it used in CI and SI engines? 10
- b) Compare the fuel properties and steady state exhaust emission of vegetable oil with other type of fuels. 10

Module – III

15. a) What is a hybrid vehicle? Explain various layouts used for hybrids and compare. 10
- b) Briefly explain the principle of photovoltaic conversion. 10
16. a) Briefly explain the parts, materials used and working of a flat plate solar thermal collector. 10
- b) Differentiate between flat plate and concentrating collectors. 10