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P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belagavi)

Eighth Semester, B.E. - Automobile Engineering

Semester End Examination; June - 2017

Alternative Energy Sources for Automobile

Time: 3 hrs

Max. Marks: 100

Note: Answer FIVE full questions, selecting ONE full question from each unit.

UNIT - I

- 1 a. Discuss the salient features and availability of following commercial sources of energy: 6
i) Coal ii) Oil iii) Uranium.
- b. Classify the solar energy collectors and briefly explain each type with sketch. 14
- 2 a. Describe any two domestic applications of solar energy with neat sketches. 10
- b. Explain the principle of wind energy conversion. 4
- c. List the important consideration for site selection to install wind mills. 6

UNIT - II

- 3 a. What are the fuel properties of hydrogen gas? 6
- b. Explain the production of liquid hydrogen's. 6
- c. Discuss the main advantages and limitations of hydrogen as fuel. 8
4. Write short notes on : 20
i) CNG (Compressed Natural Gas) ii) LPG (Liquid Petroleum Gas)
iii) LFG (Land Fill Gas) iv) Absorbed Natural Gas.

UNIT - III

- 5 a. What is biomass? Give four examples. 6
- b. Explain an erobic digestion of biomass. 6
- c. Give an account of composition of biogas. What are the advantages of biogas? 8
- 6 a. Sketch and describe of KVIC biogas plant. 10
- b. Briefly explain the production of methanol and ethanol from plants. 10

UNIT - IV

- 7 a. Explain the properties and production of HCNG and Di-Methyl Ether (DME). 10
- b. Briefly explain the storage and transport issues related to synthetic alternative fuels. 10
- 8 a. Explain with sketch, production of produces gas using a gasifier. 10
- b. Discuss the advantages and disadvantages of : 10
i) Wood Pyrolysis oil ii) Eco Friendly Plastic fuel.

UNIT - V

9. Discuss the history, properties, productions, advantages and disadvantages of, 20
i) Coal water slurry ii) Reformulated gasoline.
- 10 a. Explain the future scope of : 10
i) Pulverized metal ii) Ammonia as fuels.
- b. Discuss the advantages and disadvantages of electric vehicles. 10