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10AU834

Eighth Semester B.E. Degree Examination, Dec.2018/Jan.2019
Alternative Energy Sources for Automobiles

Time: 3 hrs.

Max. Marks:100

Note: Answer any FIVE full questions, selecting at least TWO full questions from each part.

PART – A

- 1 a. Discuss the need of alternative energy sources. (05 Marks)
 b. Discuss the merits and limitations of solar energy. (05 Marks)
 c. Explain with a neat sketch, the construction and working of a liquid flat-plate collector. (10 Marks)
- 2 a. Define following with figures:
 i) Declination angle
 ii) Hour angle
 iii) Latitude angle
 iv) Altitude angle
 v) Incident angle. (10 Marks)
 b. Explain the different types of solar energy storage systems. (10 Marks)
- 3 a. What are the advantages and disadvantages of wind energy? (10 Marks)
 b. Describe the main consideration in selecting a site for wind generators. (10 Marks)
- 4 a. What are the different methods of hydrogen production? Explain electrolysis of water. (10 Marks)
 b. Discuss various methods of storage of hydrogen. (10 Marks)

PART – B

- 5 a. Explain various factors affecting biogas generation. (10 Marks)
 b. What is the composition of a typical biogas? What modifications are required for a CI engine to run on bio-gas? (10 Marks)
- 6 a. List the properties of Hythane and Discuss the advantages and disadvantages of hythane and HCNG. (10 Marks)
 b. Discuss the production of DME and its properties. (10 Marks)
- 7 a. What are the properties of emulsified fuel? (05 Marks)
 b. Describe the production of CWS fuel. (05 Marks)
 c. What is a water car and how does it work? (10 Marks)
- 8 a. With a block diagram? List the components of EV (Electric vehicles). (08 Marks)
 b. What is HEV? Explain the components of HEV and list its advantages over EV. (12 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
 2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.