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10AU834

Eighth Semester B.E. Degree Examination, Jan./Feb. 2021
Alternative Energy Sources for Automobiles

Time: 3 hrs. Max. Marks:100

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

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.

PART – A

1 a. Describe the need for alternative fuels and explain the barriers in implementing alternative fuels? **(10 Marks)**

b. Classify alternative fuels, write short notes on government promotion of alternative fuels. **(10 Marks)**

2 a. Classify the solar energy collectors and explain any one type in detail. **(08 Marks)**

b. Discuss the applications of solar energy in automobiles. **(06 Marks)**

c. Calculate the angle made by the beam radiation with the flat plate collector on December 1 at 0900h (local apartment time). The collector is located in New Delhi (28°35′N, 77°12′E) and is tilted at an angle of 36° with the horizontal and pointing due south. **(06 Marks)**

3 a. Classify the wind energy conversion system. State and briefly explain the factors that determine the output power from wind energy. **(10 Marks)**

b. What are the parameters for site selection for a wind energy power plant? Define lift and crag with help of a neat sketch. **(10 Marks)**

4 a. Why is hydrogen referred as a "freedom fuel" describe any two method methods of generating hydrogen. **(10 Marks)**

b. With a neat sketch, explain how hydrogen is used in SI engine. **(10 Marks)**

PART - B

5 a. What is biogas? List the different parameters influencing the release of biogas. **(08 Marks)**

b. Explain the construction of float type biogas plant. **(08 Marks)**

c. Discuss the properties of ethanol. **(04 Marks)**

6 a. What is hythane and HCNG? How is hythane blended? And advantages of hythane fuel. **(06 Marks)**

b. Explain the emission benefits of P–series. And application of P–series. **(06 Marks)**

c. Write a short note on plasma arc recyclers. **(08 Marks)**

7 a. Write a short note on sprays of CWS. **(05 Marks)**

b. Describe the production of CWS fuel. **(05 Marks)**

c. Explain the combustion of emulsified fuels and list its advantages and limitations. **(10 Marks)**

8 a. What is a hybrid vehicle? Explain the working with a neat layout. **(10 Marks)**

b. Discuss the advantages, disadvantages and prospects of electric vehicles. **(10 Marks)**

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