



10AU834

Eighth Semester B.E. Degree Examination, Dec.2019/Jan.2020
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. Describe the need of alternative fuel and explain the barriers in implementing the alternative fuel? (10 Marks)
- b. What are the methods of direct energy conversion? Describe in brief. (10 Marks)
- 2 a. What are the installments employed for solar radiation measurements? With the help of neat diagram explain working principle of EPPLEY pyranometer? (10 Marks)
- b. Mention the advantages and disadvantages of concentrating collector over flat plate collector. (10 Marks)
- 3 a. Mention the characteristics of good wind power site. (06 Marks)
- b. With the help of neat sketch explain the important parts of a horizontal axial machine for wind energy conversion. (10 Marks)
- c. Define left and drag with the help of a neat aerofoil structure. (04 Marks)
- 4 a. What are the different methods of hydrogen production? Briefly explain electrolysis of water. (10 Marks)
- b. What type of fuel delivery systems are used for hydrogen in S.I engines? Write a brief review on carburetion with neat diagram. (10 Marks)

PART – B

- 5 a. What is the composition of a typical biogas? Give the classification of biogas plants. (04 Marks)
- b. Explain with neat flow chart for dry milling process for producing ethanol. (08 Marks)
- c. What modifications are required for a CI engine to run on SVO? (08 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. Explain with a neat sketch, development of the BOESE Liquid Nitrogen engine. (06 Marks)
- b. Explain in brief, design modification of the Compressed Air Vehicle : (08 Marks)
 - i) Compressed air engine
 - ii) Gear box.
- c. What are emulsified fuels? What are the advantages of using emulsified when compared with diesel fuel? (06 Marks)
- 8 a. With a neat block diagram, explain the major electrical components of an EV system. (08 Marks)
- b. Briefly discuss about the dual fuel engine operation and mention the important application of Dual fuel technology. (08 Marks)
- c. Write a short note on EV performance characteristics. (04 Marks)

* * * * *

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.