



# CBCS SCHEME

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## Fifth Semester B.E. Degree Examination, Aug./Sept.2020 Alternative Energy Sources for Automobiles

Time: 3 hrs.

Max. Marks: 80

**Note:** Answer any FIVE full questions, choosing ONE full question from each module.

### Module-1

- 1 a. Discuss the need of Alternative Energy Sources. (04 Marks)  
b. What are the implementation barriers for alternative fuels? Explain. (08 Marks)  
c. Classify the types of energy sources and explain any one. (04 Marks)

OR

- 2 a. What are the different solar radiations measurement devices available? Explain pyromometer, with neat diagram. (08 Marks)  
b. What is Concentrating Collectors? Explain with a neat diagram, the construction and working of liquid flat plate collector. (08 Marks)

### Module-2

- 3 a. List the various biogas plants. Explain them. (08 Marks)  
b. Write advantages and disadvantages of biogas. (08 Marks)

OR

- 4 a. Explain the various production methods of Alcohol fuels. (08 Marks)  
b. Explain the properties and performance characteristics of biodiesel. (08 Marks)

### Module-3

- 5 a. Discuss the various methods of storage of hydrogen. (08 Marks)  
b. List the various methods used for production of hydrogen. Explain electrolysis with necessary diagrams and reactions. (08 Marks)

OR

- 6 a. Write a short note on :  
i) CNC ii) LPG. (08 Marks)  
b. Write the properties of LNG. What are the advantages and disadvantages of LNG? (08 Marks)

### Module-4

- 7 a. Explain the production of Coal Water Slurry (CWS), with neat diagram. (08 Marks)  
b. Write short note on :  
i) Hydrogen Enriched Fuels ii) Emulsified Fuels. (08 Marks)

OR

- 8 a. Discuss water as fuel for Internal Combustion Engine. (08 Marks)  
b. What are the advantages and disadvantages of Ammonia? (04 Marks)  
c. Write a short note on Engine performance using compressed air. (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.

**Module-5**

- 9 a. With neat diagram, explain the components of Electric Vehicle (EV). (08 Marks)  
b. What are the advantages and disadvantages of Electric Vehicles? (08 Marks)
- OR**
- 10 a. What is Dual Fuel Technology (DFT)? Write its applications. (04 Marks)  
b. Write the advantages and disadvantages of Dual Fuel Technology (DFT). (04 Marks)  
c. With neat diagram, explain the hybrid drive train components. (08 Marks)

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