

**DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/  
COMMERCIAL PRACTICE , APRIL – 2023**

**ALTERNATE ENERGY SOURCES & MANAGEMENT**

(Maximum Marks : 100)

(Time : 3 hours)

**PART – A**  
(Maximum Marks : 10)

Marks

**I.** Answer **all** questions in one or two sentences. Each question carries 2 marks.

1. Name the major sources of energy.
2. Define solar constant.
3. Describe biomass.
4. List two advantages and limitations of geothermal energy.
5. What are hot dry rock resources?

(5x2=10)

**PART – B**  
(Maximum Marks : 30)

**II.** Answer any **five** of the following questions. Each question carries 6 marks.

1. What is energy audit? Give its classification.
2. Briefly explain a combined cycle system.
3. Write the benefits of recycling waste.
4. Categorise geothermal energy resources.
5. Explain the working of vertical axis windmills with diagram.
6. What are advantages of MHD powerplant?
7. List the disadvantages of fuel cell.

(5x6=30)

**PART – C**

(Maximum Marks : 60)

(Answer **one full** question from each unit. Each full question carries 15 marks)

**UNIT – I**

- III.** (a) Define energy management and write its principles. (8)  
(b) Discuss the need for alternate energy sources. (7)

**OR**

- IV.** (a) Explain the major sources of energy. (8)  
(b) Describe the present distribution of energy consumption in India. (7)

**UNIT – II**

- V.** (a) What are the limitations of solar energy? (8)  
(b) Illustrate the use of solar energy as industrial process heat. (7)

**OR**

- VI.** (a) Illustrate the working of flat plate collector. (8)  
(b) Explain the theory of solar cells. (7)

**UNIT –III**

- VII.** (a) Explain with figure the working of a dome type biogas plant. (8)  
(b) What are the advantages of wind energy? (7)

**OR**

- VIII.** (a) What are the major considerations in selecting a site for wind mill? (8)  
(b) Explain the various methods of obtaining energy from biomass. (7)

**UNIT – IV**

- IX.** (a) Illustrate and explain the working of hydrogen fuel cell. (8)  
(b) What are the advantages of fuel cells? (7)

**OR**

- X.** (a) Define the term MHD and explain its applications. (8)  
(b) Describe a geothermal field with a sketch. (7)

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