

**DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/
MANAGEMENT/COMMERCIAL PRACTICE, NOVEMBER – 2021**

ALTERNATIVE ENERGY SOURCES & MANAGEMENT

[Maximum Marks: 75]

[Time: 2.15 Hours]

PART-A

(Answer *any three* questions in one or two sentences. Each question carries 2 marks)

- I. 1. Name any four major renewable energy resources.
2. What is solar hour Angle?
3. Define power coefficient.
4. List any four sources of biomass.
5. What is geothermal energy? (3 x 2 = 6)

PART-B

(Answer *any four* of the following questions. Each question carries 6 marks)

- II. 1. Explain renewable and non-renewable energy sources.
2. List any six energy conservation techniques.
3. Explain the working of a solar flat plate collector.
4. Explain the Principle of wind energy conversion.
5. Explain the considerations while selecting a site for wind mills.
6. List any six limitations of geothermal systems.
7. List any six application of MHD. (4 x 6 = 24)

PART-C

(Answer *any of the three units* from the following. Each full question carries 15 marks)

UNIT – I

- III. (a) Explain a combined cycle system with required figure. (8)
(b) Explain cogeneration with a neat sketch. (7)

OR

- IV. (a) Discuss the findings of world energy council about present energy scenario. (8)
(b) Explain the energy management techniques. (7)

UNIT – II

- V. (a) Explain the terms (i) Declination (ii) Incidence angle. (8)
(b) Explain the working of solar water pump with neat sketch. (7)

OR

- VI. (a) Illustrate the working of solar distillation. (8)
(b) Illustrate the working of a solar thermal power plant. (7)

UNIT- III

- VII. (a) Discuss the advantages and disadvantages of wind energy conversion. (8)
(b) Illustrate the working of a horizontal axis wind mill. (7)

OR

- VIII. (a) Explain:-
(i) Pyrolysis (ii) Gasification. (8)
(b) Explain the constructional features of biogas digester. (7)

UNIT - IV

- IX. (a) Illustrate the working principle of MHD power generation. (8)
(b) Explain the working of a geothermal dry steam power plant. (7)

OR

- X. (a) Explain the working of H₂-O₂ fuel cell with a neat sketch. (8)
(b) Write the advantages and disadvantages of Fuel cell. (7)
