TED (15) – 5024
(Revision – 2015)

N22 - 1510220098

Reg.No……..
Signature……...

DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/ COMMERCIAL PRACTICE – NOVEMBER – 2022

ALTERNATIVE 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. Give examples of secondary energy sources.
2. Define Cogeneration.
3. Define solar hour angle.
4. List any two applications of wind energy.
5. List different types of geothermal power plants. (5x2=10)

PART –B
(Maximum Marks : 30)

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

1. Discuss the importance of alternative energy sources.
2. Explain the working of a solar distillation unit.
3. List the limitations of solar energy conversion processes.
4. List the factors to be considered while selecting a site for wind mill.
5. Write short notes on gasification and pyrolysis.
6. State the limitations of geothermal power generation.
7. Explain the working of H_2-O_2 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) Distinguish between renewable and non-renewable sources of energy. (8)

(b) Explain combined cycle system with the help of a diagram. (7)

OR

IV. (a) Explain the importance of energy audit and its objectives. (8)

(b) Explain various energy management techniques. (7)

UNIT – II

V. (a) Explain the following solar radiation geometry terms.

(i) Solar Azimuth angle. (ii) Zenith angle.

(iii) Angle of incidence. (iv) Declination angle. (8)

(b) Sketch and explain the working of solar pumping system. (7)

OR

VI. (a) Explain the working of a solar thermal power plant. (8)

(b) Explain the principle of conversion of solar cells. (7)

UNIT –III

VII. (a) Explain the working of a horizontal axis wind turbine with the help of a figure. (10)

(b) List various factors that affect the rate of biogas generation. (5)

OR

VIII. (a) Explain the construction and working of a biogas digester. (8)

(b) Explain the principle of wind energy conversion. (7)

UNIT – IV

IX. (a) Explain the working of a MHD generator. (8)

(b) List the advantages and limitations of fuel cells. (7)

OR

X. (a) Explain the working of a geothermal dry steam power plant. (8)

(b) Explain the applications of MHD generation system. (7)

****