

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

RENEWABLE ENERGY SOURCES

[Maximum marks: 100]

(Time: 3 Hours)

PART – A

Maximum marks : 10

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

1. Write the full form of KVIC.
2. List the two methods of Ocean Thermal Energy Conversion.
3. List any two green house gases.
4. If velocity of the wind is doubled, by how many times the wind energy changes?
5. Write the full form of MPPT. (5 x 2 = 10)

PART – B

Maximum marks : 30

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

1. List any six non-conventional energy sources.
2. Explain the combustion method of biogas conversion technology.
3. Derive the equation relating wind power and velocity.
4. Explain the working of solar pond using a neat sketch.
5. With the help of a diagram explain solar distillation.
6. Write any six comparisons between horizontal and vertical axis turbine.
7. Explain with a circuit diagram the working of a boost converter. (5 x 6 = 30)

PART – C

Maximum marks : 60

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

UNIT –I

- III. (a) Draw the schematic diagram of a closed cycle MHD generation system. (5)
- (b) With a neat sketch explain the working of a floating gas holder design bio-gas plant. (10)

OR

- IV. (a) Write any three advantages and three disadvantages of floating drum bio-gas plant. (5)
(b) Explain the working of a vapour dominated power plant with a neat diagram. (10)

UNIT-II

- V. (a) Explain the working of solar water heating using a diagram. (7)
(b) Draw the Schematic diagram of a solar power plant using solar pond. (8)

OR

- VI.(a) Explain with a schematic diagram the process of solar refrigeration system. (7)
(b) Explain using a neat sketch the working of solar AC pumping method. (8)

UNIT-III

- VII.(a) Explain the two types of vertical axis turbine with a neat sketch. (7)
(b) Write four merits and four demerits of wind energy. (8)

OR

- VIII(a) Draw the schematic diagram of a wind turbine and label all the components. (7)
(b) Explain the following schemes of wind power generation with a neat schematic diagram (i) CSCFS (ii) VSVFS (8)

UNIT-IV

- IX. (a) Explain the working of a buck converter with a circuit diagram. (5)
(b) With a neat block diagram explain a solar PV system. (10)

OR

- X. (a) Explain the theory of MPPT. (5)
(b) Draw the block diagram of standalone wind energy system and explain its working. (10)
