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DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/COMMERCIAL PRACTICE — OCTOBER, 2019

RENEWABLE ENERGY SOURCES

[*Time* : 3 hours

(Maximum marks : 100)

PART — A

(Maximum marks : 10)

Marks

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

1. Name any two Piezo - electric materials.
2. List any two fuels used in fuel cells.
3. Name any two instruments used to measure solar radiation.
4. State any two applications of wind energy.
5. State the function of charge controller. (5×2 = 10)

PART — B

(Maximum marks : 30)

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

1. List the various Geo thermal power plants.
2. List out any six advantages of fuel cells.
3. List the application of solar energy.
4. Explain passive solar space heating.
5. Briefly explain the wind energy storage.
6. Explain constant speed constant frequency wind scheme.
7. Describe the working of buck converter. (5×6 = 30)

Marks

PART — C

(Maximum marks : 60)

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

UNIT — I

III (a) Explain working of MHD plant with the help of neat sketch. 7

(b) List the merits and demerits of wind power plants. 8

OR

IV (a) Explain open cycle OTEC Power plants. 7

(b) Explain single process biogas digester with a neat sketch. 8

UNIT — II

V (a) Explain the focusing type solar collector with the figure. 7

(b) Describe the domestic water heating system with the help of a figure 8

OR

VI (a) Explain the working of solar power plant with a neat sketch. 7

(b) Briefly explain solar pond with necessary figure. 8

UNIT — III

VII (a) Estimate the power produced by a wind turbine. 7

(b) Enumerate the basic components of wind energy conversion systems. 8

OR

VIII (a) Classify wind energy conversion systems. 7

(b) Differentiate between horizontal and vertical axis wind turbines. 8

UNIT — IV

IX (a) Draw and explain the block diagrams of wind energy system. 7

(b) Explain briefly SPV system with necessary block diagram. 8

OR

X (a) Explain the concepts of Maximum power point tracking. 7

(b) Explain stand alone wind energy systems. 8