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Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Seventh Semester B.Tech Degree Examination December 2022 (2019 scheme)

Course Code: MRT433

Course Name: RENEWABLE ENERGY

Max. Marks: 100

Duration: 3 Hours

PART A

Answer all questions, each carries 3 marks.

Marks

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| 1 | Explain the merits and demerits of non-conventional energy sources. | (3) |
| 2 | Draw and Explain the VI characteristics of a solar cell. | (3) |
| 3 | Explain biofouling with reference to OTEC power plants. | (3) |
| 4 | Differentiate between ebb generation and flood generation in tidal plants. | (3) |
| 5 | List the site selection criteria for wind plants. | (3) |
| 6 | Discuss the advantages and disadvantages of wind energy conversion system. | (3) |
| 7 | With a neat diagram, explain the working of biogas plant. | (3) |
| 8 | Discuss the different types of bio gas plants. | (3) |
| 9 | What are fuel cells? Mention few applications of fuel cells. | (3) |
| 10 | Discuss the selection criteria of turbines for a small hydro project. | (3) |

PART B

Answer any one full question from each module, each carries 14 marks.

Module I

- 11 Discuss advantages and limitations of conventional energy sources. (14)

OR

- 12 a) Explain the working and components of a solar flat plate collector with a neat diagram of its construction. (10)
- b) Draw and Explain the equivalent circuit of a practical solar cell. (4)

Module II

- 13 a) With the help of a block diagram explain the working of a hybrid OTEC. (10)
- b) Differentiate between Open cycle and Closed cycle OTEC. (4)

OR

- 14 Explain the classification of tidal power plants based on the type of basin used. (14)

Module III

- 15 With neat sketches, explain the various types of rotors used in a wind energy conversion system. (14)

OR

- 16 Explain vertical axis wind turbine with necessary diagrams. (14)

Module IV

- 17 Explain the process of anaerobic digestion of biomass into biogas with neat diagram. (14)

OR

- 18 Explain the production of ethanol from biomass. (14)

Module V

- 19 Explain the components of a micro hydel power plant with neat diagram. (14)

OR

- 20 Explain any one type of fuel cell with a neat diagram. (14)
