

B

1000MRT433122202

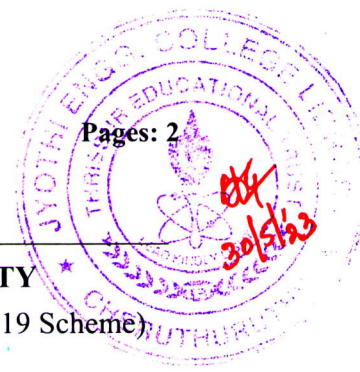
Pages: 2

Reg No.: \_\_\_\_\_

Name: \_\_\_\_\_

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Seventh Semester B.Tech Degree (S, FE) Examination May 2023 (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

- |    |   |     |
|----|---|-----|
| 1  | Differentiate between renewable and non-renewable energy resources. | (3) |
| 2  | What are concentrating collectors? List the various types.          | (3) |
| 3  | Discuss the basic principle of OTEC.                                | (3) |
| 4  | List out the advantages and limitations of tidal energy.            | (3) |
| 5  | What do you mean by yaw control in horizontal axis wind turbines?   | (3) |
| 6  | Differentiate between horizontal and vertical axis wind machines.   | (3) |
| 7  | What is anaerobic digestion? Explain briefly.                       | (3) |
| 8  | Draw the schematic of a KVIC type of bio gas plant.                 | (3) |
| 9  | What is meant by small hydro project? Give its classifications.     | (3) |
| 10 | Explain the working principle of a fuel cell.                       | (3) |

**PART B**

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

**Module I**

- |    |  |      |
|----|--|------|
| 11 | What are energy resources? Explain their classification. | (14) |
|----|--|------|

**OR**

- |    |  |     |
|----|--|-----|
| 12 | a) With the aid of a neat diagram, explain the working of a central tower collector type solar thermal electric plant. | (9) |
|    | b) Explain grid interactive solar PV system with a neat diagram.   | (5) |

**Module II**

- |    |  |      |
|----|--|------|
| 13 | a) Draw the block diagram and explain the working of Anderson cycle based OTEC system. | (10) |
|    | b) Explain the site-selection criteria for OTEC plants.                                | (4)  |

**OR**

- |    |   |      |
|----|---|------|
| 14 | With a neat sketch explain the major components of a tidal power plant. | (14) |
|----|---|------|

**Module III**

- 15 Draw the block diagram of a wind energy conversion system and explain the parts and their functions (14)

**OR**

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

**Module IV**

- 17 With a neat schematic diagram, explain the biomass gasification (14)

**OR**

- 18 Compare the construction and performance of floating drum type and fixed dome type biogas plants with the help of neat sketches. (14)

**Module V**

- 19 Draw and explain the layout of a micro hydro project. (14)

**OR**

- 20 Explain the operation of a Phosphoric Acid fuel cell with the help of a suitable diagram. (14)

\*\*\*\*