

B

1000MRT433112402

Pages: 2

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
B.Tech Degree S7 (R,S) Examination November 2025 (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 | Explain the merits and demerits of non-conventional energy sources. | (3) |
| 2 | With a neat diagram write a brief note about the Grid connected PV systems. | (3) |
| 3 | What are the challenges faced by tidal power plants in terms of implementation? | (3) |
| 4 | Describe the principle of OTEC system. | (3) |
| 5 | Discuss about the advantages and disadvantages of Wind Energy Conversion System. | (3) |
| 6 | What are the components of a Windmill? | (3) |
| 7 | Describe the process of Liquefaction. | (3) |
| 8 | Briefly explain the working of a Fixed dome type biogas plant. | (3) |
| 9 | What are the selection criteria for turbines in a small hydro project? | (3) |
| 10 | Discuss in detail about any three methods of hydrogen production. | (3) |

PART B

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

Module I

- | | | |
|-----------|---|------|
| 11 | a) Discuss in detail about the advantages and features of various renewable and non renewable energy resources. | (10) |
| | b) Explain the principle of converting solar radiation into heat. | (4) |
| OR | | |
| 12 | a) Explain the construction, working and components of different solar PV systems | (10) |

with neat diagrams and their applications.

- b) Explain the VI Characteristics of a 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 Draw the block diagram of a wind energy conversion system and explain each parts and their functions (14)

OR

- 16 Explain all horizontal and vertical axis wind turbines with neat diagrams, their working and features. (14)

Module IV

- 17 Explain any two types of gasifiers used for biomass to fuel conversion with neat diagrams. (14)

OR

- 18 With neat block diagram, explain the process of production of ethanol from biomass. (14)

Module V

- 19 a) What are the different methods used for the storage of hydrogen? (7)
b) Draw the layout of a mini hydro project and explain its working. (7)

OR

- 20 Explain the operation of Phosphoric Acid fuel cell, Alkaline fuel cell and Molten carbonate fuel cell with the help of a suitable diagrams and applications. (14)
