

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

B.Tech Degree S6 (S,FE) (FT/WP) (S4 PT) Examination December 2025 (2019 Scheme)

Course Code: EET322**Course Name: RENEWABLE ENERGY SYSTEMS**

Max. Marks: 100

Duration: 3 Hours

PART A*Answer all questions, each carries 3 marks.*

Marks

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|----|---|-----|
| 1 | Explain the causes and effects of Global warming. | (3) |
| 2 | Give an account of Indian energy scenario | (3) |
| 3 | Explain about central tower collector with relevant diagrams. | (3) |
| 4 | List and explain different types of Solar PV panels | (3) |
| 5 | Draw the wind speed characteristics of a wind turbine | (3) |
| 6 | Explain the variable speed drive scheme in wind energy conversion system. | (3) |
| 7 | Classify Small hydro plants based on head and power output. | (3) |
| 8 | Explain about the advantages & disadvantages of OTEC systems | (3) |
| 9 | Describe the need for energy storage in renewable integration. | (3) |
| 10 | Explain how power is produced from satellites? | (3) |

PART B*Answer one full question from each module, each carries 14 marks.***Module I**

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|----|---|-----|
| 11 | a) List out the advantages & disadvantages of conventional sources of energy. | (8) |
| | b) Write short notes on various air pollutants & their harmful effects. | (6) |

OR

- 12 a) Explain the concept of sustainable development with reference to environment, economy and Energy. (6)
- b) Explain about the importance of UNFCCC & Kyoto protocol (8)

Module II

- 13 a) With relevant diagrams, explain about the working of pyrheliometer (8)
- b) With neat block diagram, explain about the different types of solar concentrators (6)

OR

- 14 a) Explain the working of MPPT using buck-boost converter. (6)
- b) With neat block diagram, explain the working of a grid connected Wind Energy Conversion system. (8)

Module III

- 15 a) Explain the construction and working of Horizontal Axis wind turbine with the help of relevant diagrams (8)
- b) Explain the site selection factors of wind power plant (6)

OR

- 16 a) Explain the major components of a small hydropower project using necessary diagrams (8)
- b) Explain about the selection of different types of turbines used in small hydro and draw its characteristic graphs with respect to efficiency. (6)

Module IV

- 17 a) With a neat diagram explain hybrid cycle OTEC system (8)
- b) List out the site selection criteria for OTEC system. (6)

OR

- 18 a) With relevant diagrams, explain the working of double basin of tidal power plant. (8)

- b) Explain the terms tidal range, ebb cycle and flood cycle of a tidal power plant (6)

Module V

- 19 a) Explain the following Bio-chemical biomass conversion technologies. (8)
(a) Anaerobic digestion (b) Ethanol fermentation
- b) With neat diagram, explain the operation of flywheel storage (6)

OR

- 20 a) Explain the working of KVIC model biogas plant using necessary diagrams. (8)
- b) Explain the working of Pumped Hydro Energy Storage (6)
