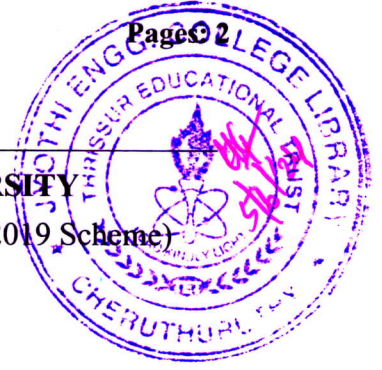


Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

B.Tech Degree S8 (R,S) / S8 (PT) (R) Examination May 2024 (2019 Scheme)

**Course Code: MET458****Course Name: ADVANCED ENERGY ENGINEERING****Duration: 3 Hours****Max. Marks: 100****PART A***Answer all questions, each carries 3 marks.*

Marks

- | | | |
|----|---|-----|
| 1 | Discuss the importance of renewable energy resources in India's power requirement contest | (3) |
| 2 | Write any three comparisons between BWR and PWR | (3) |
| 3 | What is a photovoltaic energy conversion | (3) |
| 4 | Write notes on solar-wind hybrid systems | (3) |
| 5 | Define Anaerobic digestion | (3) |
| 6 | Comparison between biochemical and thermochemical conversion process | (3) |
| 7 | Distinguish between open-cycle and closed-cycle MHD system | (3) |
| 8 | List any three applications of fuel cells | (3) |
| 9 | What is biodiversity | (3) |
| 10 | List any four sources of land degradation | (3) |

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

11. a) Explain the working and components of a Diesel power plant with the help of a neat layout (10)
- b) Define energy efficiency. What are the benefits of energy efficiency to the industry? (4)

OR

- 12 a) Explain the working and components of a steam power plant with the help of a neat layout (10)
- b) Classify hydroelectric power plants (4)

Module II

- 13 a) With a neat labelled schematic diagram explain the working of Low-temperature thermoelectric power generation (10)
b) Differentiate between passive and active solar energy systems (4)

OR

- 14 a) With a neat schematic diagram explain the functioning of components of the horizontal axis wind turbine. (10)
b) Explain the basic principles of the wind energy conversion system (4)

Module III

- 15 a) Draw the block diagram of Biomass conversion technologies. State the advantages of biomass energy. (10)
b) Write short notes on transesterification (4)

OR

- 16 a) Explain the constructional details and working of a fixed dome digester with the help of a neat sketch (10)
b) List out the main properties of Biogas (4)

Module IV

- 17 a) With a neat schematic diagram explain the working of vapour –dominated hydro geothermal power plant. (10)
b) List any four applications of geothermal energy (4)

OR

- 18 a) With the help of a schematic diagram explain the working of a closed-cycle MHD system (10)
b) State any four advantages of fuel cells (4)

Module V

- 19 a) Explain the various measures for preventing the ozone layer depletion (10)
b) Explain the sources of water pollution (4)

OR

- 20 a) With a neat sketch explain the Greenhouse effect. List any four methods to reduce global warming (10)
b) What are the major effects of acid rain (4)
