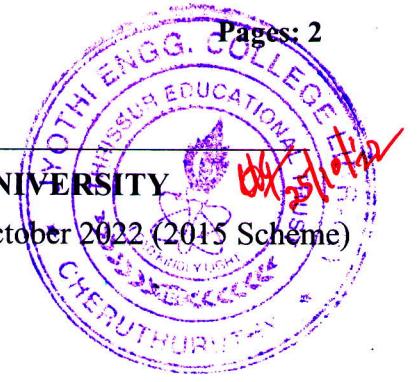


Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Eighth Semester B.Tech Degree Supplementary Examination October 2022 (2015 Scheme)

**Course Code: BT362****Course Name: Sustainable Energy Processes**

Max. Marks: 100

Duration: 3 Hours

PART A*Answer any two full questions, each carries 15 marks.*

Marks

- 1 a) Classify energy based on the nature of availability. (5)
- b) How sustainability can be incorporated in energy sector? What are the technological changes required for the development (10)
- 2 a) What are the applications of renewable energy sources (5)
- b) Explain direct, diffuse and total radiation with a diagram (6)
- c) What are the limitations of conventional sources of energy and its impact on human life? (4)
- 3 a) Explain active solar thermal system and passive solar thermal system (6)
- b) Explain the types of solar panels (6)
- c) What is the use of solar cooker (3)

PART B*Answer any two full questions, each carries 15 marks.*

- 4 a) What are the requirements for a wind power site (4)
- b) Explain horizontal axis and vertical axis wind turbines (7)
- c) What are the merits and demerits of wind energy (4)
- 5 a) Explain direct combustion method for biomass conversion (5)
- b) Explain the production of biohydrogen (6)
- c) How to do storage of hydrogen (4)
- 6 a) Explain wind energy storage (5)
- b) Explain the production of biobutanol (6)
- c) Describe the factors affecting biogas production (4)

PART C

Answer any two full questions, each carries 20 marks.

- 7 a) Explain ocean thermal electrical conversion with necessary diagram (10)
b) What are the site characteristics for a tidal power plant (5)
c) What are the problems of hydro power plants (5)
- 8 a) Explain magneto hydrodynamic system (10)
b) With a neat sketch explain the working of any two fuel cells (10)
- 9 a) Outline the geothermal energy conversion (10)
b) Explain various energy storage routes (6)
c) What is an electric vehicle (4)
