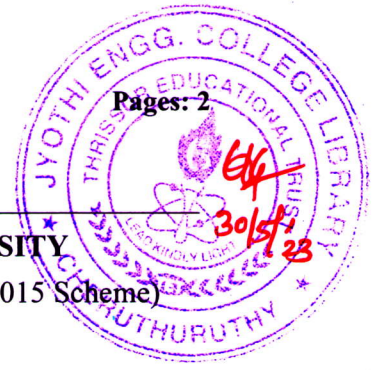


Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Sixth Semester B.Tech Degree (S, FE) Examination May 2023 (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) How do the availability and limitations of conventional sources of energy will affect on human life? (7)
- b) Explain the classification of non-conventional energy resources available in Indian energy scenario? (8)
- 2 a) Explain different type of solar thermal systems? (8)
- b) Outline the working of flat plate collector with diagram? (7)
- 3 a) Explain the applications of renewable energy sources? (5)
- b) Give schematic explanation of solar desalination? (6)
- c) Express the negatives of fossil fuels? (4)

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

- 4 a) Differentiate between horizontal axis turbine and vertical axis wind turbine? (5)
- b) Write a short note on design principle of wind turbines? (6)
- c) Give any two methods for the storage of wind energy? (4)
- 5 a) Express the schematic explanation of bioethanol from sugar cane? (7)
- b) Differentiate between pyrolysis and liquefaction? (5)
- c) List any three advantages of biodiesel? (3)
- 6 a) List the various factors considered for the site selection for wind energy production (5)
- b) Explain the working of Fixed Dome type digester for the production of biogas (6)
- c) Mention any four limitations of wind energy (4)

PART C

Answer any two full questions, each carries 20 marks.

- 7 a) With neat diagrams, explain open and closed tidal energy power plants. (10)
b) List & explain any four geothermal energy sources. (10)
- 8 a) With neat diagram, explain the working principle & construction of Molten carbonate fuel cells. Also write the cell reactions (10)
b) Discuss the power generation of Magneto hydrodynamic systems. Explain open and closed cycle MHD systems (10)
- 9 a) Discuss any one type of geothermal energy power plants. (8)
b) Explain the working principle & features of alkaline fuel cells, write the chemical reactions also. (7)
c) Identify any five positive and negative attributes of tidal power plants. (5)
