



Reg No.: \_\_\_\_\_

Name: \_\_\_\_\_

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**  
**EIGHTH SEMESTER B.TECH DEGREE EXAMINATION, MAY 2019**

**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) What are conventional and non conventional energy sources                 | (2)   |
| b) Write the advantages of use of renewable sources of energy                  | (3)   |
| c) Write short note on classification of non conventional energy sources       | (10)  |
| 2 a) Name different type of solar energy collectors?                           | (4)   |
| b) Explain the principle and working of photo voltaic system.                  | (6)   |
| c) Describe working principles of solar pond energy conversion system          | (5)   |
| 3 a) Explain solar desalination with example.                                  | (5)   |
| b) What are the problems with fossil fuels                                     | (5)   |
| c) Explain renewable energy sources, potentials, achievements and applications | (5)   |

**PART B**

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

- |   |      |
|---|------|
| 4 a) Write a note on land selection criteria for installing wind turbines. Explain with regards to various attributes | (10) |
| b) List out the limitations of wind energy?   | (5)  |
| 5 a) List out the applications of Biofuels ?  | (5)  |
| b) Differentiate pyrolysis and gasification?  | (5)  |
| c) List out various types of Biomass resources?   | (5)  |
| 6 a) Explain the role of Biogas Technology in sustainable development of rural areas of India?                        | (10) |
| b) How a wind turbine can cause threat to wild life? Explain  | (5)  |

**PART C**

*Answer any two full questions, each carries 20 marks.*

- 7 a) Explain the geothermal energy conversion methodologies? (10)
- b) Describe the hydro power generation scenario in the world and compare the same with Indian scenario? (10)
- 8 a) Define magneto-hydro dynamics and their working principle. (10)
- b) Compare the advantages and limitation of alkaline fuel cell and phosphoric acid fuel cell. (10)
- 9 a) Explain mechanical and chemical energy storage routes? (5)
- b) Explain solid oxide fuel cell; also explain their working principle and construction. (5)
- c) Explain various tidal energy conversion systems (10)

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PART B

Answer any two full questions, each carries 15 marks.

- 4 a) Write a note on land selection criteria for installing wind turbines. Explain with regards to various attributes (10)
- b) List out the limitations of wind energy? (5)
- 5 a) List out the applications of Biofuels? (5)
- b) Differentiate pyrolysis and gasification? (5)
- c) List out various types of Biomass resources? (5)
- 6 a) Explain the role of Biogas Technology in sustainable development of rural areas of India? (10)
- b) How a wind turbine can cause threat to wild life? Explain (5)

PART C

Answer any two full questions, each carries 20 marks.