



10EE836

**Eighth Semester B.E. Degree Examination, June/July 2019**  
**Renewable Energy Sources**

Time: 3 hrs.

Max. Marks:100

**Note:** Answer any FIVE full questions, selecting atleast TWO questions from each part.

**PART – A**

- 1 a. Explain briefly the energy sources available. (06 Marks)  
b. List the differences between Renewable and Non renewable energy sources. (08 Marks)  
c. What are the advantages and limitations of Renewable energy sources? (06 Marks)
- 2 a. With a neat diagram, explain the principle of Pyranometer used to measure either global or diffuse radiation. (10 Marks)  
b. Define the following terms and related to solar radiation geometry :  
i) Declination. (04 Marks)  
ii) Local solar time. (04 Marks)  
iii) Hour angle. (02 Marks)
- 3 a. With a neat diagram, explain the principle of solar water heater. (08 Marks)  
b. With neat diagrams, explain i) Solar cookers ii) Solar furnace. (12 Marks)
- 4 a. With a neat diagram, explain the power generation system using solar pond. (08 Marks)  
b. List the advantages and disadvantages of Photovoltaic Solar energy conversion. (08 Marks)  
c. List the application of Solar energy. (04 Marks)

**PART – B**

- 5 a. With a neat block diagram, explain the basic components of wind energy conversion system. (08 Marks)  
b. Derive an expression for Power in the wind. (06 Marks)  
c. List the advantages and disadvantages of Wind energy conversion system. (06 Marks)
- 6 a. List and explain the factors affecting biogas production. (10 Marks)  
b. With a neat diagram, explain KVIC biogas plant. (10 Marks)
- 7 a. With a neat diagram, explain the principle of ocean thermal energy conversion system. (08 Marks)  
b. With a neat diagram, explain the principle of tidal power generation. (08 Marks)  
c. List the advantages of tidal power generation. (04 Marks)
- 8 Write short notes on :  
a. Fuel cells. (05 Marks)  
b. Wave energy. (05 Marks)  
c. Hydrogen energy. (05 Marks)  
d. Small Hydro resources. (05 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and /or equations written eg.  $42+8=50$ , will be treated as malpractice.