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15EE563

## Fifth Semester B.E. Degree Examination, June/July 2019 Renewable Energy Sources

Time: 3 hrs.

Max. Marks: 80

**Note: Answer any FIVE full questions, choosing  
ONE full question from each module.**

### Module-1

- 1 a. Briefly explain factors affecting energy resource development. (08 Marks)  
b. Discuss worldwide renewable energy availability. (08 Marks)

OR

- 2 a. Define : i) Latitude angle ii) Declination angle iii) Hour angle. (03 Marks)  
b. Explain various layers of the sun. (06 Marks)  
c. Derive a relationship between various sun angles. (07 Marks)

### Module-2

- 3 a. Explain working of stirling or Brayton heat engine with a neat diagram. (06 Marks)  
b. Explain solar dryers. (06 Marks)  
c. Mention the applications of solar cell systems. (04 Marks)

OR

- 4 a. Explain the I-V characteristics of solar cells. (06 Marks)  
b. Write a short note on solar cell materials. (04 Marks)  
c. Explain working of solar cooker. (06 Marks)

### Module-3

- 5 a. Briefly explain various electrolytic hydrogen production technologies. (06 Marks)  
b. Explain various factors in wind turbine site selection. (06 Marks)  
c. Mention various advantages and disadvantages of waste recycling. (04 Marks)

OR

- 6 a. With a net diagram, explain working of double flash type geo thermal electric power generation. (07 Marks)  
b. With the help of block diagram briefly explain waste recovery management scheme. (06 Marks)  
c. List the uses of hydrogen energy. (03 Marks)

### Module-4

- 7 a. Explain the working of down draft gassifier with chemical equations. (07 Marks)  
b. Explain the working of fixed dome type biogas plant. (06 Marks)  
c. List the advantages and disadvantages of tidal power. (03 Marks)



OR

- 8 a. Explain the working of two basin system for tidal power generation. (09 Marks)  
b. Explain various stages of cooling and cleaning of gasifiers gas. (07 Marks)

Module-5

- 9 a. Explain working of salters duck system for harnessing sea wave energy. (08 Marks)  
b. Explain open cycle Ocean Thermal Energy conversion technique. (08 Marks)

OR

- 10 a. Explain working of oscillating water column device for harnessing sea wave energy. (08 Marks)  
b. List the advantages, disadvantages and benefits of OTEC system. (08 Marks)

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