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P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belgaum)

Eighth Semester, B.E. - Electrical and Electronics Engineering

Semester End Examination; June - 2016

Renewable Energy Sources

Time: 3 hrs *Max. Marks: 100*

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

PART - A

1. a. What is meant by renewable energy sources? Explain in brief these energy sources with special reference to Indian context. 12

   b. What are the advantages and limitations of RES? 8

2. a. Write notes on beam and diffuse radiation. 6

   b. Define the terms :
   i) Altitude angle ii) Zenith angle iii) Solar azimuth angle. 6

   c. Give the difference between pyrheliometer and pyranometer. Also mention their types. 8

3. a. Explain the principle of conversion of solar energy into heat. 6

   b. What are the advantages and disadvantages of concentrating collectors over a flat plate collector? 8

   c. Explain the principle of working of solar furnace. What are its main applications? 6

4. a. What is the principle of solar photovoltaic power generation? What are the main elements of a photovoltaic system? 10

   b. Write notes on :
   i) Solar pumping ii) Solar cooking. 10

PART - B

5. a. Describe the main considerations in selecting a site for wind generators. 10

   b. How are WEC systems classified? 6

   c. List the advantages and disadvantages of wind energy conversion. 4

6. a. Explain the process “Photosynthesis”. What are the conditions, which are necessary for it? 7

   b. Explain the constructional detail and working of KVIC digester. 7

   c. What are the advantages and disadvantages of biological conversion of solar energy? 6

7. a. What is the basic principle of ocean thermal energy conversion [OTEC]? 10

   b. What are the main types of OTEC power plants? Describe their working in brief. 10

8. a. Explain the basic principle of tidal power. 10

   b. With a neat sketch explain the various components of tidal power plant. 10

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