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Code No.: 7125 M

VASAVI COLLEGE OF ENGINEERING (Autonomous), HYDERABAD
M.E. I Year (EEE) I-Semester (Make Up) Examinations, March-2016
(Power Systems & Power Electronics)

Renewable Energy Sources

Time: 3 hours

Max. Marks: 70

Note: Answer ALL questions in Part-A and any FIVE questions from Part-B

Part-A (10 X 2=20 Marks)

1. List the advantages and limitations of renewable energy sources?
2. Classify fuel cells.
3. Differentiate between pyheliometer and pyranometer?
4. Define the following: (i) Surface Azimuth angle and (ii) Zenith angle
5. Classify wind energy conversion systems.
6. Explain about the induction generator that is used for electrical generation schemes in wind energy systems.
7. Explain about wave energy conversion by floats.
8. List out the applications of geothermal energy at different temperature levels.
9. Compare wet fermentation with dry fermentation.
10. Explain the process of photosynthesis.

Part – B

(Answer Any Five Questions)

11. Along with the advantages, disadvantages and applications explain the following fuel cells in detail.
 - i) Hydrogen-Oxygen fuel cell
 - ii) Molten carbonate fuel cell.
12. Explain in detail about the following.
 - i) Solar water heating system with antifreeze.
 - ii) Mirror – Strip reflector and Fresnel lens collectors.
13. a) Derive the expression for power developed due to wind.
b) Along with the advantages and disadvantages explain in detail about vertical axis wind machines.
14. With neat schematic explain the following:
 - i) Geothermal fossil-superheat hybrid system.
 - ii) Liquid -dominated single flash steam system.
15. a) With neat diagram explain in detail about down draught gasifier.
b) With neat diagram explain in detail about KVIC biogas plant.
16. a) Derive the necessary expression for energy and power in a simple single basin tidal system.
b) Explain about solar energy thermal storage systems.
17. a) List out the advantages of anaerobic digestion.
b) Describe the main considerations in selecting a site for wind generators.
