Hall Ticket Number:

Code No.: 7135 M

VASAVI COLLEGE OF ENGINEERING *(Autonomous)*, HYDERABAD

M.E. (CBCS : EEE) I-Semester Make up Examinations, March-2017

(Power Systems & Power Electronics)

Renewable Energy Sources

Time: 3 hours Max. Marks: 70

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

Part-A (10 × 2 = 20 Marks)

1. Explain the need of non-conventional energy sources in present energy scenario.
2. What are the applications of fuel cells?
3. Distinguish between Beam radiation and diffuse radiation.
4. What are the main applications of solar pond?
5. Derive the expression for power developed due to wind.
6. Write advantages and disadvantages of WECS.
7. Write different types of geo thermal energy resources.
8. Differentiate between tidal and wave energy systems.
9. What is biomass?
10. Write different factors involved in the selection of site for biogas plant.

Part-B (5 × 10 = 50 Marks)

11. a) Explain the principle of fuel cell. Highlight the features of 'H_2' fuel cell and 'O_2' fuel cell. [5]
    b) Explain about different types of non-conventional energy sources. [5]
12. a) What are the main components of flat plate solar collector? Explain the function of each component with a neat schematic [5]
    b) Classify the methods of solar energy storage. Describe about thermal energy storage system. [5]
13. a) Explain the working principle of wind power plant with neat schematic. [6]
    b) Distinguish between horizontal and vertical axes wind turbines. [4]
14. a) Explain binary type geo thermal power station with neat schematic. [5]
    b) Explain about ocean thermal energy conversion system with a neat schematic. [5]
15. a) Explain about cross draft tube gasifier with a neat schematic. [5]
    b) Explain about Floating-drum biogas plant with a cylinder digester. [5]
16. a) Mention and distinguish between different types of fuel cells. [5]
    b) Discuss the constructional details of commercial solar heaters. [5]
17. Answer any ***two*** of the following:
    a) What are wind energy collectors? Explain in detail. [5]
    b) What do you understand by 'dry steam', 'wet steam', and 'hot water' geothermal systems? [5]
    c) Explain about fixed-dome with a brick reinforced, molded dome biogas plant (Janata). [5]