Code No: **R42025**   **R10** | **Set No. 1** |

IV B.Tech II Semester Supplementary Examinations, April/May - 2017
NON CONVENTIONAL SOURCES OF ENERGY
(Electrical and Electronics Engineering)

Time: 3 hours   Max. Marks: 75

Answer any FIVE Questions
All Questions carry equal marks
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1 a) Define Solar Constant and explain the terms Beam and Diffuse Solar radiation [8]

 b) Calculate the angle made by beam radiation with the normal to a flat collector on August 1, at 10 .00 AM., Solar time for a location at 29^0 $38^{'}$ N. The collector is tilted at an angle of latitude plus 15^0, with the horizontal and is pointing due south. [7]

2 a) Enumerate and explain in brief the different types of concentrating type collectors? [8]

 b) Explain in detail about the passive Solar Space heating System [7]

3 a) Explain the basic principle of Wind energy conversion [7]

 b) What are the advantages of Vertical axis machines over Horizontal type [8]

4 a) Explain the different Maximum Power techniques used along with Solar PV System [8]

 b) What do you mean by a Solar Energy storage system and how is it broadly classified. [7]

5 a) What is the difference between biomass and biogas? And how does bio mass conversion takes place? [8]

 b) List the materials used for Bio gas generation and the factors that effect the size of a biogas plant [7]

6 a) Explain in detail about the Flashed steam system? And also give its advantages over other systems [8]

 b) What are the possible sources of Geothermal pollution? How these are avoided? [7]

7 a) Explain the basic principle of working Ocean thermal energy conversion (OTEC) with a neat diagram [8]

 b) Enumerate the difficulties in Tidal Power developments? [7]

8   Write Short notes on the following:
    i) Selection of Fuels
    ii) Carnot Cycle and its Importance
    iii) Betz Criteria w.r.t Wind Energy [15]