

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

**IV B.Tech II Semester Supplementary Examinations, April - 2018**  
**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) Explain the process of extra-terrestrial and terrestrial radiation. [8]  
b) Explain how the solar radiation is measured and data is obtained. [7]
- 2 a) What are the important performance indices of a solar collector? Explain them briefly. [8]  
b) Explain the working of a flat plate collector with their thermal analysis. [7]
- 3 a) What are the factors to be considered in the drastic development of wind power? [8]  
b) Derive the expression for maximum wind power extracted using Betz criterion? [7]
- 4 Describe the maximum power tracking process for photovoltaic power system. [15]
- 5 a) Mention different biomass energy resources and what is the energy yield from each of them? [8]  
b) What are the factors effecting the performance of a biomass? [7]
- 6 a) What are the environmental impacts of geothermal energy? [8]  
b) What are the merits and demerits of geothermal energy? [7]
- 7 a) What is the effect of pumping on the output of the tidal plant? [8]  
b) Explain the operation of an oscillating water type of wave device. [7]
- 8 a) Explain the necessity of direct energy conversion. [8]  
b) Briefly explain the Carnot cycle in direct energy conversion. [7]