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**AU/ME - 702 (A)**

**B.E. VII Semester**

Examination, December 2012

**Renewable Energy System**

*Time : Three Hours*

*Maximum Marks : 100*

*Minimum Pass Marks :35*

**Note:** Attempt any five questions out of eight.  
All questions carry equal marks.

- I. (a) Estimate the rate at which sun emits energy. What fraction of this energy is intercepted by the earth and what is the amount intercepted.  
(b) What is a pyranometer. Explain the working principle of it with the help of a neat sketch.
- II. (a) What are the main components of flat plate solar collector, Explain the functions of each.  
(b) What are the main application of solar air heater. Explain one of them in detail.
- III. What do you understand by wind energy. How are wind turbines classified. Describe a horizontal axis wind energy conversion system in detail.

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- IV (a) What is Biomass. How are they useful in solving our energy problem.
- (b) What is a digester. Explain the working of KVIC digester.
- V (a) Write a note on small hydropower system explaining their importance.
- (b) What is ocean energy. Explain the principle of ocean thermal energy conversion system.
- VI Write a note on hybrid energy system of solar, wind and biomass energy.
- VII (a) Discuss Hydrogen as a source of energy.
- (b) Explain different types of fuel cell which are used for energy conversion.
- VIII Write short notes on any four
  - (a) Solar photovoltaic cell
  - (b) Biogas gasifier
  - (c) Biogas plant
  - (d) Site selection for hydro plant
  - (e) Geo thermal energy.

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