

**R09**

Code No: 09A80308

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**

**B. Tech IV Year II Semester Examinations, April - 2014**

**RENEWABLE ENERGY SOURCES**

**(Common to ME, AME)**

**Time: 3 Hours**

**Max. Marks: 75**

**Answer any Five Questions**

**All Questions Carry Equal Marks**

- 1.a) List various non-conventional energy resources. Give their availability, relative merits and their classification.
- b) Explain the working of pyrheliometer with the aid of a neat diagram.
- 2.a) Explain the depletion process of solar radiation as it passes through the atmosphere to reach the surface of the earth.
- b) Define beam, diffused and global radiation. Derive an expression for total radiation on an inclined surface.
- 3.a) Classify different types of solar thermal collector and describe the principle of central tower receiver.
- b) Explain the working of solar pond electric power plant with the help of a schematic diagram.
- 4.a) Describe the principle of solar photovoltaic energy conversion.
- b) Classify different solar energy storage system and explain the working of any one type.
- 5.a) Comment on the relative features of HAWT and VAVT.
- b) Using Betz model of a wind turbine derive the expression for power extracted from the wind.
- 6.a) Discuss what are the biomass resources are available for production of biomass energy.
- b) Discuss the parameters that affect the performance of biogas digester.
- 7.a) Comment on the origin and distribution of geothermal energy.
- b) What is the current status of geo thermal energy in India?
- 8.a) Explain the operation of an oscillating water type of wave device.
- b) With the help of a diagram explain the operation of closed cycle MHD generating system.

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