R09

Code No: C9106

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
M.TECH I SEMESTER EXAMINATIONS, APRIL/MAY-2012
NON-CONVENTIONAL ENERGY SOURCES
(HEATING VENTILATION & AIR CONDITIONING)

Time: 3hours **Max.Marks:60**

Answer any five questions
All questions carry equal marks
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1. Explain the basic difference between an active and passive Solar heating system and with the help of schematic diagram explain solar passive space cooling system through ventilation.

2.a) Give brief account of Sun-Earth relationship.
b) Explain any one Solar radiation measuring instrument with a neat sketch.

3.a) What do you understand by Geothermal energy ? What are the geothermal regions?
b) Explain the harnessing techniques and applications of geothermal energy.

4.a) Explain the process of production of Bio-gas from bio-mass, what are the main advantages of anaerobic digestion of biomass.
b) Discuss the present status of development of biomass energy resources in India

5.a) Explain the concepts of lift and drag forces pertaining to wind turbine
b) Derive an expression for C p max for wind turbine

6. What is the source of tidal energy? What is the minimum tidal range required for practical power plant? How much is potential in tides.

7.a) Explain the operation of oscillating water type wave device, and derive an expression for average annual wave energy at potential site.
b) Explain the technologies available for OTEC.

8. Write short notes on
a) Properties and applications of Hydrogen gas
b) Thermionic and Thermoelectric Generation

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