

**R09**

**Code No: D6401**

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**

**M.Tech II - Semester Examinations, March 2011**

**RENEWABLE ENERGY RESOURCES**

**(POWER ENGINEERING AND ENERGY SYSTEMS)**

**Time: 3hours**

**Max. Marks: 60**

**Answer any five questions  
All questions carry equal marks**

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1. Determine the efficiency of flat plate solar collector and also explain. What are the methods to improve the efficiency of flat plate solar collector at high temperatures? [12]
2. Explain active and passive solar systems? [12]
3. Prove that the torque produced by a wind turbine rotor of radius R can be expressed as  $\Gamma = (\pi/2)C_p R^3 u_0^2 / \lambda$  [12]
4. Explain HAWT and VAWT? [12]
5. Explain anaerobic digestion for biogas? [12]
6. Explain the principle and environmental impacts of OTEC? [12]
7. Explain briefly causes of tides? [12]
8. Explain how thermal power is estimated? [12]

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