## **GUJARAT TECHNOLOGICAL UNIVERSITY**

ME - SEMESTER-IV • EXAMINATION – SUMMER • 2014

Sub	ject	Code: 742101 Date: 04-06-2014
	-	Name: Non-Conventional Energy Conversion Systems
		2:30 pm - 05:00 pm Total Marks: 70
Instr		s: Attempt all questions. Make suitable assumptions wherever necessary. Figures to the right indicate full marks.
Q1	A] B]	Discuss present scope of Non-Conventional Energy systems in Gujarat. [7] Describe with the neat sketch the working of wind energy conversion system (WECS) with main components.
Q2	A]	Define (with figure): 1) Beam Radiation 2) Diffuse radiation 3) Hour angle 4)  Declination angle 5) Solar Altitude angle 6) Solar azimuth angle 7) Surface azimuth angle
	B]	Explain the energy conversion from biomass. [7
	D.I	OR
	B]	Explain working of liquid type flat plate collector with neat sketch. [7]
Q3	A] B]	Write Advantages and disadvantages of wind energy.  With the help of a diagram a) discuss the power versus wind speed characteristic of a wind turbine b) discuss C <sub>p</sub> versus to tip speed ratio diagram.  OR
Q3	A] B]	How can geothermal energy be utilized for electricity generation? [7 Explain the double basin tidal power plant. [7
Q4	A] B]	Explain working of PhotoVoltaic cell. [7 Explain Different energy from ocean. [7  OR
Q4	A]	Discuss the principle of magneto hydro dynamic (MHD) power generation. [7]
	B]	What are the problems associated in use of $H_2$ as energy source? [7]
Q5	A] B]	Explain the closed type of MHD power plant with neat sketch. [7 Explain the single basin and double basin tidal power plant. [7
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Q5	A] B]	Explain the solar still. [7 Draw labeled sketch of a) Pyranometer b) Pyhiliometer c) Sunshine Recorder [7

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