Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–IV • EXAMINATION – SUMMER 2013

Subject Code: 141904 **Date: 17-06-2013**

Subject Name: Non-Conventional Energy Sources

Time: 10:30am – 01:00pm **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	Define the term 'Solar Constant'. Explain the variation of solar constant with the time of the year.	**07**
	(b)	Describe advantages and disadvantages of Wind Energy.	**07**
Q.2	**(a)**	Define the following terms. (i) Air Mass (ii) Global Radiation (iii) Diffuse Radiation.	**07**
	(b)	Calculate the day length on 1st April, 2013 at Ahmedabad.	**07**
		OR	
	(b)	Explain the following terms in context to Solar Flat Plate Collectors. (i) Aperture Area (ii) Stagnation Temperature	**07**
Q.3	**(a)**	Explain construction and working of Basin Type Solar Still with neat figure.	**07**
	(b)	Discuss the methods of site selection for installing wind mill.	**07**
		OR	
Q.3	**(a)**	Explain construction and working of Fixed Dome Type Biomass Plant with neat figure.	**07**
	(b)	Describe the suitability of Biogas for Petrol engines.	**07**
Q.4	**(a)**	Describe the advantages and disadvantages of Geothermal Energy sources.	**07**
	(b)	Explain working of Double Basin Tidal Power Plant with figure. Also write advantages of it.	**07**
		OR	
Q.4	**(a)**	Describe about Oscillating water column wave energy conversion system with figure.	**07**
	(b)	Explain working of open cycle MHD power plant with necessary figure.	**07**
Q.5	**(a)**	Describe the principle of operation of Hydrox fuel cell with neat sketch.	**07**
	(b)	Write applications of Hydrogen energy.	**07**
		OR	
Q.5	**(a)**	Write briefly about the Strategy for Energy conservation.	**07**
	(b)	Explain about thermo chemical conversion of biomass.	**07**

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