Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

B. E. - SEMESTER – IV • EXAMINATION – WINTER 2012

Subject code: 141904 **Date: 31/12/2012**

Subject Name: : Non-Conventional Energy Sources

Time: 02.30 pm - 05.00 pm **Total Marks: 70**

Instructions:

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

Q.1	(a)	What is the difference between Conventional and Non-Conventional Energy Sources?	03
	(b)	Discuss the need of energy conservation in view of the effect on global warming scenario.	04
	(c)	Explain in brief Renewable energy sources with special references to Indian Context.	07
Q.2	(a)	Explain the principal of conversion of solar energy into heat.	04
	(b)	Write the main application of Hydrogen Gas.	03
	(c)	How solar air collectors are classified? What are the main applications of a drier?	07
		OR	
	(c)	Describe in briefly the different energy storage methods used in the solar system.	07
Q.3	(a)	Discuss the advantages and disadvantages of wind energy conversion system?	05
	(b)	Describe the main considerations in selecting a site for wind generators.	04
	(c)	What is the principle of solar photovoltaic power generation?	05
		OR	
Q.3	(a)	How is biogas plants classified? Explain them briefly.	07
	(b)	What are the different methods for hydrogen production? Explain in brief.	07
Q.4	(a)	What are the main types of OTEC (Ocean Thermal Electric Conversion) power plants? Describe their working in brief.	07
	(b)	What are the difficulties in tidal power developments?	03
	(c)	Describe the main considerations for selection of site for a Biogas Plant.	04
		OR	
Q.4	(a)	Explain schematic of an open cycle MHD Generators.	07
	(b)	Explain design principle and operation of fuel cell in brief.	07
Q.5	(a)	What are the main applications of Geothermal energy?	03
	(b)	What are the possible sources of Geothermal pollution? How these are avoided?	04
	(c)	Derive the expression for power developed due to wind.	07
		OR	
Q.5	(a)	What do you mean by Green House? Specify the main type of Green House.	04
	(b)	Write notes on Solar Pond.	03
	(c)	Describe with a neat sketch the working of a wind energy system with main components.	07

****