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## GUJARAT TECHNOLOGICAL UNIVERSITY

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

•		ode: 140904 Date: 31/12/2012	
_	: 02	ame: Institute Elective -1 (Energy Systems) 30 pm - 05.00 pm Total Marks: 70 ons:	
	2. N	Attempt any five questions. Make suitable assumptions wherever necessary. Figures to the right indicate full marks.	
Q.1	(a)	What do you mean by conventional and non conventional source of energy? Explain the advantages and disadvantages of them in detail.	07
	(b)	Draw the general layout of steam power station and explain the working of it in brief.	07
Q.2	(a)	Explain the key points to be considered in selecting the site for Hydro Power Station.	07
	(b)	Why Electrostatic Dust Collectors (ESP) is provided? Explain the operation of it with necessary diagram.	07
	(b)	OR Explain the comparison between Steam, Hydro and Nuclear power station with reference to efficiency, maintenance, fuel cost, reliability and life.	07
Q.3	(a) (b)	Explain the grid connected wind energy system in detail.  Define solar radiation. Explain the application of solar energy in brief.  OR	07 07
Q.3	(a)	List out the different types of solar collector. Explain the different types of flat plat collectors in brief.	07
	(b)	Explain the limitations of wind energy system also explain the effects of wind speed on grid conditions.	07
Q.4	(a) (b)	Explain the working and characteristic of solar photo voltaic system. Explain the application of solar photo voltaic system to lighting and water pumps.	07 07
		OR	
Q.4 Q.4	(a) (b)	Explain the advantages and draw backs of solar photo voltaic system.  Draw and explain the schematic arrangement of Nuclear power station.	07 07
Q.5	(a)	Explain the sources and properties of Hydrogen as fuel & also give the application of Hydrogen energy	07
	(b)	Define fuel cell. Explain the principle and operation of fuel cell technology.  OR	07
Q.5	(a)	Explain the different types of Ash Handling system with reference to thermal power station.	07
	(b)	Give the basic drying parameters and design calculations for solar drier.	07

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