Seat No.:	Enrolment No.
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## **GUJARAT TECHNOLOGICAL UNIVERSITY**

**BE - SEMESTER-VI • EXAMINATION - SUMMER • 2014** 

Sub	ject	Code: 161904 Date: 28-05-2014	
Tim	_	Name: Alternate Energy Sources 0:30 am - 01:00 pm Total Marks: 70	
HISTI	1. 2.	Attempt all questions.  Make suitable assumptions wherever necessary.  Figures to the right indicate full marks.	
Q.1	(a)	What do you mean by primary and secondary energy sources? What are the prospects	07
	<b>(b)</b>	of non conventional energy sources in India? Explain following terms: - Energy conservation, Energy management, energy audit, energy efficiency, energy security.	07
Q.2	(a)	How are the concentrating collectors classified? With neat sketch explain construction	07
	<b>(b)</b>	and working of any one.  Write brief note on Performance Characteristic of Wind machine.  OR	07
	<b>(b)</b>	Define the following terms: solar constant, air mass, solar declination, zenith angle, day length, local solar time, solar altitude angle.	07
Q.3	(a)	Explain in detail site selection criteria for biogas plant and list digester design	07
	<b>(b)</b>	consideration. List advantages and disadvantages of Geothermal energy as compared to Wind and Solar energy.	07
Q.3	(a) (b)	OR  How are biomass gasifiers classified? With a neat sketch explain any one.  List application and prospects of geothermal energy with reference to Indian context.	07 07
Q.4	(a) (b)	Derive an expression of energy and power in simple single basin tidal power plant.  Describe the closed cycle O.T.E.C. system with its advantages over open cycle system.  OR	07 07
Q.4	(a)	Explain the following wave energy conversion devices with neat sketches: Float wave energy conversion device, dolphin type wave generator.	07
	<b>(b)</b>	Explain how a selection criterion of heat exchangers is done in O.T.E.C. system.	07
Q.5	(a) (b)	Write brief note on M.H.D. design problems and developments.  Draw neat labeled sketch only of the following:  (i)K.V.I.C. digester (ii) Sunshine recorder (iii) Pyranometer.  OR	07 07
Q.5	(a)	Explain following terms pertaining to MHD system:	07
	<b>(b)</b>	<ul><li>(i)Seeding (ii) Super conductivity (iii) Gas conductivity</li><li>Draw neat labeled sketch only of the following:</li><li>(i)Solar still (ii) Solar cooker (iii) Solar dryer.</li></ul>	07

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