Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–IV EXAMINATION – SUMMER 2016

Subject Code:140904 **Date:10/06/2016**

Subject Name:Energy Systems

Time:10:30 AM to 01:00 PM **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)**	Draw the schematic layout of steam power station and explain the working of it in brief.	**07**
	(b)	Compare steam, hydro, gas and diesel power plants on basis of site, initial cost, fuel cost, maintenance, water requirement, reliability, etc	**07**
Q.2	**(a)**	Explain the essential factors which influence the choice of site for hydro power station.	**07**
	(b)	Explain schematic arrangement of Diesel power plant.	**07**
		OR	
	(b)	Explain with neat diagram the "Pumped Storage Hydro Electric power plant".	**07**
Q.3	**(a)**	Explain function of main components of a Nuclear Reactor with neat sketch.	**07**
	(b)	Differentiate between open and closed gas turbine cycles. Discuss two methods for improving the efficiency of gas turbine plant. Why is a starting motor required in a gas turbine power plant	**07**
		OR	
Q.3	**(a)**	Discuss applications of Diesel Power station.	**07**
	(b)	What is meant by water hammer effect? How it is minimized with the help of surge tank?	**07**
Q.4	**(a)**	Explain Solar Distillation system.	**07**
	(b)	Define following with diagram for solar – earth system • Solar azimuth angle • Zenith angle • Declination angle • Hour angle • Angle of incidence	**07**
		OR	
Q.4	**(a)**	Discuss the grid connected wind energy conversion system with the help of schematic diagram.	**07**
	(b)	Explain solar photovoltaic system and also explain its use in solar pumping.	**07**
Q.5	**(a)**	With diagram explain working of open cycle OTEC systems.	**07**
	(b)	Explain various factors to be consider while designing biogas gasifire	**07**
		OR	
Q.5	**(a)**	Why Electrostatic Dust Collectors (ESP) is provided? Explain the operation of it with necessary diagram	**07**
	(b)	Explain the sources and properties of Hydrogen as fuel & also give the application of Hydrogen energy.	**07**

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