Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VII EXAMINATION – SUMMER 2016

Subject Code:171907 **Date:05/05/2016**

Subject Name:Energy Conservation and Management(Department Elective - I)

Time:02:30 PM to 05:00 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)**	Discuss present energy consumption scenario of India.	**07**
	(b)	What is energy security and what is Indian government strategy for future to meet energy security.	**07**
Q.2	**(a)**	Define the following terms: (1) Dew Point temperature (2) HCV (3) LCV (4) Contract Demand (5) Time of Day tariff (6) Power Factor (7) Inductive load	**07**
	(b)	Discuss "Post Audit" phase of Energy Audit methodology.	**07**
		OR	
	(b)	Give the format of Energy audit report.	**07**
Q.3	**(a)**	Define following financial terms: (1) Cash flow (2) time value of money (3) capital cost (4) depreciation	**07**
	(b)	Which tool is used to represent difference between standard consumption and actual consumption? Explain with sample graph.	**07**
		OR	
Q.3	**(a)**	How to save energy by substituting existing fuel? Give some examples.	**07**
	(b)	Explain Indirect method of Energy Efficiency calculation for Furnace.	**07**
Q.4	**(a)**	How to save energy in Refrigeration and Air Conditioning plant?	**07**
	(b)	Discuss the effect of following parameters on the performance of Boiler (1) Excess air (2) Blow down (3) Waste heat utilization	**07**
		OR	
Q.4	**(a)**	How to save energy in Compressed air delivery system as well as compressor?	**07**
	(b)	How to make lighting system of your college campus more efficient?	**07**
Q.5	**(a)**	Make a list of various energy saving opportunities in Pump.	**07**
	(b)	For an existing plant a pump replacement is planned. A pump is working for 4400 hours per year and delivers 8000 m^3/hr of water at 40 m height. Two pumps are finalized for the same. Pump A is 76% efficient and pump B is 82% efficient with additional cost of 1lac rupees. Select the pump. Power consumption of a pump is given by following formula. $Power\ consumption = \left(\frac{\rho \times g \times Q \times H}{3600 \times 10^3}\right)$	**07**
		OR	
Q.5	**(a)**	Give examples of waste heat utilization where high temperature waste heat is available.	**07**
	(b)	Explain topping cycle co-generation plant with sketch.	**07**

****