Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. - SEMESTER – II • EXAMINATION – WINTER • 2013

Subject code: 1721107 **Date: 04-01-2014**

Subject Name: Energy Conservation & Management

Time: 10.30 am – 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)**	Define Energy Management? State the principles of energy management and discuss the energy scenario with respect to energy sources available in India.	**07**
	(b)	Define waste heat recovery. List out the types of waste heat recovery devices and explain waste heat recovery through heat exchanger.	**07**
Q.2	**(a)**	Define Energy audit. Enlist the types of energy audit and state the need of energy audit. Explain detailed energy audit methodology.	**07**
	(b)	Enlist types of steam traps. Explain its importance and explain any two.	**07**
		OR	
	(b)	State the objectives of energy management and discuss the energy management strategies in detail.	**07**
Q.3	**(a)**	Enlist the Energy audit Instruments and explain any three in short with line sketches.	**07**
	(b)	Energy conservation opportunities in steam systems.	**07**
		OR	
Q.3	**(a)**	Explain Energy conservation opportunities in I.C. Engines.	**07**
	(b)	Explain the terms: (1) PEP (2) pay back period (3) Internal rate of return. (4) Benchmarking	**07**
Q.4	**(a)**	What is co-generation? Classify the co-generation systems and explain topping cycle with suitable example and neat sketch.	**07**
	(b)	Explain the types of cooling loads to be considered for load calculation and explain flywheel effect of building.	**07**
		OR	
Q.4	**(a)**	Explain the procedures for calculation of cooling load for residential building.	**07**
	(b)	Discuss waste heat recovery in Heat wheel and heat pipe.	**07**
Q.5	**(a)**	What is power factor? Explain power factor improvement. Also state the benefits of power factor improvement.	**07**
	(b)	Discuss the factors considered while electrical Billing.	**07**
		OR	
Q.5	**(a)**	Define life cycle costing and explain step by step procedure for life cycle costing.	**07**
	(b)	Write a note on step by step control of maximum demand of load.	**07**

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