Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME – SEMESTER II (OLD) – • EXAMINATION – SUMMER 2016

Subject Code: 1721107 **Date:20/05/2016**

Subject Name: Energy Conservation and Management

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)**	Write brief note on Indian Energy Scenario.	**07**
	(b)	Explain the following terms: energy efficiency, energy management, commercial energy, energy monitoring.	**07**
Q.2	**(a)**	List energy savings opportunities in refrigeration and air conditioning plants.	**07**
	(b)	List suggestions for energy savings in compressed air system.	**07**
		OR	
	(b)	Define Energy audit. Enlist the types of energy audit and state the need of energy audit. Explain detailed energy audit methodology.	**07**
Q.3	**(a)**	Explain annual heating & cooling load factors that influence thermal performance, analysis of existing buildings.	**07**
	(b)	Differentiate between the following (1) Present value and net present value (2) Low grade energy and high grade energy (3) Energy intensity and energy pricing	**07**
		OR	
Q.3	**(a)**	Explain the terms: (1) payback period (2) return on investment (3) Internal rate of return. (4) Benchmarking	**07**
	(b)	Write brief note on life cycle costing energy systems.	**07**
Q.4	**(a)**	Which techniques are used for energy conservation in pumps and explain them.	**07**
	(b)	Write brief note on computer controlled energy management system.	**07**
		OR	
Q.4	**(a)**	List sources of waste heat from industries. Explain various options of waste heat recovery.	**07**
	(b)	Explain various energy conservation techniques applicable in commercial buildings.	**07**
Q.5	**(a)**	Explain supply side and demand side of energy management. Also discuss hierarchical levels of supply side energy management.	**07**
	(b)	Explain energy conservation possibilities in I .C. engines.	**07**
		OR	
Q.5	**(a)**	State and explain various energy efficiency methods in steam turbine cogeneration system.	**07**
	(b)	What is co-generation? Classify the co-generation systems and explain suitability of cogeneration system in any process industry.	**07**

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