Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

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

Subject Code: 2721008 **Date: 02/06/2016**

Subject Name: Energy Economics 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)**	What are the objectives of Energy management and also enlist various elements of energy management.	**07**
	(b)	Discuss the world energy scenario. Explain long term energy scenario of India.	**07**
Q.2	**(a)**	What do you mean by co-generation? Classify co-generation system and explain bottoming cycle.	**07**
	(b)	Discuss in detail the carbon credit calculation.	**07**
		OR	
	(b)	Define: Energy, Energy Management, Energy Economics, Energy Efficiency, Energy Audit, Power Factor, Load Factor	**07**
Q.3	**(a)**	How is economic growth linked to energy consumption?	**07**
	(b)	Define the following terms with three examples for each – a) Primary and Secondary Energy. b) Commercial and Non-commercial Energy. c) Renewable and Non-renewable Energy	**07**
		OR	
Q.3	**(a)**	Discuss simple payback period. Mention its advantages and limitations. A co-generation plant installation is expected to reduce a company's annual energy bill by Rs. 24 lacs. If the capital cost of the new co-generation installation is Rs. 90 lacs and the annual maintenance and operating costs are Rs. 6 lacs, what will be the expected payback period for the project?	**07**
	(b)	Explain following terms in context of energy economics (i) Net present value (ii) Initial and annual cost (iii) Time value of money (iv) Internal rate of returns.	**07**
Q.4	**(a)**	Discuss principles and benefits of energy management	**07**
	(b)	Explain cumulative and life cycle savings.	**07**
		OR	
Q.4	**(a)**	With a neat sketch explain different between bottoming and topping cycle co-generation plant.	**07**
	(b)	Write short note on Clean Development Mechanism project cycle.	**07**
Q.5	**(a)**	Discuss the different methods to analyze the energy efficiency of electrical utilities.	**07**
	(b)	Discuss the importance of non-conventional form of energy in energy management. Discuss the applications of renewable energy sources.	**07**
		OR	
Q.5	**(a)**	Explain the energy saving tips in compressors.	**07**
	(b)	Discuss the sources of waste heat and its potential applications.	**07**

****