Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME SEMESTER II EXAMINATION – SUMMER 2017

Subject Code: 2721411 **Date: 31/05/2017**

Subject Name: Energy Management

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)**	Differentiate between the following terms: 1.Reactive power and Active power 2. High grade energy and low grade energy 3. Contract demand and Maximum demand	**07**
	(b)	Explain the difference between energy conservation and energy efficiency, and state one example where energy costs are reduced but energy consumption goes up.	**07**
Q.2	**(a)**	Wind at 1 atm pressure and 15 °C has a velocity of 15m/s. For propeller type wind turbine the diameter is 120 m, turbine operating speed is 40 RPM at maximum efficiency calculate I. Total power density in wind stream II. The maximum obtainable power density III. Power density IV. Torque and axial thrust	**07**
	(b)	Describe the main considerations in selecting a site for wind generators.	**07**
		OR	
	(b)	Write brief note on National Energy strategies.	**07**
Q.3	**(a)**	Explain basic components of solar photovoltaic system for power generation and advantages and limitations of solar photovoltaic system.	**07**
	(b)	Explain with neat sketches various methods of tidal power generation. What are limitations of each method?	**07**
		OR	
Q.3	**(a)**	State and explain concept of active and passive solar space heating and cooling.	**07**
	(b)	Explain recent advances in gas based thermal power generation technologies.	**07**
Q.4	**(a)**	Why is Hydrogen called as future fuel?	
	(b)	Write brief note on Molten Carbonate Fuel Cells.	**07**
		OR	
Q.4	**(a)**	Explain Magma geothermal resources and current status of geothermal energy in India.	**07**
	(b)	Explain latest trends Micro Hydel developments”	**07**
Q.5	**(a)**	Explain importance of urban energy planning and effort made to achieve it.	**07**
	(b)	List advantages of demand side energy management.	**07**
		OR	
Q.5	**(a)**	Write brief note on rural energy planning.	**07**
	(b)	Explain Environmental Management Plan (EMP) & Environmental Monitoring	**07**

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