

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER– VIII (New) EXAMINATION – WINTER 2019****Subject Code: 2180910****Date: 21/11/2019****Subject Name: Energy Conservation, And Audit****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.

		MARKS
<b>Q.1</b>	(a) Explain the Pump operating point with a diagram?	<b>03</b>
	(b) What are the immediate term energy strategies recommended?	<b>04</b>
	(c) Explain the following stating the advantages and limitations if any	<b>07</b>
	a) Simple Pay Back Period	
	b) Return on Investment	
	c) Internal rate of return	
<b>Q.2</b>	(a) How benchmarking of energy consumption internally and externally may be useful	<b>03</b>
	(b) Explain briefly about Emission Trading?	<b>04</b>
	(c) Define project and mention various steps involved in Project Management	<b>07</b>
	<b>OR</b>	
	(c) What is the procedure of conducting free air delivery test of compressor by nozzle method?	<b>07</b>
<b>Q.3</b>	(a) Why steam is used as a popular mode of conveying energy?	<b>03</b>
	(b) Explain Net Present Value and how NPV is calculated.	<b>04</b>
	(c) Explain in detail the methodology for conducting a detailed energy audit.	<b>07</b>
	<b>OR</b>	
<b>Q.3</b>	(a) What are the steps you might consider in setting up an energy management program?	<b>03</b>
	(b) What do you understand by energy management and energy efficiency?	<b>04</b>
	(c) Explain the terms with respect to cooling tower performance:	<b>07</b>
	a) Wet bulb temperature   b) Capacity and Range	
<b>Q.4</b>	(a) What are the three reasons for poor fan performance in the field?	<b>03</b>
	(b) List down some of the important parameters that influence the motor selection?	<b>04</b>
	(c) List out the tools commonly needed for energy audits and explain any three.	<b>07</b>
	<b>OR</b>	
<b>Q.4</b>	(a) What is the effect of furnace draft	<b>03</b>
	(b) Briefly explain the technologies for energy conservation.	<b>04</b>
	(c) Explain the principles of energy management in detail.	<b>07</b>

- Q.5 (a) Highlight advantages of CFL lamp (compact fluorescent lamp) over incandescent lamps? **03**  
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- (b) Explain the different types of depreciation. **04**
- (c) Write few salient points about optimum capacity utilization of furnaces. **07**

**OR**

- Q.5 (a) What is the significance of optimizing furnace temperature? **03**
- (b) List any five problems that can arise due to harmonics in a system. **04**
- (c) Write short notes on 'intermittent blow down' and 'Continuous blow down' with respect to boilers. **07**

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