Enrolment No./Seat No_____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER– VI EXAMINATION – SUMMER 2026

Subject Code:3160916 Date:29-05-2026

Subject Name:Energy Conservation

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.**
4. **Simple and non-programmable scientific calculators are allowed.**

			Marks
Q.1	**(a)**	Explain requirements of energy audit in different sectors.	**03**
	(b)	Why was energy conservation act framed? Explain the term "designated consumers" and "BEE " with respect to it.	**04**
	(c)	Explain various instruments used for performing energy audit and monitoring of energy saving.	**07**
Q.2	**(a)**	Explain methods to reduce eddy current losses and copper losses in transformer.	**03**
	(b)	Explain causes of high transmission and distribution losses.	**04**
	(c)	Explain effects of reduced power factor on electrical power system.	**07**
		OR	
	(c)	Explain opportunities of energy conservation while using electric motors.	**07**
Q.3	**(a)**	State and explain factors affecting the heat losses in boiler.	**03**
	(b)	Explain impact of renewable energy on energy audit recommendations.	**04**
	(c)	Explain energy conservation using energy efficient lighting sources.	**07**
		OR	
Q.3	**(a)**	Explain loss of steam energy in a piping network and methods to reduce it.	**03**
	(b)	Explain energy management strategies.	**04**
	(c)	Write a technical note on: Soft starters.	**07**
Q.4	**(a)**	List factors affecting furnace performance.	**03**
	(b)	What is waste heat recovery system? Explain its applications.	**04**
	(c)	Discuss determination of Economic Thickness of Insulation (ETI).	**07**
		OR	
Q.4	**(a)**	Explain need and principal of co-generation.	**03**
	(b)	Explain energy conservation opportunities at generating stations.	**04**
	(c)	Explain direct method for finding thermal efficiency of furnace.	**07**
Q.5	**(a)**	List and explain main areas for improving the energy efficiency of cooling tower.	**03**
	(b)	Explain any 4 ways in which air compressors can be classified.	**04**
	(c)	Explain energy conservation opportunities in thermal utility like pump.	**07**
		OR	
Q.5	**(a)**	Explain performance assessment of blowers.	**03**
	(b)	Explain parallel operation of pumps.	**04**
	(c)	Explain energy saving opportunities in air compressors.	**07**

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