Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VIII(NEW) EXAMINATION – SUMMER 2019

Subject Code:2180910 Date:09/05/2019

Subject Name:Energy Conservation, And Audit

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.**

			MARKS
Q.1	**(a)**	Discuss pre-audit phase activities.	**03**
	(b)	Discuss advantages and disadvantages of simple payback analysis.	**04**
	(c)	What is LED lamp? Mention advantages and disadvantages of LED.	**07**
Q.2	**(a)**	How to reduce transformer loss?	**03**
	(b)	List the advantages and disadvantages of synchronous motor VSD system.	**04**
	(c)	Explain the working principle of soft starters with its advantages and application.	**07**
		OR	
	(c)	Discuss demand side management.	**07**
Q.3	**(a)**	What are the advantages of good power factor?	**03**
	(b)	List the barrier and limitations of energy optimization projects.	**04**
	(c)	Explain the guidelines for writing energy audit report.	**07**
		OR	
Q.3	**(a)**	Explain the effect of harmonics and improvement method.	**03**
	(b)	Explain the application of following instruments used for energy audit and monitoring: Water flow meter, Leak detector, Temperature sensor, Speed meter.	**04**
	(c)	Explain the conditions and advantages of parallel operation of transformers and generators.	**07**
Q.4	**(a)**	Write a short note on reheaters.	**03**
	(b)	Explain dearation and evaporation feed water treatment.	**04**
	(c)	What is an application of economizer? List out its advantages and design aspects to improve the boiler efficiency.	**07**
		OR	
Q.4	**(a)**	List factors affecting furnace performance.	**03**
	(b)	Describe the factors affecting the fuel economy in furnaces.	**04**
	(c)	Explain the working of Circulating Fluidized Bed Combustion Boilers (CFBCB).	**07**
Q.5	**(a)**	Explain the performance characteristics of pumps.	**03**
	(b)	Explain the performance of pumps in parallel and series operation.	**04**
	(c)	Describe the methods to improve performance of compressed air system.	**07**
		OR	
Q.5	**(a)**	Enlist the applications of compressed air in industry.	**03**
	(b)	Enumerate the energy saving opportunities in cooling towers.	**04**
	(c)	What is thermal insulation? Write down its advantages and properties of thermal insulating material.	**07**

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