Enrolment No./Seat No_____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VI (NEW) EXAMINATION – SUMMER 2024

Subject Code:3161919 Date:24-05-2024

Subject Name: Energy Conservation 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.**
4. **Simple and non-programmable scientific calculators are allowed.**

			MARKS
Q.1	**(a)**	Explain in brief energy pricing.	**03**
	(b)	Explain silent features of Energy Conversation Act 2001	**04**
	(c)	Explain long term energy scenario for India	**07**
Q.2	**(a)**	Write short note on energy security.	**03**
	(b)	Briefly explain essential elements of energy monitoring system.	**04**
	(c)	Explain need of energy sector reforms in India	**07**
		OR	
	(c)	Write a short note on procedure for CDM (Clean Development Mechanism) Project cycle.	**07**
Q.3	**(a)**	Define: a) Bench Marking b) ESCOs c) BEE	**03**
	(b)	Explain steps involved in CUSUM analysis.	**04**
	(c)	Give name and use of different energy audit instruments.	**07**
		OR	
Q.3	**(a)**	Explain benefits of energy monitoring and targeting.	**03**
	(b)	What do you mean by energy audit? Discuss types of energy audit briefly.	**04**
	(c)	List the energy saving opportunities in refrigeration air conditioning plant area.	**07**
Q.4	**(a)**	List the benefits of waste heat recovery system.	**03**
	(b)	Define energy management. State the benefits of energy management.	**04**
	(c)	Annual savings after replacement of boiler for three years is Rs. 5, 00,000, Rs. 5, 50,000, Rs. 6, 50,000. Total project cost is Rs 13.5 lakh. Considering cost of capital as 12%, what is the net present value of the proposal?	**07**
		OR	
Q.4	**(a)**	Give tips for energy savings in pumps.	**03**
	(b)	List the various types of heat loses in furnace.	**04**
	(c)	An energy auditor recommended to replace an old air fan and incompetently designed air delivery duct system causing Rs 23 lakh a year in electricity cost by changing the system with a modern backward curved fan with adequately designed duct system for total investment costs of Rs 2.2 lakh. Expected electricity cost reduction is 5%. Considering over 15 years sustained savings, calculate 'IRR'	**07**

Q.5	**(a)**	State the three primary strategic objectives of Prototype Carbon Fund (PCF).	**03**
	(b)	Explain sensitivity analysis.	**04**
	(c)	Write short note on climate change and development of UNFCC.	**07**

OR

Q.5	**(a)**	How does the Bachat Lamp Yojna work?	**03**
	(b)	State the roles and responsibilities of COP (Conference of the Parties).	**04**
	(c)	Write short note on Energy Management Information Systems. (EMIS)	**07**

****