Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER– VI (NEW) EXAMINATION – WINTER 2021

Subject Code:3161919 Date:24/11/2021

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

			MARKS
Q.1	**(a)**	List the Designated Consumers (DC) notified under Energy Conservation (EC) Act-2001.	**03**
	(b)	There are eight National Missions which form the core of the Nation Action Plan, List them.	**04**
	(c)	Write short note on 'Indian Energy Scenario'.	**07**
Q.2	**(a)**	Define following terms: (1) Monitoring (2) Target setting (3) Reporting.	**03**
	(b)	List the services offers by ESCO (Energy Saving Companies)	**04**
	(c)	Compare between Net Present Value (NPV) and Internal Rate of Return (IRR)	**07**
		OR	
	(c)	Explain in brief Energy Performance Contracts.	**07**
Q.3	**(a)**	State benefits of Energy Management (EM)	**03**
	(b)	What are the steps involved in CUSUM analysis?	**04**
	(c)	List the Energy Audit Instruments. Explain any one of them.	**07**
		OR	
Q.3	**(a)**	What is bench marking? Write three approaches for industrial bench marking.	**03**
	(b)	Write only comprehensive Ten steps Methodology for conducting detailed Energy Audit analysis is adopted worldwide.	**04**
	(c)	Name various financing options. Explain self-finance energy management.	**07**
Q.4	**(a)**	List various types of heat losses in furnace.	**03**
	(b)	List the seven important suggestions for the energy saving in pumps & fans.	**04**
	(c)	With neat sketch explain Gas Turbine co-generation plant.	**07**
		OR	
Q.4	**(a)**	Prepare a list of measures for energy optimization in boilers and in lighting system.	**03**
	(b)	Explain following terms: (1) Reactive and Active Power (2) Importance of TOD (Time of the Day)	**04**
	(c)	Discuss the sources of waste heat and its potential applications.	**07**
Q.5	**(a)**	List the types of insulations based on temperature range with Examples.	**03**
	(b)	List the seven basic stages involved in CDM procedure.	**04**
	(c)	Explain the operating principle of a waste heat recovery boiler with examples.	**07**
		OR	
Q.5	**(a)**	What is the objectives of PCF(Prototype Carbon Fund)	**03**
	(b)	Draw CUSUM chart.	**04**
	(c)	How the furnace performance is evaluated by direct and indirect methods?	**07**

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Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VI (NEW) EXAMINATION – SUMMER 2022

Subject Code:3161919 Date:10/06/2022

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)**	Discuss pre -audit phase activities.	**03**
	(b)	Briefly explain various schemes relating to Bureau of Energy Efficiency (BEE) for designated consumers, State designated agencies.	**04**
	(c)	Define energy security. Enlist different strategies to achieve it and discuss role of energy conservation to achieve energy security.	**07**
Q.2	**(a)**	Compare Net Present Value and Internal Rate of Return	**03**
	(b)	What is energy security? Explain how it can be achieved?	**04**
	(c)	Explain Simple pay back method with its advantage & limitation	**07**
		OR	
	(c)	Write note on ‘Indian Energy scenario’.	**07**
Q.3	**(a)**	Explain Sensitivity Analysis.	**03**
	(b)	Discuss the role of Energy Service Companies for financial management.	**04**
	(c)	Explain briefly the various elements of a monitoring and targeting system.	**07**
		OR	
Q.3	**(a)**	Explain need for energy audit	**03**
	(b)	Distinguish between energy conservation and energy Management.	**04**
	(c)	Classify the energy audit & Explain the three phases of detailed energy audit.	**07**
Q.4	**(a)**	Define the following terms: Dew Point temperature, HCV, Latent heat of fusion	**03**
	(b)	Explain techniques of energy conservation in refrigerated cold storage plants.	**04**
	(c)	List application, advantages of Thermic fluid heaters and super critical boilers from energy conservation point of view.	**07**
		OR	
Q.4	**(a)**	Mention the various source of waste heat recovery	**03**
	(b)	List advantages and applications of cogeneration.	**04**
	(c)	Write brief note on ECBC code for Building construction.	**07**
Q.5	**(a)**	Give tips for energy saving for future.	**03**
	(b)	Explain energy conservation Act 2001 and its features, notifications under the Act.	**04**

	(c)	Explain the importance of CUSUM chart and its procedure to analyze the case with help of diagrams.	**07**

OR

Q.5	**(a)**	List the various key instruments for carrying out energy audit	**03**
	(b)	How to make lighting system of your college campus more efficient?	**04**
	(c)	Explain the terms in detail: Sustainable development, Kyoto Protocol.	**07**

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