

Name:

Enrolment No:



UPES

End Semester Examination, December 2023

Course: Energy Efficiency and Management

Program: B.Tech. – Renewable and Sustainable Energy Engg

Course Code: EPEG3030

Semester: V

Time : 03 hrs.

Max. Marks: 100

Instructions: All questions are to be Answered

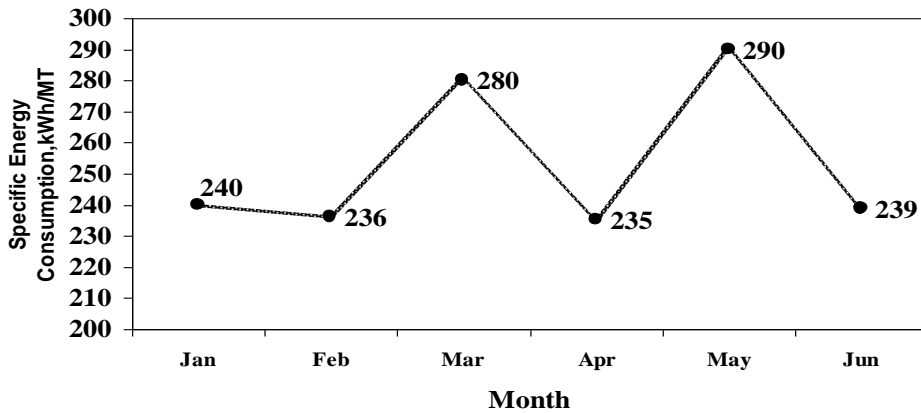
SECTION A
(5Qx4M=20Marks)

S. No.		Marks	CO
Q 1	List down the steps for Investment Grade Energy Audit	4	CO1
Q 2	Illustrate the matrix of types and priority of ECM implementation	4	CO1
Q 3	Elucidate the utility of CUSUM technique for diagnosing the abnormality in system.	4	CO2
Q 4	Describe the parameters measured by Flue gas analyzer.	4	CO2
Q 5	Brief the importance of the Energy performance Indicator and its use for Bench marking.	4	CO1

SECTION B
(4Qx10M= 40 Marks)

Q 6	Explain the post audit phase of a typical Energy Audit.	10	CO3
Q 7	Energy saving measures were implemented in a process plant prior to Jan-2008. The company produced consistently 2000 T/month in each of the six months. Refer the graph given in the table below. The predicted Specific energy consumption for 2000 MT production is 260 kWh/MT. It may be noted that retrofits were not functioning during March & May 2008. Use CUSUM technique and calculate energy savings for 6 months period of 2008.	10	CO2

Actual Specific Energy Consumption Profile



Q 8	Enumerate the DSM measures taken by Govt of India for various sectors	10	CO4
Q 9	<p>A water pump of a process plant is analyzed for efficiency and following data is collected: Flow: 60 m³/hr., Total head: 30 meters, Power drawn by motor– 7.4 kW, Motor efficiency – 88% Determine the pump efficiency.</p> <p style="text-align: center;">OR</p> <p>Illustrate the Energy saving opportunities in a typical pumping system.</p>	10	CO3
SECTION-C (2Qx20M=40 Marks)			
Q 10	Establish and justify the relationship between Energy performance and Energy management system.	20	CO5
Q 11	<p>Evaluate how the PAT scheme is fulfilling the requirements of the National Action Plan for Climate change.</p> <p style="text-align: center;">OR</p> <p>Discuss and analyze the key features and mechanism of Bachat Lamp Yojna.</p>	20	CO4