Reg No.:_____   Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
Eighth semester B.Tech degree examinations, September 2020

Course Code: EE474
Course Name: ENERGY MANAGEMENT AND AUDITING

Max. Marks: 100   Duration: 3 Hours

PART A
Answer all questions, each carries 5 marks.   Marks

1	Define energy management. Discuss the significance of electrical load management.	(5)
2	Enumerate the features of energy efficient motors.	(5)
3	Illustrate blow down process in boilers.	(5)
4	Comment on waste heat recovery devices.	(5)
5	Discuss on any two energy audit instruments.	(5)
6	Mention the principle of cogeneration system.	(5)
7	Discuss net present value (NPV) method of evaluating economic feasibility of a project.	(5)
8	Explain cash flow diagram.	(5)

PART B
Answer any two full questions, each carries 10 marks.

9		Explain various peak demand control methodologies.	(10)
10	a)	Mention the significance of optimal load scheduling	(5)
	b)	Enlist various energy saving opportunities in electrolytic process	(5)
11	a)	A 50kW induction motor with 86 % present full load efficiency is being considered for replacement by a 89 % efficiency motor. What will be the savings in energy if the motor works for 6000 hours per year and cost of energy is Rs. 4.50 per kWh?	(5)
	b)	Discuss any five energy saving methods used in lighting system.	(5)

PART C
Answer any two full questions, each carries 10 marks.

12		Enumerate various energy saving opportunities in steam distribution system.	(10)
13	a)	Discuss any five energy saving methods in furnaces.	(5)
	b)	Mention the different types and benefits of waste heat recovery system.	(5)
14		Define COP of an HVAC system. With the help of a neat schematic explain vapour compression refrigeration system.	(10)

PART D
Answer any two full questions, each carries 10 marks.

15 Discuss in detail on 10 step methodology in detailed energy auditing. (10)

16 a) What are the various factors influencing cogeneration choice? (5)

    b) Write a note on IRR method. (5)

17 A proposed project requires a capital investment of Rs 20000. The cash flow (10)
generated by the project are as shown in the table below.

Year	Cash flow
0	-20000
1	+6000
2	+5500
3	+5000
4	+4500
5	+4000
6	+4000

Calculate the internal rate of return of the project. Assume initial value of i to be 8%

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