H1088

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY EIGHTH SEMESTER B.TECH DEGREE EXAMINATION, MAY 2019 Course Code: EE482 Course Name: ENERGY MANAGEMENT AND AUDITING Max. Marks: 100 Duration: 3 H PART A Maswer all questions, each carries 5 marks. P PART A 1 What are the objectives of energy management? P 2 Explain the criteria for selection of motors. P 3 Define thermal efficiency of boiler? Explain the methods of assessing boiler efficiency. P 4 Explain the classification of waste heat recovery system. P 5 Explain the needs of energy audit. P 6 What are the duties of energy manager? P 7 Compare simple pay back method and present value method. P	Reg No.	: Name:	_
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method.	8	Explain the procedure for evaluating proposals using average rate of return method.	(5)

PART B

Answer any two full questions, each carries 10 marks.

9 The load schedule of a industry is given below

12AM-6AM	6AM-10AM	10AM-2PM	2PM-6PM	6PM-10PM	10PM-12AM
Lightning	Compressor	Cooling load	Motor	Motor load	Lightning
load	load and	and	load	and	load
	Heating load	Heating load		Heating load	

Power rating of each load is as follows

Lightning load: 2 kWCompressor load: 4 kWHeating load: 4.5 kWMotor load: 3 kWCooling load: 2.5 kW

The tariff is as follows :

Time	6AM - 6PM	6PM - 10PM	10PM - 6AM
Rate	Rs. 5/kWh	Rs. 7/kWh	Rs. 3.5 /kWh

(i) Compute the annual energy bill ?

(ii) By conducting an energy audit it was found that the heating load working (5) during 6PM-10PM can be shifted to 10PM- 2AM without affecting the process. Compute the annual saving in energy bill by shifting the heating load.

10		Explain the energy management opportunities in motor.			
11	a)	Explain different types of industrial loads.	(5)		

b) Explain the lighting controls used for energy saving. (5)

PART C

Answer any two full questions, each carries 10 marks.

12	Explain the process	of boiler	blowing	down.	What	are	the	Benefits	of boiler	(10)
	blow down?									

- 13 a) What are the factors affecting Air conditioning system performance? (5)
 - b) Explain any three energy saving opportunities in steam system. (5)
- 14 a) Define Coefficient of performance. (3)
 - b) What are the advantages of waste heat recovery system? Explain. (7)

(5)

PART D

Answer any two full questions, each carries 10 marks.

15		Explain different schemes of cogeneration system.	(10)
16	a)	Explain Computer aided energy management.	(5)
	b)	Explain time value of money.	(5)
17	a)	A solar power plant uses twelve mercury vapour lamp of 200 Watts for lighting	
		during night. It was found that high pressure sodium vapour lamp of 150 W	
		produces same lumens compared to the mercury vapour lamp and the ballasts	
		were matching. If the lamps are working for 10 hours a day, compute the simple	
		payback period? Cost of electricity is Rs 5/kWh and cost of one 150W high	
		pressure sodium vapour lamp is Rs. 1600/-	
			(5)

(5)

b) Write short note on (a) Internal rate of return method (5)

(b) life cycle costing approach
