

**P.E.S. College of Engineering, Mandya - 571 401***(An Autonomous Institution affiliated to VTU, Belagavi)***Eighth Semester, B.E. - Electrical and Electronics Engineering****Semester End Examination; July / August - 2022****Energy Auditing and Demand Side Management**

Time: 3 hrs

Max. Marks: 100

Course Outcomes**The Students will be able to:**

CO1: Analyze the Energy situation in the world and India, Energy consumption Energy Economic Analysis.

CO2: Demonstrate Energy Auditing.

CO3: Analyze Electrical Equipment and power factor correction.

CO4: Demonstrate the Demand Side Management.

CO5: Analyze the Load management.

Note: I) PART - A is compulsory. Two marks for each question.**II) PART - B: Answer any Two sub questions (from a, b, c) for a Maximum of 18 marks from each unit.**

Q. No.	Questions	Marks	BLs	COs	POs
I : PART - A		10			
I a.	Explain the energy conservation schemes.	2	L1	CO1	PO6
b.	Explain concept of energy audit.	2	L1	CO2	PO6
c.	Mention the disadvantages of low power factor.	2	L1	CO3	PO6
d.	Mention the benefits of demand side management.	2	L1	CO4	PO6
e.	Define the terms;	2	L1	CO5	PO6
	i) Strategic conservations ii) Peak shifting				
II : PART - B		90			
UNIT - I		18			
1 a.	Explain the terms;				
	i) Concept of ABT numerical problem	9	L3	CO1	PO6
	ii) Depreciation.				
	iii) Payback analysis				
b.	Write a brief note on energy situation in the world and India	9	L2	CO1	PO6
c.	How long will it take for a sum of money to double when accumulating at 5% interest?				
	i) On simple interest basis.	9	L3	CO1	PO7
	ii) If interest is compounded annually				
	iii) If interest is compounded quarterly				
	iv) If interest is compounded on true compound interest basis				
UNIT - II		18			
2 a.	Explain briefly the elements of energy audits.	9	L3	CO2	PO6
b.	What do you mean by presentation of energy audit results? Describe briefly.	9	L2	CO2	PO6
c.	Explain briefly measurements in energy audits.	9	L3	CO2	PO7

UNIT - III**18**

- 3 a. Explain the factors affecting energy efficient motors in detail. 9 L3 CO3 PO6
- b. Explain about the location of capacitors for power factor improvement. 9 L3 CO3 PO6
- c. A single phase motor connected to 440 V, 50 Hz supply takes 28 A at a power factor of 0.8 lagging .Calculate the capacitance required parallel with the motor to raise the power factor to 0.9 lagging. 9 L3 CO3 PO7

UNIT - IV**18**

- 4 a. Explain briefly the different techniques of demand side management. 9 L2 CO4 PO6
- b. What is demand side management? How did the concept of DSM evolved? Mention the benefits of DSM. 9 L2 CO4 PO6
- c. Explain briefly the various tariff options for DSM. 9 L2 CO4 PO6

UNIT - V**18**

- 5 a. Explain in detail about the different load priority techniques of load management with necessary examples. 9 L3 CO5 PO6
- b. With a flow diagram, explain division level organization and corporate level organization of energy conservation programme. 9 L3 CO5 PO6
- c. Write a short note on;
- i) Peak clipping 9 L3 CO5 PO6
- ii) Promotion of high efficient technologies

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