U.S.N | | | | | | | | | | |

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; May / June - 2019

Energy Auditing and Demand Side Management

Time: 3 hrs *Max. Marks: 100*

***Note**: Answer **FIVE** full questions, selecting **ONE** full question from each unit.*

UNIT - I

1	a.	With respect to the supply system, summarize the points in the distribution code.	8
	b.	What is ABT? What are the broad features of ABT design?	8
	c.	How much money must be deposited in a SB account so that ` 2,00,000 can be withdrawn after 12 years from now, if the interest rate is 9% compounded annually?	4
2	a.	Explain energy conservation techniques used to reduce the energy costs.	8
	b.	Explain payback analysis. Mention its advantages and disadvantages.	8
	c.	A manufacturing concern purchases a lathe for ` 9000/- the freight and haulage cost is ` 200/- and the charges for installation is ` 250/-. The life is 20 years and the scrap value is ` 300/-. Calculate the annual depreciation charges by straight line method.	4

UNIT - II

3	a.	What are energy management strategies? Explain them in brief.	10
	b.	What are energy use profiles? What are the audits required for constructing the energy line profiles?	10
4	a.	What is an energy audit? Explain the importance of energy audit in industry.	6
	b.	Explain ten steps methodology for detailed energy auditing.	10
	c.	Explain any three energy audit instruments.	4

UNIT - III

5	a.	Explain the disadvantages of low power factor.	8
	b.	Derive an expression for most economical power factor considering constant active power. Draw the relevant diagram.	8
	c.	An alternator is supplying a load of 300 kW at 0.6 P.f lagging. If the power factor is raised to unity, how many more kilowatts can alternator supply for the same kVA loading?	4
6	a.	Explain in detail static capacitors and synchronous condensors used to active power factor improvements.	10
	b.	Write an explanatory note on energy efficient motors.	6
	c.	A single phase motor connected to 400 V, 50 Hz supply takes 31.7 A at P.f of 0.7 lagging. Calculate the capacitance required parallel with the motor to raise the P.f to 0.9 lagging.	4

Contd… 2

UNIT - IV

7	a.	What is the scope of DSM? Describe the benefits of DSM.	10
	b.	Discuss tariff options for DSM. Which tariff promotes DSM?	10
8	a.	With a flow chart, explain various steps involved in DSM planning and implementation.	10
	b.	Explain the factor which influences the customer acceptance of DSM.	10

UNIT - V

9	a.	Explain; i) Peak clipping ii) Valley filling iii) Peak shifting iv) Strategic conservation with respect to DSM	8
	b.	Explain energy conservation opportunities in agricultural sector.	6
	c.	With relevant diagram, explain corporate level organization management of energy conservation awareness programs.	6
10	a.	Explain in detail DSM implementation issues.	10
	b.	Write an explanatory note on : i) Load priority technique ii) Energy conservation opportunities in illumination system	10

* * * *