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P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belgaum)

Eighth Semester, B.E. - Electrical and Electronics Engineering

Semester End Examination; June - 2016

Energy Auditing and Demand Side Management

Time: 3 hrs *Max. Marks: 100*

***Notes**: Answer any **FIVE** full questions, selecting at least **TWO** full questions from each part.*

PART - A

1	a.	Explain the energy conservation techniques used to reduce energy lost.	5
	b.	With respect to the supply system summarize the points in distribution code.	5
	c.	Which are the inverses addressed by Energy Conservation Act 2001?	5
	d.	With a vector diagram explain the components of a power triangle.	5
2	a.	Explain : i) Time Value of money concept ii) Payback analysis iii) Depreciation.	12
	b.	How long will it take for a sum of money to double, when accumulating at 5% interest, i) On simple interest basis ii) If interest is compounded annually iii) If interest is compounded quarterly.	8
3	a.	Explain Ten steps methodology for detailed energy auditing.	10
	b.	Explain any four key instruments used for energy auditing.	6
	c.	Mention the audits required for constructing energy use profile.	4
4	a.	Draw a single line diagram for a typical a.c. supply scheme and explain.	7
	b.	What is ABT? Write broad features of ABT design.	7
	c.	Write a note on energy Audit.	6

PART - B

5	a.	Explain : i) Synchronous condenser ii) Energy efficient motor.	8
	b.	Derive an expression for most economical power factor considering constant active power. Draw relevant vector diagram.	6
	c.	A single phase motor connected to 400 V, 50 Hz, supply takes 31.7 A at a power factor 0.7 lagging. Calculate the capacitance required in parallel with the motor to raise the power factor to 0.9 lagging.	6

Contd…2

6 a.	Explain the concept of evolution of DSM and also explain the benefits of DSM.	6
b.	With necessary flow diagram, explain planning and implementation of DSM.	8
c.	Write a note on good practices in lighting.	6
7 a.	Explain : i) Load priority technique ii) Peak clipping and valley filling iii) Tariff option for DSM	12
b.	Discuss the factors with restrain to consumers to move towards energy conservation.	8
8 a.	Explain energy conservation opportunities in agricultural sector in illumination systems.	6
b.	Explain plant level organization of energy conservation programs.	8
c.	Explain the factors which influence customer participation in DSM.	6

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