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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/July - 2015
Energy Auditing and Demand Side Management

Time: 3 hrs

Max. Marks: 100

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

PART - A

1. a. Discuss the energy scenario in India. 6
- b. With necessary diagrams, explain typical AC power supply scheme. 8
- c. With respect to supply system summarize the points in the distribution code. 6
2. a. Explain the terms: i) Time value of money concept ii) Payback analysis 8
- b. Develop a cash flow model for uniform series compound amount factor. 6
- c. Mr. X deposits Rs, 1000 at the end of each year which pays an interest rate of 6% compounded annually. How long does it take to accumulate Rs. 20,000? 6
3. a. Explain ten steps methodology for detailed energy auditing. 10
- b. What is energy use profile? What are the audits required for constructing energy use profile. 10
4. a. Explain the energy conservation techniques used to reduce the energy costs. 6
- b. What is ABT? What are broad features of ABT design? 8
- c. Explain any three key instruments used for auditing. 6

PART – B

5. a. Explain the calculation of power factor correction. 6
- b. Explain some good practices in lighting. 6
- c. A single phase motor connected to 400 V, 50 Hz supply takes 31.7A at a p.f. of 0.7 lagging. Calculate the capacitance required parallel with the motor to raise the p.f. to 0.9 lagging. 8
6. a. What is demand side management? How did the concept of DSM evolved? Mention the benefits of DSM. 10
- b. With necessary flow diagram. Explain planning and implementation of DSM. 10
7. a. Explain load management as a DSM strategy. 6
- b. Explain peak clipping. Valley filling and strategic energy conservation with reference to load control. 9
- c. Explain different types of tariff structures which can promote DSM activities. 5
8. a. Discuss the factors which restrain the consumer to move towards energy conservation. 8
- b. Write a note on: i) Plant level organization of conservation programs 6
- ii) Energy conservation opportunities in agriculture sector. 6