

--	--	--	--	--	--	--	--	--	--

Eighth Semester B.E. Degree Examination, June/July 2016
Energy Audit and Demand Side Management

Time: 3 hrs.

Max. Marks:100

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

PART – A

- 1 a. Explain the energy conservation techniques used to reduce the energy costs. (06 Marks)
b. With respect to supply system summarise the points in the distribution code. (08 Marks)
c. Explain broad features of Indian electricity rules 1956. (06 Marks)
- 2 a. Explain payback analysis. Mention its advantages and disadvantages. (06 Marks)
b. What is life cycle cost analysis? What are typical costs for a system and different ways to minimize costs? (06 Marks)
c. The equipment in a power station costs Rs. 15, 60,000/- and has salvage value of Rs. 60,000/- at the end of 25 years. Determiner the depreciation value of the equipment at the end of 20 years by the following methods (i) straight line method (ii) Reducing balance method (iii) sinking fund method at 5% compounded annually. (08 Marks)
- 3 a. What are the energy management strategies? Explain them in brief. (08 Marks)
b. What are energy audit instruments? Explain each one of them. (12 Marks)
- 4 a. With a vector diagram, explain various components of power triangle. (06 Marks)
b. What is power flow concept? Define and explain plant energy performance and production factor. (06 Marks)
c. Write short notes on :
(i) Primary and secondary distribution (ii) Advantages of energy audit. (08 Marks)

PART – B

- 5 a. Define power factor. What are the causes and disadvantages of low power factor? (12 Marks)
b. Derive an expression for the most economical power factor. (08 Marks)
- 6 a. Write a note on energy efficient motors. (10 Marks)
b. An industrial load operates at 0.75 p.f lag and has a monthly demand of 750kVA. The monthly power rate is Rs. 8.50 per kVA. To improve the power factor 200kVAR capacitors are installed in which there is negligible power loss. The installed cost of equipment is Rs. 20,000/- and fixed charges are estimated at 10% per year. Calculate the annual savings effected by the use of capacitors. (10 Marks)
- 7 a. Define and explain the concept of DSM. (06 Marks)
b. What are the different benefits of DSM for supply industry, customers and society? (06 Marks)
c. Briefly explain the DSM implementation issues. (08 Marks)
- 8 a. Explain energy conservation opportunities in agricultural sector, industrial sector and illumination system. (08 Marks)
b. Discuss tariff options for DSM. Which tariffs promote DSM? (06 Marks)
c. Explain: (i) Peak clipping (ii) valley filling (iii) Strategic energy conservation. (06 Marks)

* * * * *