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10EE842

**Eighth Semester B.E. Degree Examination, Jan./Feb.2021**  
**Energy Auditing and Demand Side Management**

Time: 3 hrs.

Max. Marks:100

**Note:** 1. Answer FIVE full questions, selecting at least TWO questions from each part.  
2. Missing data may be suitably assumed.

**PART – A**

- 1 a. What is Energy Conservation? With neat block diagram, explain three pronged approach to Energy Management. (07 Marks)
- b. Explain the broad features of Indian Electricity Rules 1956. (07 Marks)
- c. With respect to the supply system summarise the points in the distribution code. (06 Marks)
- 2 a. Explain briefly the time value of money concept and pay back analysis. (04 Marks)
- b. Define Depreciation and explain straight line depreciation and sinking fund depreciation. (08 Marks)
- c. A father wants to set aside his money for his 5 year old son for future education. Money can be deposited in a bank account that pays 8% per year compounded annually, what deposits should be made by the father till his son's 17<sup>th</sup> Birthday in order to provide his son Rs.5000/- on his 18<sup>th</sup>, 19<sup>th</sup>, 20<sup>th</sup> and 21<sup>st</sup> birthday? Develop a cash flow diagram. (08 Marks)
- 3 a. With block diagram, explain the energy management strategies. (06 Marks)
- b. Give the Ten step methodology for detailed energy audit and explain. (10 Marks)
- c. Define Energy Audit and explain its importance. (04 Marks)
- 4 a. With a vector diagram, explain various components of power triangle. (05 Marks)
- b. Explain plant energy performance and power flow concept. (08 Marks)
- c. Draw the single line diagram for typical AC power supply scheme and explain briefly. (07 Marks)

**PART – B**

- 5 a. Define power factor. Mention the causes and disadvantages of low power factor. (07 Marks)
- b. What is Tariff? Explain different types of tariff. (06 Marks)
- c. A single phase motor connected to 400 V, 50 Hz supply takes 31.7 amps at a power factor of 0.7 lagging. Calculate the capacitance required parallel with motor to raise the power factor of 0.9 lagging. (07 Marks)
- 6 a. What is ABT? Mention the broad features of ABT design. (10 Marks)
- b. What is Demand Side Management (DSM)? Why DSM is required? (06 Marks)
- c. Mention the Tariff options for DSM. (04 Marks)
- 7 a. With a neat block diagram, explain DSM planning and implementation. (10 Marks)
- b. Explain the concept of End Use Energy conservation. (10 Marks)
- 8 a. Explain energy efficient equipments in electrical system. (10 Marks)
- b. Mention different techniques of DSM and explain any four techniques briefly. (10 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.