USN ☐☐☐☐☐☐☐☐☐☐

# 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$^{th}$ Birthday in order to provide his son Rs.5000/- on his 18$^{th}$, 19$^{th}$, 20$^{th}$ and 21$^{st}$ 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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