B.E. Electrical (Electronics & Power) Engineering (Model Curriculum) Semester-VIII

OEC-4-2 : Electrical Energy Conservation and Auditing

P. Pages : 2 **GUG/W/23/14350**

Time : Three Hours * 7 8 8 9 * Max. Marks : 80

Notes : 1. All questions carry equal marks.
2. Answer **five** questions.
3. Due credit will be given to neatness and adequate dimensions.
4. Illustrate your answers wherever necessary with the help of neat sketches.
5. Use of non-programmable calculator is permissible.

1. a) Describe the Electricity Sector in India. **8**

b) Give the series of initiatives taken by government to give a boost to petroleum and hydrocarbon sector. **8**

OR

2. a) What efforts has been taken by the Government of India to further enhance the production of coal in the country. **8**

b) Define the following with 3 examples each: **8**
i) Primary and Secondary energy.
ii) Commercial and Non-commercial energy.
iii) Renewable and Non-renewable energy.

3. a) Explain various forms of energy in details. **8**

b) What are the three modes of heat transfer? Explain with examples. **8**

OR

4. a) Define the terms: **8**
i) Temperature
ii) Pressure
iii) Heat and unit of heat
iv) Specific heat
v) Sensible heat

b) What is contract demand, maximum demand related to calculation of electric bill for a company? **8**

5. a) Define energy management and give its objectives. **4**

b) Explain the need of Energy Audit. What are the types of Energy Audit. **4**

c) Explain the role of training and awareness in energy management programme. **8**

OR

6.	a)	Explain the different techniques used to conserve the energy consumption.	**8**
	b)	Name the instrument required for an Energy audit and explain its working.	**8**
7.	a)	Describe the various methods by which we calculate motor loading.	**8**
	b)	Define motor efficiency. Why is it difficult to measure motor efficiency at site?	**4**
	c)	What are the factors influencing the speed of induction motor?	**4**

OR

8.	a)	What are the typical billing components of the two-part tariff structure of industrial utility?	**8**
	b)	What are total harmonic distortions and its effects on electrical system?	**8**
9.	a)	What are the advantages of energy efficient motors?	**8**
	b)	Explain why centrifugal machines offers the greatest savings when used with variable speed drives.	**8**

OR

10.	a)	Explain how maximum demand control works.	**8**
	b)	Explain the principle of automatic power factor controller.	**8**

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