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BIEE-026

B.Tech. – VIEP – ELECTRICAL ENGINEERING (BTELVI)

Term-End Examination

00263

June, 2018

BIEE-026 : ENERGY AUDITING AND ANALYSIS

Time : 3 hours *Maximum Marks : 70*

Note : *Attempt any* ***ten*** *questions. All questions carry equal marks. Use of scientific calculator is permitted.*

1. Describe the energy auditing for air-conditioning. 7

2. Elaborate the features of voltage reducers and energy efficient fan regulators. 7

3. Define specific energy consumption. What are the effects of oversizing of electric motor on energy efficiency ? 7

4. List out the different energy conservation techniques in transformers. 7

5. Explain with the help of suitable example, how energy flow diagram helps in energy audit procedure. 7

6. Explain the difference between energy conservation and energy efficiency and state one example where energy costs are reduced but energy consumption goes up. 7

7. List down any five different types of energy efficient retrofits. Explain their applications and benefits in brief. 7

8. Describe the electrolytic process with its applications and limitations for the conservation of energy. 7

9. Define power factor. How does power factor improvement play an important role in energy conservation ? 7

10. Calculate the fixed electrical energy consumption for a rolling mill consuming 4,00,000 kWh units of electricity to produce 600 MT of product per month and having specific electric energy consumption of 500 kWh/MT. 7

11. A 15 HP motor was found to be working with 50% load. What could be the right size of energy efficient motor, energy saved and payback period if the motor is working 20 hrs/day and 300 days/year ? The cost of electricity is ₹ 8 /kWh. 7

12. Write short notes on any ***two*** of the following : $2 \times 3\frac{1}{2} = 7$

    (a) High Efficiency Motor

    (b) Energy Efficient Control of Pumps

    (c) Scheduling of Electric Heating Furnace