

**CERTIFICATE IN ENERGY TECHNOLOGY  
AND MANAGEMENT (CETM)**

**Term-End Examination**

**June, 2017**

00714

**OEY-003 : ENERGY MANAGEMENT :  
AUDIT AND CONSERVATION**

*Time : 3 hours*

*Maximum Marks : 70*

*Note : Attempt any **five** questions. All questions carry equal marks. Assume suitable missing data, if any. Use of scientific calculator is permitted.*

1. (a) Define Energy Audit and Energy Management. Discuss the principles of energy management. 7
- (b) Enlist and discuss the various temperature measuring instruments. 7
2. (a) Describe the steps involved in conducting energy audit at home. 7
- (b) Prepare an energy balance Sankey diagram for a furnace. 7

3. (a) Discuss the energy conservation measures that can be adopted in the lighting sector. 7
- (b) Compare the short-term and medium-term energy conservation measures. 7
4. (a) Discuss the techno-economic analysis of replacing incandescent bulbs with CFL. 7
- (b) A ceiling fan (73.5 W) rating operates for 12 hours per day and 365 days. If the cost of electricity is ₹ 2.5/kWh, and the conventional regulator is replaced by an electronic regulator which consumes 25% lesser energy, calculate the energy saving. If the cost of electronic fan regulator is ₹ 150, what would be the payback period? 7
5. (a) Describe the various components of life cycle cost analysis. 7
- (b) What is power factor? How can the power factor be improved? 7
6. (a) Explain the various housekeeping measures in order to conserve energy. 7
- (b) Discuss the advantages and limitations of adopting renewable energy systems. 7

7. Write short notes on any **four** of the following :  $4 \times 3 \frac{1}{2} = 14$

- (a) Combustion Analyzer
  - (b) Rural Energy Planning
  - (c) Evaporative Cooling
  - (d) Animal Power
  - (e) Solar PV Power
  - (f) Condensate Recovery
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