

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

00124 **Term-End Examination**

June, 2014

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

Time : 3 hours

Maximum Marks : 70

Note : Attempt any ten questions. All questions carry equal marks. Assume suitable data if required. Use of calculator is permitted.

1. What is the concept and purpose of energy audit ? Explain with suitable examples. 7
2. Name various electrical and temperature measuring instruments. Discuss the working of infrared thermometers. 7
3. Explain various housekeeping measures in order to conserve energy. 7
4. How can the waste heat be recovered from flue gases ? 7
5. A three-phase motor (15 kW) has the name plate data as 415 V, 30 amp and 0.85 PF. Actual energy audit measures these values as 415 V, 14 amp, 0.75 PF when motor was in use. Determine the motor loading. 7

6. Explain in brief the energy audit of a pharmaceutical industry. 7
7. What do you mean by power factor improvement? How can the plant power factor be improved? 7
8. A 10 HP motor was found to be working with 31.25% 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 ₹ 5/kWh. Assume cost of 5 HP motor = ₹ 10,000. 7
9. Discuss the advantages and limitations of adopting renewable energy systems. 7
10. (a) Differentiate between energy consumption and specific energy consumption. 2
 (b) Write a short note on rural energy planning. 5
11. Explain blow-down losses in detail. 7
12. Write short notes on any *two* of the following: $3 \frac{1}{2} \times 2 = 7$
- (a) Sakey Diagram
- (b) Evaporative Cooling
- (c) Gasifier based engine pumps