

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

01924

Term-End Examination

June, 2011

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

Time : 3 hours

Maximum Marks : 70

Note : Attempt any ten questions. All questions carry equal marks.

1. Describe the advantages of evaporative coolers as compared to air conditioner. How do you decide the size of evaporative cooler needed for a room ? 7

2. Discuss atleast four pressure measuring devices. 7

3. (a) A system takes 150 units of energy and converts only 120 units of energy into useful work. What is the efficiency of the system ?
(b) An engine pumps up 1000 kg of water through a height of 10 m in 5 seconds. If the efficiency of the engine is 60%, calculate the power of the engine in kilowatt. 2+5=7
Take $g = 10 \text{ ms}^{-2}$.

4. Define Energy Audit. Also discuss energy management with the help of suitable examples. 7
5. Explain in brief the energy conservation measures in different industrial processes. 7
6. A house is fitted with 10 lamps, rated 100 W each, four fans each consuming 0.5 A, an electric kettle of resistance 100Ω and an electric iron of resistance 121Ω . If the energy is supplied at 200 V and cost Rs. 3/- per kWh, calculate the bill for running the appliances for four hours in a day for the month of February 2012. 7
7. Explain in brief the condensate recovery from boiler feed water. 7
8. The energy audit data for a steel company for a month is : 7
Coal consumption = 82060 kg
Electricity consumption = 42060 kWh
Steel production = 600 tonne.
Calorific value of coal = 5800 kCal/kg.
Compute the specific energy consumption.
9. List out the guidelines for energy conservation of a chemical industry. 7

10. There are two energy conservation measures as described below : 7

Energy Conservation Measure I :

The equipment costs Rs. 18000/- and pays back Rs. 24000/- in two years.

Energy Conservation Measure II :

The equipment costs Rs. 12000/- and pay back Rs. 8000/- each year for two years.

If the interest rate is 8%, determine the best alternative.

11. Describe in brief the need of awareness and training programmes for energy management in Rural areas. 7

12. "Animal power is a renewable energy source" - justify this statement with the help of suitable examples. 7
