ME-801(A) energy conservation and audit Jun 2012

Note: Attempt any five questions. All questions carry equal marks. Assume suitable data wherever required.

1. (a) Discuss the Energy Conservation measures for Motors and Transformers.

(b) Differentiate between Energy Conservation and Energy Management.

2.(a) What are the various steps involved in the implementation of Energy Management in an Organization?

(b) Define Energy Auditing according to Energy Conservation Act, 2001. Discuss needs of Energy Audit for the industries.

3. (a) Explain in brief the difference between preliminary and detail Energy Audits. What are the parameters that can be measured by online power analyzer ?

(b) Explain ten steps methodology for detailed Energy Audit with their plan of action and purpose/results.

4. (a) Explain the steps involved in the force field analysis. List down the various positive and negative forces.

(b) What are the requirements of a successful Energy Management Programme ?

5. (a) Explain how a CUSUM Chart is drawn and derive the line equation and steps involved for the CUSUM analysis with an example.

(b) Narrate the types of Energy Monitoring and Targeting systems for any Industry.

6. Explain Energy Conservation in
(i) Boilers (ii) Steam Turbines.

Describe Green Energy Buildings.

7. (a) A fluorescent tube light consumes 40 watt for the tube and 10 watt for choke. If the lamp operates for eight ‘hours per day in a year, calculate the total Energy Cost per annum if the Energy cost is Rs, 3 per kW hour.
(b) How many methods are there to improve power factor in an industry ? Explain the significance of power factor in energy conservation.

8. Write short notes on any four of the following :

(i) ESCOs

(ii) Performance Contracting

(iii) Color Rendering Index

(iv) FBC Systems

(v) Benchmarking and Energy Performance

(vi) Illuminance and Luminaire.