

Roll No .....

**MEPS - 202****M.E./M.Tech., II Semester**

Examination, July 2015

**Energy Conservation And Management "****Time : Three Hours****Maximum Marks : 70**

- Note :** i) Attempt any five questions.  
ii) All questions carry equal marks.

1. a) Mention some of the long-term energy strategies available for the better energy secured nation.  
b) Define 'energy management'. What are the principles of energy management?
2. a) Explain the need for an Energy policy.  
b) Explain the aim of energy audit. Discuss various roles of an energy management team.
3. a) What are waste heat recovery boilers? Explain the need and benefits.  
b) What do you mean by "Economic thickness of insulation"? Explain in details.
4. a) "Steam should always be utilised at the lowest possible pressure" - What are the important aspects to be considered before fixing up the steam pressure for a particular application?  
b) List the main parameters on which the choice of HVAC components depends on.

5. a) Why is it beneficial to operate motors in star mode for under loaded motors?  
b) Calculate the annual energy savings and simple payback from replacing an existing standard motor with premium efficiency motor versus repairing a standard efficiency motor. The data given are :

Motor : 15 kW, working hours : 8000 hr,  $\eta_{\text{standard}} = 88.3$ ,  
 $\eta_{\text{premium}} = 93.5\%$ , Loading = 75%,  
Energy Charge = Rs. 6/k WH.

6. a) Briefly explain simple pay back period and its advantage/disadvantage.  
b) What are the technical aspects of energy efficient motors?
7. a) Suggest some energy conservation measures in sugar industry.  
b) List at least five energy saving opportunities for a fan application.
8. Write short note (Any Three) :
  - a) House keeping measures in lighting system
  - b) Demand Side Management (DSM)
  - c) Energy conservation in transportation
  - d) Energy audit instruments.

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