M.Tech(ME) 2nd Semester Examination
June 2014
Energy Management
Subject Code: MEL-508
Time Allowed: 03 hours. Maximum Marks: 100

Before answering the question paper the candidate should ensure that they have been supplied the correct question paper. Complaints in this regard, if any, shall not be entertained after the examination.

Note: First question is compulsory. Attempt two questions from each section A and B.

1(a) State various principles of energy management?
(b) What is Green Building Concept?
(c) What is the objective of studying Economic Analysis?
(d) What are solar collectors? Explain in brief about the flat plate collector? [4 x 5 = 20]

SECTION-A

2(a) Define and explain the various principles of energy management? Why do we need an energy manager in our industry? [10]

(b) Draw an energy management program for an organization. Also, explain the various parts which take part in this plan. [10]

3(a) What are the main issues of an audit process? Define home based survey and general based survey? [10]

(b) Name and explain four levels of analysis outlined by ASHRAE? [10]

4(a) What are the major challenges in energy conservation? [10]

(b) Energy conservation has the direct impact on the growth of a nation. Explain. [10]

SECTION-B

5. Installing thermal windows on a small office building is estimated to cost $10,000. The windows are expected to last six years and have no salvage value at that time. The energy savings from the windows are expected to be $2525 each year for the first three years and $3840 for each of the remaining three years. If MARR is 15%/yr and the present worth measure of worth is to be used, is this an attractive investment? [20]

6(a) Classify the different wind conversion devices. [10]

(b) Compare Conventional and Non Conventional energy resources and merits and demerits of it. [10]

7(a) What are the different factors by which the success or failure of a project is evaluated? [10]

(b) Explain in detail about the various methods of analyzing and evaluating a project. [10]