

SECOND SEMESTER M.TECH DEGREE EXAMINATION

Stream: THERMAL SCIENCE
(2013 Scheme)

MTE 2007: SOLAR THERMAL ENGINEERING
MODEL QUESTION PAPER

Time: 3 hours

Maximum marks:60

Instruction: Answer any two full questions from each module, each question carries 10 marks.

MODULE-I

1. Classify the different solar energy measuring equipments. What is the difference between a Pyrheliometer and a pyranometer.
2. Estimate the average daily total radiation falling on horizontal surface at 25° South east during the month of Jan. If constant s , a , b are given as 0.3 and 0.5 respectively and average sunshine hours are 8.8.
3. a) Define solar constant. What are the reasons for variation in solar radiation reaching the earth than received at the outside of atmosphere? (5MARKS)
b) Explain solar radiation geometry (5MARKS)

MODULE-II

4. a) Explain the principle of conversion of solar radiation into heat (5MARKS)
b) Give the classification of solar collectors (5MARKS)
5. Explain different thermal energy storage methods
6. a) Explain materials used for flat plate collectors (5MARKS)
b) Explain solar air heating (5MARKS)

MODULE-III

7. Explain the term solar photo voltaic conversion. List its advantages and disadvantages.
8. Explain any solar refrigeration cycle with neat sketch
9. Define: a) solar pond (5MARKS)
b) Solar desalination. (5MARKS)