Roll No. | | | | | | | | | | | | |

Total No. of Pages : 01

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M.Tech.(ME) (Sem.–3)

SOLAR ENERGY

Subject Code : MME-577

Paper ID : [E0434]

Time : 3 Hrs. Max. Marks : 100

INSTRUCTION TO CANDIDATES :

1. **Attempt any FIVE questions out of EIGHT questions.**
2. **Each question carries TWENTY marks.**

1. A solar energy system in Tampa, Florida requires two rows of collectors facing south and tilted at a fixed 30° angle. Find the minimum normalized distance at which the second row should be placed behind the first row for no shading at noon solar time at winter solstice. What percentage of second row is shaded on the same day at 9 am solar time?

2. How solar collectors are classified? Discuss the main components of a flat plate solar collector and explain the function of each.

3. While designing a heat storage system explain how containment and heat exchanger for charging and discharging are designed.

4. Draw a complete circuit diagram of solar refrigeration system. Discuss its economical viability in relation to conventional refrigeration system.

5. Discuss the sensible and latent heat storage system of solar energy with examples.

6. Explain the water heating system for industrial heating requirements through solar energy.

7. Explain the working of one axis evacuated tubular collectors.

8. Write notes on :

   a) Solar distillation.

   b) Composite collectors.