

8. Compare the following types of collectors to be used for a solar thermal power plant with respect to :

- (a) Temperature
- (b) Concentration Ratio
- (c) Suitability
- (d) Cost

Types of collectors.

- (i) Flat Plate
- (ii) Paraboloidal Dish
- (iii) Parabolic Trough.

No. of Printed Pages : 04

Roll No.

BB-601

M. Tech. EXAMINATION, May 2017

(Second Semester)

(B. Scheme) (Main & Re-appear)

(ESEM)

ESEM-102-B

SOLAR ENERGY FUNDAMENTALS,
DEVICES AND SYSTEMS

Time : 3 Hours]

[Maximum Marks : 75

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

Unit I

1. (a) Distinguish between global radiation and diffuse radiation. Which is applicable during cloudy atmosphere ? **8**
(b) The incident beam of sun light has power density of 0.7 kW/m^2 in the direction of the beam. The angle of incidence θ is 60° . Calculate power collected by the surface having total flat area of 100 m^2 . **7**
2. What are the main components of a flat-plate solar collector ? Explain the function of each. **15**

Unit II

3. Write short notes on the following : **15**
 - (a) Thermal Energy Storage
 - (b) Solar Still.

4. With the help of a neat sketch describe a solar heating system using air heating solar collectors, with advantages and disadvantages of the system. **15**

Unit III

5. What do you understand by absorption refrigeration systems ? Explain the working and types of absorption refrigeration systems. **15**
6. Write short notes on the following : **15**
 - (a) Vapour absorption refrigeration systems
 - (b) Solar Desiccant Cooling.

Unit IV

7. Explain the following terms associated with heliostats : **15**
 - (a) Cosine loss
 - (b) Staggering
 - (c) Tracking.