8. Compare the following types of collectors to be used for a solar thermal power plant with respect to (i) Temperature (ii) Concentration Ratio (iii) Suitability (iv) Cost.

(a) Flat Plate

(b) Paraboloidal Dish

(c) Parabolic Trough. **15**

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BB-601

M. Tech. EXAMINATION, Dec. 2017

(Second Semester)

(B. Scheme) (Re-appear Only)

(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.

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Unit I

1. (a) What is significance of 22nd June and 22nd December with reference to solar rays and angle of declination ? **7**

(b) Distinguish between Global radiation and Diffuse radiation. Which is applicable during cloudy atmosphere ? **8**

2. (a) Write the advantages and disadvantages of concentrating collector over Flat-Plate type collector. **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^o. Calculate power collected by the surface having total flat area of 100 m^2. **7**

Unit II

3. Differentiate between sensible storage and latent heat storage. Explain with suitable examples. **15**

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. Write short notes on the following : **15**

(a) Lithium Bromide-Water absorption refrigeration systems

(b) Solar Desiccant Cooling.

6. What do you understand by Vapour absorption refrigeration system ? Explain its working and principle with suitable diagram. **15**

Unit IV

7. Draw a schematic of central receiver solar thermal power plant and explain the arrangement of solar heliostats. **15**

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