

Roll No. ....

**3614**

**B. Tech. 7th Semester (ME) PEC-III  
Examination – February, 2022**

**SOLAR ENERGY ENGINEERING**

**Paper : PEC-ME-411-G**

*Time : Three Hours ]*

*[ Maximum Marks : 75*

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

*Note : Attempt five questions in all selecting one from each Unit. Question No. 1 is compulsory. All questions carry equal marks.*

1. Write a short note on following : 2.5 × 6 = 15
- (a) Explain solar angles.
  - (b) What is solar drying of grains ?
  - (c) Explain passive cooling.
  - (d) Explain green house effect.

- (e) Application of solar energy.
- (f) Briefly explain principle of solar cells.

#### UNIT - I

- 2. What is solar radiation and solar irradiance with the help of neat sketch explain how it can be measured ? 15
- 3. Discuss in detail sun, earth and earth-sun angles, time and derived solar angles. 15

#### UNIT - II

- 4. With the help of neat sketch explain various types of solar collectors. 15
- 5. What are the three basic methods of thermal energy storage ? 15

#### UNIT - III

- 6. Explain vapor absorption system for cooling applications. 15

- 7. Discuss various types of absorbent used in refrigerators. Also in detail list and highlights some important qualities of the refrigerant used absorbent in the absorption unit. 15

#### UNIT - IV

- 8. What are Solar Electric Energy Conversion Systems (SEECs) also list and describe different elements of SEECs ? 15
- 9. Describe in detail challenges and solutions associated with ozone layer depletion and global warming effects. 15