

B.Tech. (ME)-PEC-III 7th Semester (G-Scheme)

Examination, December-2022

**SOLAR ENERGY ENGINEERING**

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

*Time allowed : 3 hours]*

*[Maximum marks : 75*

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

1. (a) Explain Heliostats. 5
- (b) Solar system and its terminology 5
- (c) Estimation of solar radiation by direct method 5

**Section-A**

2. Discuss in detail the measurement system pyr heliometer and other devices. 15
3. What is the effect of solar radiation upon structures? Explain shading of surfaces and periodic heat transfer through walls and roofs. 15

**Section-B**

4. Explain the flat plate collector design and the materials used in it. Discuss the efficiency of flat plate collector in comparison to other collectors. 15

5. Explain in detail about air and water heating systems, thermal storages, solar ponds and other heating applications of solar system. 15

#### Section-C

6. Explain in detail the continuous and intermittent vapour absorption systems for cooling applications. 15
7. Explain in detail the various systems used for cooling applications with neat and clean diagram. 15

#### Section-D

8. What is green house effect and global warming? Explain ozone layer depletion and other effects on environment and human being. What are the remedial measures taken by international bodies? 15
9. Discuss solar cells and its application as satellite solar power systems. 15