

**CERTIFICATE IN ENERGY TECHNOLOGY  
AND MANAGEMENT (CETM)**

**Term-End Examination**

**February, 2021**

**OEY-002 : RENEWABLE ENERGY  
TECHNOLOGIES AND THEIR USES**

*Time : 3 hours*

*Maximum Marks : 70*

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**Note :** Attempt any **five** questions. All questions carry equal marks.

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1. (a) Explain Stefan-Boltzmann law and Kirchhoff's Law of Radiation. 6
- (b) Explain the following : 8
- (i) Beam radiation
  - (ii) Diffused radiation
  - (iii) Global radiation
  - (iv) Irradiance

- 2.** (a) What is the difference between active and passive solar collector ? Write the advantages of solar water heater. 8
- (b) Explain the phenomenon of photovoltaic effect. How can the solar cell power conversion efficiency be calculated ? Explain. 6
- 3.** (a) What is the principle of solar still ? Write main features and advantages of solar still. 7
- (b) What is the function of glazing in solar air heater ? Explain the different applications of solar air heating system. 7
- 4.** (a) Differentiate among open sun drying, direct mode drying and indirect mode drying. 7
- (b) Explain the following : 7
- (i) Night sky cooling
- (ii) Trombe wall
- 5.** (a) Explain the following building systems : 7
- (i) Passive system
- (ii) Hybrid system
- (iii) Active system
- (b) Explain the concept of GRIHA rating system. 7

6. (a) Describe construction and working of solar pump. 7
- (b) Explain construction and working of multiple batch digester. 7
7. Write short notes on any **two** of the following :  $2 \times 7 = 14$
- (a) Solar Greenhouse
- (b) Box Type Solar Cooker
- (c) Forced Circulation Type Solar Water Heater
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