

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

**Term-End Examination**

00172

**December, 2017**

**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. Define the following : 7×2=14
- (a) Emissivity
  - (b) Reflectivity
  - (c) Air-mass
  - (d) Irradiation
  - (e) Solar constant
  - (f) Latitude
  - (g) Stefan-Boltzmann law
2. (a) Describe the construction and working of a built-in storage solar water heater. 7
- (b) Draw and explain the current – voltage characteristic of a solar cell. 7

3. (a) What are the main components of the solar street light system ? Also explain its working with a neat schematic diagram. 7
- (b) What are the factors on which electrical efficiency of a PV module depends ? 7
4. (a) Compare different types of improved cooking stoves on the basis of function, construction material, portability and fuel type. 7
- (b) What are the different types of biogas plants on the basis of feed method ? Explain each of them. 7
5. (a) Classify different types of solar dryers. Also, write the applications of a solar dryer. 7
- (b) How is thermal efficiency of a dryer calculated ? Explain with suitable examples. 7
6. (a) Explain the difference between direct gain and indirect gain with suitable examples. 7
- (b) Describe the procedure for evaluating an energy-conscious design for a building. 7
7. Write short notes on any **two** of the following :  $2 \times 7 = 14$
- (a) Bio-oil
- (b) Design Effects of Different Building Forms
- (c) Solar Passive Cooling