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OEY-002

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

**Term-End Examination
December, 2022**

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

Time : 3 Hours

Maximum Marks : 70

Note : (i) *Attempt any five questions.*

(ii) *All questions carry equal marks.*

1. (a) Explain construction and working of box type solar cooker with a neat schematic diagram. 8
- (b) How can the efficiency of solar cooker be increased ? Explain. 6
2. (a) Explain principle of solar air heater. How can solar air heater be classified ? 7

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- (b) (i) What is the function of glazing in solar air heaters ? 2
- (ii) What are the different ways by which thermal efficiency of solar air heater can be enhanced ? 5
3. (a) What is a solar still ? Also, explain principle of solar still. 2+5
- (b) Answer the following with respect to solar still : 7
- (i) Why bottom of basin is painted black ?
- (ii) Why is top cover (glass) of solar still tilted ?
4. (a) What is a solar lantern ? Explain operation of solar lantern with a neat schematic diagram. 7
- (b) What are the different factors on which voltage output of PV module depends ? Also, explain the function of battery, charge controller and inverter in SPV system. 7

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5. (a) (i) What are the most common biogas plants that are recognized by MNRE, Govt. of India ?
- (ii) Write advantages and disadvantages of Janta fixed dome biogas plant. 4+3
- (b) (i) What are different factors on which reactor dimension and biogas potential of digester depends ?
- (ii) Enlist the different design parameters of digester. 3+4
6. (a) What are the various drying techniques ? Write merits and demerits of each. 10
- (b) Explain the following : 4
- (i) Natural circulation dryer
- (ii) Forced circulation dryer
7. Write short notes on any **two** of the following :
 $2 \times 7 = 14$
- (a) Solar Passive Building
- (b) Solar Green House
- (c) Solar Water Heater

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