

22661

22232

3 Hours / 70 Marks

Seat No.

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- Instructions :**
- (1) All Questions are *compulsory*.
  - (2) Illustrate your answers with neat sketches wherever necessary.
  - (3) Figures to the right indicate full marks.
  - (4) Assume suitable data, if necessary.

**Marks**

**1. Attempt any FIVE of the following :**

**10**

- (a) Classify solar dryers.
- (b) List various types of solar PV cell.
- (c) State four advantages of Ni-Cd batteries over lead acid batteries.
- (d) Classify wind energy conversion system.
- (e) State suitable situation in selection of micro hydro power station.
- (f) Write specification of small bio gas plant.
- (g) Name important components of wind biogas hybrid system.

**2. Attempt any THREE of the following :**

**12**

- (a) Write maintenance procedure for commercial water heating system.
- (b) Explain working principle of silicon solar cell with neat sketch.
- (c) State four advantages and limitations of VAWT over HAWT.
- (d) Sketch layout of micro hydro power system. State functions of important component in it.



- 3. Attempt any THREE of the following : 12**
- (a) State advantages of parabolic collector over flat plate collector.
  - (b) List various industrial and commercial applications of solar photovoltaic system.
  - (c) Compare floating drum and fixed dome type biogas plant.
  - (d) Describe the construction of KVIC biogas plant with neat sketch.
- 4. Attempt any THREE of the following : 12**
- (a) Describe routine maintenance procedure of small wind turbine power plant.
  - (b) State four advantages and limitations of micro hydro power system.
  - (c) Write maintenance procedure of micro hydro power system.
  - (d) Prepare layout of solar biogas hybrid system. Write its specification.
  - (e) Explain installation procedure of wind solar PV hybrid system.
- 5. Attempt any TWO of the following : 12**
- (a) Explain construction and working of parabolic collector with neat sketch.
  - (b) Explain Grid Connected and stand alone solar photovoltaic systems.
  - (c) Describe with neat sketch, wind turbine power plant, along with components and their functions.
- 6. Attempt any TWO of the following : 12**
- (a) Select suitable solar dryer for fast drying of large quantities of agricultural products. Explain it with neat sketch.
  - (b) Describe installation and maintenance procedure of Biogas plant.
  - (c) Explain wind solar hybrid system with neat sketch. State operating procedure of its PV hybrid system.
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