

22661

23242

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.
  - (5) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

**Marks**

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

**5 × 2 = 10**

- (a) Classify solar thermal system.
- (b) Draw layout for Microhydro Power System.
- (c) State the classification of Bio-fuels.
- (d) What is solar-biogas system ?
- (e) Write maintenance procedure for vertical axis turbine.
- (f) State the merits and demerits of photovoltaic cells.
- (g) Classification of solar dryers.

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

**3 × 4 = 12**

- (a) Explain in brief flat plate collector.
- (b) Differentiate between Horizontal axis wind turbine and vertical axis wind turbine.
- (c) Explain in detail installation procedure of wind-solar PV hybrid system.
- (d) Define Battery rating and methods of selection of battery.



- 3. Attempt any THREE of the following :** **3 × 4 = 12**
- (a) Write a note on biodiesel.
  - (b) Draw a labelled schematic sketch of horizontal axis wind turbine.
  - (c) Draw neat sketch and explain any one water heating system.
  - (d) Explain the maintenance procedure of micro hydropower system.
- 4. Attempt any THREE of the following :** **3 × 4 = 12**
- (a) State application and limitations of any one hybrid type renewable energy system.
  - (b) Define biomass and biomass energy. Discuss various biomass resources.
  - (c) Explain standalone street light system.
  - (d) State the function of different components of micro hydropower system.
  - (e) Explain grid connected wind energy system.
- 5. Attempt any TWO of the following :** **2 × 6 = 12**
- (a) Write a note on installation, commissioning and maintenance of solar roof top system.
  - (b) Explain in detail any commercial heating system used for process heating installation.
  - (c) Differentiate between biomass and biogas. Describe biomass power plant with its construction and principle of working.
- 6. Attempt any TWO of the following :** **2 × 6 = 12**
- (a) Describe various promotional schemes that are offered by central and state governments for renewable energy system.
  - (b) Explain with neat sketch the construction of solar tower.
  - (c) Explain the term Net metering. Describe in detail preventative maintenance of PV panel.
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