

22514

21222

3 Hours / 70 Marks

Seat No.

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15 minutes extra for each hour

- Instructions :**
- (1) All Questions are *compulsory*.
 - (2) Answer each next main Question on a new page.
 - (3) Illustrate your answers with neat sketches wherever necessary.
 - (4) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

- 1. Attempt any “FIVE” of the following :** **10**
 - (a) List the parts of wind turbine.
 - (b) List any four applications of solar energy.
 - (c) Name the different gases present in biogas.
 - (d) Write composition of kitech biomass.
 - (e) Name the raw materials used for the production of biodiesel.
 - (f) Write any two environmental benefits of biodiesel.
 - (g) Write two merits of micro hydro power plant.

- 2. Attempt any THREE of the following :** **12**
 - (a) Differentiate between VAWT & HAWT.
 - (b) Write features of hybrid wind-solar system.
 - (c) Describe the concept of bioenergy.
 - (d) Explain preparation of Biodiesel from Jatropha.

- 3. Attempt any THREE of the following : 12**
- (a) Write the concept of micro hydro power plant.
 - (b) Describe the terms : (i) Threshold wind speed (ii) Rated power (iii) Nominal power (iv) Wind power curve
 - (c) Draw neat sketch of biogas plant.
 - (d) Write merits & demerits of bioenergy.
- 4. Attempt any THREE of the following : 12**
- (a) Explain the concept of lift & drag force required for wind turbine with sketch.
 - (b) Describe concept of solar distillation.
 - (c) Write the important factors considered for site selection of micro hydro power plant.
 - (d) List the types of batteries used for solar PV system. Write importance of battery in PV system.
 - (e) Explain working of high head micro hydro power plant.
- 5. Attempt any TWO of the following : 12**
- (a) Explain construction and working of wind turbine with sketch.
 - (b) Explain construction and working of solar roof top water heating system with sketch.
 - (c) Explain power generation from Municipal solid waste. State its benefits.
- 6. Attempt any TWO of the following : 12**
- (a) Explain various parts & their working of SWT.
 - (b) Explain construction & working of solar PV system.
 - (c) Explain production of biodiesel from plastic. Write its merits & demerits.
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