

22514

24225

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

Marks

1. Attempt any FIVE :

10

- (a) Enlist parts of Wind Turbine.
- (b) Give any two application of Wind Turbine.
- (c) Give the concept of Solar Energy.
- (d) Name the gases present in Biomass.
- (e) Write any four sources of Biomass.
- (f) Define Biodiesel.
- (g) State the range of electrical power capacity generated into micro hydropower plant.

2. Attempt any THREE :

12

- (a) Write the function of
 - (i) Rotor
 - (ii) Generator
 - (iii) Nacelle
 - (iv) Gear box
- (b) Describe construction & working of Wind Turbine with neat sketch.
- (c) Describe power curve of Wind Turbine.
- (d) List four application of Wind Turbine for water pumping.



- 3. Attempt any THREE :** **12**
- (a) Explain construction and working of Solar Photovoltaic System.
 - (b) Explain the working principle of Solar Distillation.
 - (c) Explain with neat sketch Hybrid Wind Solar System.
 - (d) Describe uses of Solar Thermal Energy in Industry.
- 4. Attempt any THREE :** **12**
- (a) Compare Aerobic and Anaerobic digestion system of Biomass.
 - (b) Explain construction and working of Biogas Power Plant from kitchen waste.
 - (c) Write the merits of bio-energy from solid biomass.
 - (d) Enlist the features of roof top solar system.
 - (e) Describe preventive & scheduled maintenance of solar PV lighting system.
- 5. Attempt any TWO :** **12**
- (a) Explain production of biodiesel from Jatropha seeds.
 - (b) How is the biodiesel prepared from plastic waste ? Write the Chemical reaction which occurs.
 - (c) Explain formation of fuel from plastic waste.
- 6. Attempt any TWO :** **12**
- (a) Discuss the factors that are considered while selecting the site for a micro hydropower plant.
 - (b) Describe the Routine maintenance of micro hydro turbines.
 - (c) Explain the following terms :
 - (i) Cut-in-speed
 - (ii) Cut-out-speed
 - (iii) Thrust
 - (iv) Torque
 - (v) Anemometer
 - (vi) Upwind Turbine
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