

22514

23242

3 Hours / 70 Marks

Seat No.

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- 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) Figures to the right indicate full marks.
 - (5) Assume suitable data, if necessary.

Marks

1. Attempt any FIVE :

10

- (a) Write the four demerits of bio-energy from liquid biomass.
- (b) Write the four merits of bio-energy from solid biomass.
- (c) Name the material used in solar PV system.
- (d) Write the principle of micro-hydro plant.
- (e) Write names of any two sources of biomass.
- (f) Draw wind power curve.
- (g) List four types of wind turbines.

2. Attempt any THREE of the following :

12

- (a) Explain application of wind turbine for water pump.
- (b) Draw neat labelled sketch of HAWT.
- (c) Write major parts of wind turbine and explain function of each part.
- (d) Describe the functions of the parts of SWT with neat sketch.



- 3. Attempt any THREE of the following : 12**
- (a) Explain working of solar distillation with neat sketch.
 - (b) Explain the construction & working of solar water heating system.
 - (c) Describe the components and function of the Roof top home solar system.
 - (d) Describe features of hybrid solar wind system.
- 4. Attempt any THREE of the following : 12**
- (a) Give the concepts of bio-energy from solid biomass. Illustrate it with suitable example.
 - (b) Explain the construction and working of energy generator using wood.
 - (c) Explain construction & working of biogas plant using kitchen waste as feedstock.
 - (d) Explain energy production from municipal waste.
 - (e) Explain steps involved in conversion of kitchen biomass to energy.
- 5. Attempt any TWO of the following : 12**
- (a) Explain the preparation of bio-diesel from jatropha plant.
 - (b) Describe method for production of biodiesel from plastic waste.
 - (c) Write the concept & principle used for preparation of bioenergy from liquid biomass.
- 6. Attempt any TWO of the following : 12**
- (a) Explain construction and working of high head micro-hydro power plant.
 - (b) Describe the routing maintenance of given micro-hydro turbine.
 - (c) State the importance of micro-hydro plant. List important factors involved in selection of site for plant.
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