

22661

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) Assume suitable data, if necessary.

Marks

1. Attempt any FIVE of the following :

10

- (a) List various Alternate Energy Sources.
- (b) Classify Bio-fuels.
- (c) State the function of PV cells.
- (d) List application of HAWT.
- (e) Name any four components of Micro hydropower system.
- (f) Define 'Battery rating'.
- (g) Name any four Hybrid systems.

2. Attempt any THREE of the following :

12

- (a) Differentiate between flat plate collectors and parabolic collectors.
- (b) Write maintenance procedure of solar roof top systems.
- (c) Explain the working of small vertical axis wind turbines.
- (d) Write installation procedure for Micro hydropower system.



- 3. Attempt any THREE of the following : 12**
- (a) List the applications of solar dryer and explain any one in brief.
 - (b) Explain the term 'Net Metering'.
 - (c) Write Installation procedure of 'Biogas plant'.
 - (d) Explain with sketch 'Biomass power plant'.
- 4. Attempt any THREE of the following : 12**
- (a) Write maintenance procedure for Micro hydropower system.
 - (b) Draw layout of wind-biogas hybrid system.
 - (c) List different performance parameters for testing performance of wind solar PV hybrid system.
 - (d) Explain with neat sketch large horizontal axis wind turbine.
 - (e) Explain with sketch construction & working of stand alone street light.
- 5. Attempt any TWO of the following : 12**
- (a) Explain with neat sketch 'Solar Tower'.
 - (b) Write in detail the maintenance procedure of VAWTs.
 - (c) Explain with neat sketch solar photovoltaic pumping.
- 6. Attempt any TWO of the following : 12**
- (a) Explain with neat sketch domestic solar water heating system.
 - (b) Prepare project feasibility report for any one renewable energy hybrid system.
 - (c) Explain with neat sketch 'Smokeless Chulhas'.
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