

# 315311

**12526**

**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) 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) State the working principle of generating wind energy.
  - b) Define solar energy.
  - c) Give merits and demerits of photovoltaic cell (One each).
  - d) Define bioenergy.
  - e) Give classification of hydro-power systems.
  - f) Define tidal energy.
  - g) Give the principle of micro-hydro power plant.
- 2. Attempt any THREE of the following :** **12**
- a) Explain solar distillation.
  - b) Enlist the applications of micro-hydro power plant. (Any four)
  - c) Draw the neat sketch of wind turbine and label its parts.
  - d) Describe generating electricity from geo-thermal resources.

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- 3. Attempt any THREE of the following : 12**
- a) Give comparison between upwind turbine and down wind turbine.
  - b) Explain construction and working of solar water heating system.
  - c) State advantages and disadvantages of tidal energy.
  - d) Write a note on bio-diesel.
- 4. Attempt any THREE of the following : 12**
- a) List out any four application of solar energy.
  - b) Give applications of bio-energy.
  - c) Explain bulb turbine with neat sketch.
  - d) Explain drag and lift principle used in wind turbine.
  - e) State the functions of different components of micro-hydro power system.
- 5. Attempt any TWO of the following : 12**
- a) Define cut in and cut out speed of wind turbine. Give advantages and disadvantages of horizontal axis wind turbine. (Any two each)
  - b) Write a note on installation, commissioning of solar roof top system. State advantages of hybrid wind solar system. (Any two)
  - c) Describe bio-gas plant (fixed dome) with its construction and working.
- 6. Attempt any TWO of the following : 12**
- a) Describe vertical axis wind turbines (VAWT) with construction and working. Give its advantages and disadvantages. (Any two)
  - b) Describe solar PV (Photo-Voltaic) pumping.
  - c) Explain the routine maintenance of micro-hydro power plant.
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