

17676

15162

3 Hours / 100 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.
(6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

- 1. Attempt any FIVE of the following: **20****
- List four renewable and non-renewable energy sources available in India.
 - State need of alternate energy sources in India.
 - Explain solar space cooling with neat sketch.
 - Define:
 - Hour angle
 - Declination angle
 - Solar zenith angle
 - Solar incident angle
 - Describe working of box type solar cooker.
 - What are benefits of biomass as a energy?
 - Write four applications of biodiesel.

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- 2. Attempt any FOUR of the following:** **16**
- a) Discuss energy scenario with content to prospects of alternate energy sources in India.
 - b) What is beam and difuse solar radiation?
 - c) Explain basine type solar still for distillation of salt water to potable water.
 - d) What is the advantages and disadvantages of solar energy?
 - e) What is difference between biomass and conventional fuel?
 - f) Explain passive type solar space heating.
- 3. Attempt any FOUR of the following:** **16**
- a) What are the applications of biogas? Explain.
 - b) What are the substrates used to produce biogas.
 - c) Which are the species used as biomass? Explain.
 - d) Explain the process of anaerobic digestion.
 - e) Write down main consideration for site selection for wind mill.
 - f) Define:
 - (i) Power in wind
 - (ii) Maximum power
- 4. Attempt any FOUR of the following:** **16**
- a) Explain horizontal axis wind turbine with neat sketch.
 - b) State advantages and disadvantages of wind energy.
 - c) What are the methods for obtaining energy from biomass and explain any one.
 - d) Define geothermal energy and classify geothermal resources.
 - e) State advantages and disadvantages of hydrogen energy.
 - f) Explain vapour dominated system.

5. Attempt any FOUR of the following:**16**

- a) What are the merits and demerits of geothermal energy?
- b) Explain hard dry rock resources or petrothermal system.
- c) Describe working of vertical axis wind mill and draw a labelled sketch.
- d) Explain direct electrolysis of water.
- e) What is energy education? Justify its need.
- f) Describe working of fluidised gasifier.

6. Attempt any FOUR of the following:**16**

- a) Explain construction and working of fuel cell.
 - b) Draw and neat sketch of hydropower plant and explain.
 - c) Write advantages and disadvantages of nuclear fusion.
 - d) Describe concept of micro hydrel.
 - e) What are the measure application of geothermal energy?
 - f) Describe working solar furnace with neat sketch.
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