

**2021**

**ELECTRONICS— GENERAL**

**Paper : SEC-A-2**

**(Renewable Energy & Energy Harvesting)**

**Full Marks : 80**

*The figures in the margin indicate full marks.*

*Candidates are required to give their answers in their own words  
as far as practicable.*

Answer **Question Nos. 1, 2** and **any four** questions from the rest.

- 1.** Answer **any ten** questions from the following: 2×10
- (a) What is meant by energy harvesting?
  - (b) Write the names of alternative sources of energy.
  - (c) What are fossil fuels?
  - (d) State the function of photovoltaic cell.
  - (e) What do you mean by biomass energy?
  - (f) What do you mean by solar air heater?
  - (g) What is bioethanol?
  - (h) What is a 'gust'?
  - (i) What do you mean by hydroelectricity?
  - (j) What do you mean by piezoelectric effect?
  - (k) What is gasification?
  - (l) State one limitation of Nuclear Energy.
  - (m) Why most of the thermal power plants are set near coal mines?
- 2.** Answer **any four** questions from the following: 5×4
- (a) Discuss briefly about wind turbines.
  - (b) Differentiate between renewable and non-renewable energy.
  - (c) What are the main advantages and disadvantages of Ocean wave energy?
  - (d) Discuss about the sources of energy from human activity.

**Please Turn Over**

- (e) State the factors affecting the wind.
- (f) What do you mean by Solar Cooker? Explain briefly.
3. (a) What do you mean by biomass conversion?
- (b) State the applications of solar energy.
- (c) Classify the methods of solar energy utilization. 4+4+2
4. (a) Draw the schematic of a solar pond electric power plant. Explain its working.
- (b) What is solar panel? What is conversion efficiency? (3+3)+(2+2)
5. (a) Discuss about space cooling and refrigeration system.
- (b) State the advantages of photovoltaic solar energy conversion. (4+4)+2
6. (a) State the advantages and disadvantages of wind mills.
- (b) With a neat diagram explain how wind energy can be converted into electrical energy. 5+5
7. (a) What are the favourable sites for installing wind turbines?
- (b) Describe the working of a hydropower plant.
- (c) What is the source of tidal energy? (3+5+2)
8. (a) What do you mean by geothermal energy?
- (b) What are spring and neap tides? 5+5
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