



## CHAPTER 14

# Sources of Energy

### Multiple Choice Questions

1. Which of the following is a non-renewable source of energy?
  - (a) Wood
  - (b) Sun
  - (c) Fossil fuels
  - (d) Wind
2. Acid rain happens because
  - (a) sun leads to heating of upper layer of atmosphere
  - (b) burning of fossil fuels release oxides of carbon, nitrogen and sulphur in the atmosphere
  - (c) electrical charges are produced due to friction amongst clouds
  - (d) earth atmosphere contains acids
3. Fuel used in thermal power plants is
  - (a) water
  - (b) uranium
  - (c) biomass
  - (d) fossil fuels
4. In a hydro power plant
  - (a) Potential energy possessed by stored water is converted into electricity
  - (b) Kinetic energy possessed by stored water is converted into potential energy
  - (c) Electricity is extracted from water
  - (d) Water is converted into steam to produce electricity

5. Which is the ultimate source of energy?
  - (a) Water
  - (b) Sun
  - (c) Uranium
  - (d) Fossil fuels
6. Which one of the following forms of energy leads to least environmental pollution in the process of its harnessing and utilisation?
  - (a) Nuclear energy
  - (b) Thermal energy
  - (c) Solar energy
  - (d) Geothermal energy
7. Ocean thermal energy is due to
  - (a) energy stored by waves in the ocean
  - (b) temperature difference at different levels in the ocean
  - (c) pressure difference at different levels in the ocean
  - (d) tides arising out in the ocean
8. The major problem in harnessing nuclear energy is how to
  - (a) split nuclei?
  - (b) sustain the reaction?
  - (c) dispose off spent fuel safely?
  - (d) convert nuclear energy into electrical energy?
9. Which part of the solar cooker is responsible for green house effect?
  - (a) Coating with black colour inside the box
  - (b) Mirror
  - (c) Glass sheet
  - (d) Outer cover of the solar cooker
10. The main constituent of biogas is
  - (a) methane
  - (b) carbon dioxide
  - (c) hydrogen
  - (d) hydrogen sulphide
11. The power generated in a windmill
  - (a) is more in rainy season since damp air would mean more air mass hitting the blades
  - (b) depends on the height of the tower
  - (c) depends on wind velocity
  - (d) can be increased by planting tall trees close to the tower

- 12.** Choose the correct statement
- (a) Sun can be taken as an inexhaustible source of energy
  - (b) There is infinite storage of fossil fuel inside the earth
  - (c) Hydro and wind energy plants are non polluting sources of energy
  - (d) Waste from a nuclear power plant can be easily disposed off
- 13.** In a hydroelectric power plant more electrical power can be generated if water falls from a greater height because
- (a) its temperature increases
  - (b) larger amount of potential energy is converted into kinetic energy
  - (c) the electricity content of water increases with height
  - (d) more water molecules dissociate into ions
- 14.** Choose the incorrect statement regarding wind power
- (a) It is expected to harness wind power to minimum in open space
  - (b) The potential energy content of wind blowing at high altitudes is the source of wind power
  - (c) Wind hitting at the blades of a windmill causes them to rotate. The rotation thus achieved can be utilised further
  - (d) One possible method of utilising the energy of rotational motion of the blades of a windmill is to run the turbine of an electric generator
- 15.** Choose the incorrect statement
- (a) We are encouraged to plant more trees so as to ensure clean environment and also provide bio-mass fuel
  - (b) Gobar-gas is produced when crops, vegetable wastes etc., decompose in the absence of oxygen
  - (c) The main ingredient of bio-gas is ethane and it gives a lot of smoke and also produces a lot of residual ash
  - (d) Bio-mass is a renewable source of energy

### Short Answer Questions

- 16.** Why is there a need to harness non-conventional sources of energy? Give two main reasons.
- 17.** Write two different ways of harnessing energy from ocean.
- 18.** What steps would you suggest to minimise environmental pollution caused by burning of fossil fuels?

- 19.** What is the role of a plane mirror and a glass sheet in a solar cooker?
- 20.** Mention three advantages of a solar cell?
- 21.** What is biomass? What can be done to obtain bio-energy using biomass?
- 22.** What are the limitations in obtaining energy from wind?

### Long Answer Questions

- 23.** Which is the process used to harness nuclear energy these days? Explain it briefly.
- 24.** How can solar energy be harnessed? Mention any two limitations in using solar energy. How are these limitations overcome?
- 25.** Make a list of conventional and non-conventional sources of energy. Give a brief description of harnessing one non-conventional source of energy.
- 26.** Why is there a need for harnessing non-conventional sources of energy? How can energy be harnessed from the sea in different ways?
- 27.** What are the environmental consequences of using fossil fuels? Suggest the steps to minimise the pollution caused by various sources of energy including non-conventional sources of energy.
- 28.** Energy from various sources is considered to have been derived from the sun. Do you agree? Justify your answer.
- 29.** What is biomass? Explain the principle and working of a biogas plant using a labelled schematic diagram.