

## Chapter No. : 14

### SOURCES OF ENERGY

#### HOTS Questions and Answers

- Q.1. The cost of production of electricity in a thermal power station located in Bihar/Jharkhand/Orissa is less than in Gujarat/Maharashtra. Do you agree? Justify your answer.
- Q.2 Which of the following sources of electricity involves more running expenses and why? Thermal power station, Hydro power station, solar cells or Geothermal source.
- Q.3 Why is there so much emphasis on changing over from petrol/diesel driven automobiles to CNG-driven vehicles?
- Q.4 Which of the following is not an example of the biomass energy source?  
(a) Wood, (b) gobar gas, (c) atomic energy, (d) coal.
- Q.5 How is the supply of electricity maintained in a windmill when there is no wind? In a solar panel when there is no sun?
- Q.6 Can any source of energy be pollution-free? Why or why not?
- Q.7 Why is biogas a better fuel than animal dung-cakes?
- Q.8 Though a hot iron emits radiation, yet it is not visible in the dark, why?
- Q.9 Define: OTE (ocean thermal energy).
- Q.10  $H_2$  has been used as a rocket fuel. Would you consider it as a cleaner fuel than CNG? Why or why not?

#### ANSWERS OF THE ABOVE QUESTIONS

- Ans.1 It is because coal is available in Bihar/Jharkhand/Orissa locally, whereas it has to be transported for any thermal power plant in Gujarat/Maharashtra.
- Ans.2 Thermal power stations involve more running cost due to continuous use of coal.
- Ans. 3 CNG on burning produces only carbon dioxide and water  
-It does not produce smoke.  
-It does not leave unburnt hydrocarbons, lead particulates etc.
- Ans.4 Atomic energy is not an example of biomass energy source.
- Ans.5 In both the cases, the electricity generated is stored in a battery. This battery provides electricity when there is no wind in the case of a windmill and no sun in the case of a solar panel.
- Ans. 6 No source of energy can be called pollution-free, because the use of any source of energy disturbs the environment in one way or the other. The actual source of energy may be pollution-free, but the assembly of the device might have caused some damage to the environment. So, in absolute sense, no source of energy can be called pollution-free.
- Ans. 7 Biogas is a better fuel than animal dung-cakes because-  
(a) Burning of animal dung-cakes produces lot of pollution whereas biogas is a smokeless fuel.

- (b) The calorific value of Biogas is much higher than that of animal dung-cakes.  
(c) Animal dung cakes leaves residue after burning whereas biogas leaves no residue.

Ans. 8 Hot iron emits infra-red rays and these are not visible to our eyes.

Ans. 9 The energy available due to the difference in the temperature of water at the surface of the ocean and at deeper levels is called OTE.

Ans. 10  $H_2$  when burnt in presence of  $O_2$  produces  $H_2O$  as the only product with release of lot of heat energy. Water does not cause any damage to environment while CNG during burning produces  $CO_2$  and water.  $CO_2$  is not a pollutant yet it leads to rise in the temperature (global warming), this rise is called green house effect and this will affect polar ice, and life on the earth is at risk. Thus,  $H_2$  is a cleaner fuel than CNG.

### More Questions for Practice

Q1. Name the components of bio-gas.

Q2. What are hot spots?

Q3. What is the product obtained when wood is burnt without much supply of oxygen?

Q4. List problems associated with construction of dam?

Q5. What is the basis of nuclear energy? Explain briefly.

Q6. "It was believed nuclear energy is only destructive" do you agree? Justify your answer.

Q7. List the criteria for selecting a good fuel.

Q8. What is bio-mass?

Q9. Name the process that converts solar energy into chemical energy in nature.

Q10. Biogas is considered to be a boon to the farmers. Give reason.