

Chapter - 14

Sources of Energy



Q: 1 Water stored in reservoirs created by building dams across rivers is used to generate hydroelectricity which is a renewable energy source.

Which of the following help to generate hydroelectricity?

P) gravity

Q) solar energy

1 only P

2 only Q

3 both P and Q

4 neither P nor Q

Q: 2 Two statements are given - one labelled Assertion (A) and the other labelled Reason (R). Read the statements carefully and choose the option that correctly describes statements A and R.

Assertion (A): Incident sunlight on a solar panel on the earth's surface is lower than the incident sunlight on the solar panels of a spacecraft.

Reason (R): Sunlight is not obstructed by a medium like air in space.

1 Both A and R are true, and R is the correct explanation for A.

2 Both A and R are true, but R is not the correct explanation for A.

3 A is true, but R is false.

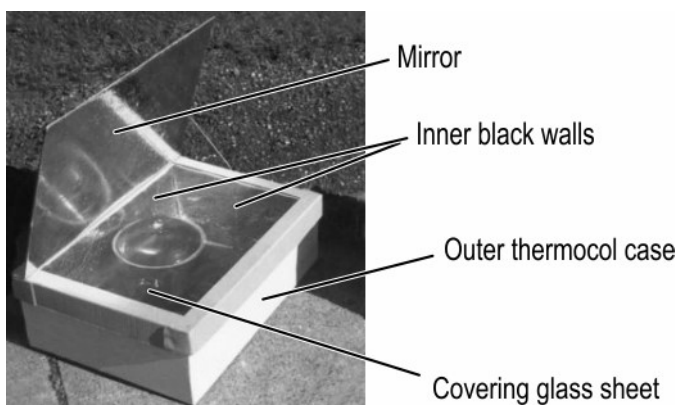
4 A is false, but R is true.

Q: 3 Biomass is the organic material of plants and animals. It can be treated and used as fuels called biofuels. [1]

State one major advantage in the use of biofuels over fossil fuels.

Q: 4 A solar cooker is a device which cooks food with the help of solar energy.

[4]



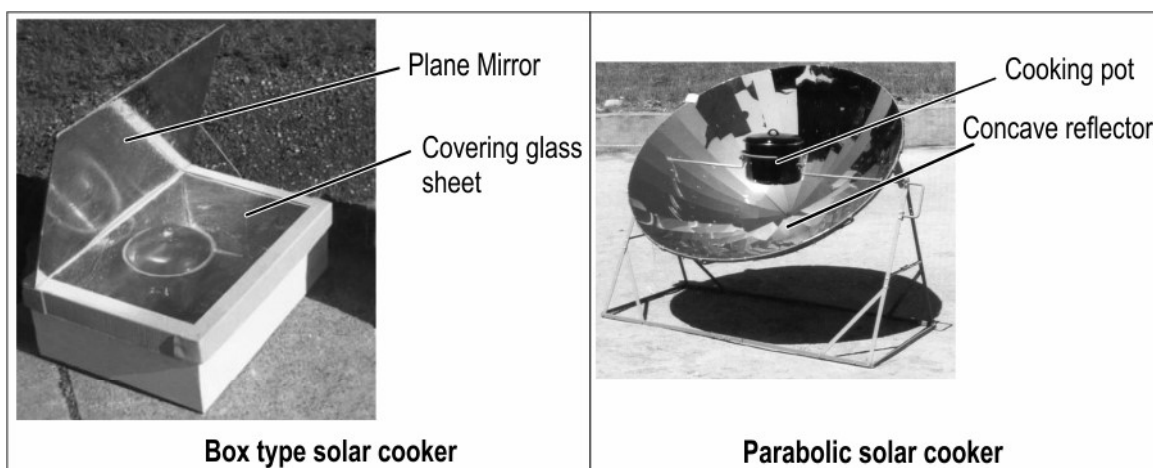
There are three main components to the functioning of most solar cookers:

- **Concentration (to gather and focus energy)**
- **Absorption (ability to attract or hold heat)**
- **Retention (capacity to retain heat)**

In the diagram of the solar cooker shown above, match the parts labeled with the correct function that they perform.

Part of cooker	Function
(a) mirror	
(b) inner black walls	
(c) outer thermocol case	
(d) covering glass sheet	

Two types of solar cookers are shown below.



The box type has a plane mirror to reflect sunlight and is closed with a covering glass sheet. The cooking pot is placed in the box below the glass sheet.

The parabolic type has a concave reflector that acts as a concave mirror but is open. The

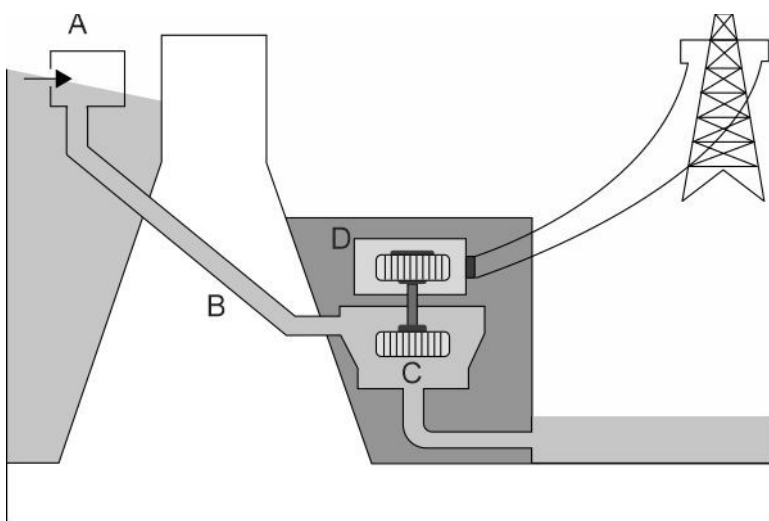
cooking pot is placed at the focal point of the concave reflector.

Answer the questions that follow based on the information given.

Q: 5 In which of the two types of solar cookers shown above are higher temperatures likely to be obtained? Justify your answer. [2]

Q: 6 (a) State the function of the covering glass sheet in the box type solar cooker. [3]
 (b) What is the mode of heat transfer by which the contents of the box get heated?
 (c) Name the natural phenomenon that the functioning of the covering glass sheet in a box type solar cooker is similar to.

Q: 7 Given below is a schematic of a hydro-electric power plant. [2]



Write the energy conversion that take place:

- (a) Point A to B
- (b) Point C to D

Q: 8 Kazakhstan produces 41% of the world's total industry grade uranium, but has only one operational nuclear reactor for power generation. [2]

Give TWO limiting factors that could be likely reasons for the above fact.



The table below gives the correct answer for each multiple-choice question in this test.

Q.No	Correct Answers
1	3
2	1



Q.No	Teacher should award marks if students have done the following:	Marks
3	Biofuels are renewable sources of energy, as trees can be grown again. OR Biofuels will cause less harm to the environment due to less mining activities. OR Any other correct answer explaining advantage of biofuel over fossil fuel.	1
4	1 mark for each part correctly matched with its function: (a) Mirror - concentration (b) Inner black walls - absorption (c) outer thermocol case - retention (d) covering glass sheet - retention	4
5	in the parabolic type	1
	The concave reflector concentrates the sunlight at the focal point.	1
6	(a) to trap heat inside the box	1
	(b) radiation	1
	(c) the green-house effect	1
7	1 mark for each correct answer: (a) potential energy to kinetic energy (b) kinetic energy to electrical energy	2
8	1 mark each for any two factors such as: - high cost of installation - high risk of radiation leak - high cost for disposal of nuclear waste	2