

# Sources of Energy

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126 If energy can neither be created nor destroyed, explain with an example as to why we should worry about our energy resources.

2014/2015/2016 [3 Marks]

Energy can neither be created nor destroyed, the total energy during a physical or chemical process is conserved. Still we worry about our energy resources because energy in usable form is being dissipated to the surroundings in less usable form. Hence, the sources of energy we use to do work are consumed and cannot be used again.

For example, when a candle burns, chemical energy in the wax is converted to heat and light energy on burning along with other products. However, this process cannot be reversed to get back the chemical energy in the form of wax.

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127. State any four characteristics of a good source of energy.

2011/2012/2013/ 2014/2015/2016 [2 Marks]

A good or ideal source of energy should be:

- (i) Eligible to produce more heat per unit mass
  - (ii) Pollution free (or smoke free)
  - (iii) Economical
  - (iv) Easily available
  - (v) Easy to handle
  - (vi) Safe to transport (*any four*)
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128. Write the characteristic features of the micro-organisms which help in the production in a bio gas plant.

2014/2015/2016 [1 Mark]

The micro-organisms are anaerobic bacteria, which breakdown organic matters anaerobically and produce biogas.

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129. State the reason for calling fossil fuels as non-renewable source of energy.

2014/2015/2016 [1 Mark]

It is because fossil fuels take millions of years to be formed and there is only a limited reserve of it.

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130. The chief constituent of biogas is methane. List any two other constituents of biogas.

2013/2014/2015/2016 [1 Mark]

- (i) Hydrogen ( $H_2$ ), (ii) Hydrogen sulphide ( $H_2S$ ).
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131. Name the kind of energy possessed by wind and the device used to harness it.

2013/2014/2015/2016 [1 Mark]

Wind possesses kinetic energy which can be harnessed by windmills.

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14. Blowing wind carries kinetic energy. Mention the two factors that cause winds to blow.

2013/2014/2015/2016 [1 Mark]

Unequal heating of the landmass and water bodies by solar radiation generates air movement and causes winds to blow.

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138. Write the special techniques used for mounting solar cells panels. Mention its advantages.

2013/ 2014/2015/2016 [1 Mark]

The solar cell panels are mounted on specially designed inclined roof so that more solar energy is incident over it.

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139. List any three limitations of using a solar cooker.

2014/2015/2016 [3 Marks]

⇒ Advantages of using solar cooker:

- (i) Here, energy is obtained free of cost.
- (ii) It does not cause any pollution.
- (iii) Nutritive value of food is retained in it.

Disadvantages of solar cooker:

- (i) It cannot be used at night.
- (ii) It cannot be used in a cloudy day.
- (iii) Direction of sunlight is necessary to be adjusted frequently.

⇒ Yes, there are some places where solar cookers have limited utility. At poles, where Sun is absent for half of the year, the solar cooker has limited utility. In the hilly areas where the Sun shines for limited time periods and where inclined Sun rays reaches, the use of solar cooker is difficult.

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140. List in tabular form two distinguishing features between renewable and non-renewable sources of energy. Give two examples of each.

2013/2014/2015/2016 [3 Marks]

<b><i>Renewable sources</i></b>	<b><i>Non-renewable sources</i></b>
(i) Can be replenished.	(i) Cannot be replenished.
(ii) Available in abundance. No conservation needed.	(ii) Need to be conserved as there are limited reserves.
Examples: Solar energy, wind energy, ocean thermal energy, geothermal energy. <i>(any two)</i>	Examples: Wood, fossil fuel like coal, petroleum, natural gas. <i>(any two)</i>

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