

15. Natural Resources

Answers to Exercises

1. Natural resources that cannot be easily renewed or renewed fast enough to be of use to us are called nonrenewable resources. Minerals and fossil fuels (coal, petroleum and natural gas) are nonrenewable resources.
 2. Plantations cannot make up for the loss of primary forests as the latter have evolved over centuries and have a variety of organisms that modified or man-made forests do not have.
 3. The natural causes of deforestation are droughts, floods, storms and forest fires. However, even these can be caused or triggered by human activities.
 4. Logging for timber and production of paper cause large-scale destruction of forests. Shifting cultivation and the conversion of forests into pastures and plantations also lead to deforestation.
 5. Forests protect the soil in two ways. The cover of leaves protects the soil from the direct impact of rain and the roots keep the soil in place.
 6. Deforestation leads to soil erosion, floods and droughts, climate change and habitat destruction. It may also cause shortage of timber and fuelwood, and take away the means of survival of people dependent on forests.
 7. Coal, petroleum and natural gas are called fossil fuels because they are formed by the fossilisation of plant and animal remains.
 8. More than 75% of the world's energy requirements are met by fossil fuels. The energy that is bought or sold, and not the energy from crop residue, cattle dung, etc., that is used by the poor, is called commercial energy.
 9. Coal tar, coal gas, coke and ammoniacal liquor are produced by the destructive distillation of coal. Ammoniacal liquor is used for the production of fertilisers.
 10. Solar energy, wind energy and the energy of flowing water (hydroelectricity) are some alternative sources being tapped for the generation of electricity.
- B.
1. Cutting down on wasteful consumption of paper could help save trees. Most of the paper is used to make disposable diapers, tissues and towels. We could go back to the era of cloth diapers and handkerchiefs in order to save trees. Another way to save trees is to make recycled paper, or use waste paper to make new paper.
 2. Trees absorb carbon dioxide from the air. Deforestation means an increase in carbon dioxide in the environment. Trees release most of the water absorbed from the soil, leading to an increase in rainfall. When a large area is deforested, the percentage of rainfall in that area lessens.
 3. Petroleum is found deep under the earth between layers of rock. Natural gas is often found in association with petroleum. Both were formed from the remains of marine organisms that died and collected on the floor of the seas millions of years ago.
- C.
1. Shifting cultivation is a traditional agricultural practice followed in many parts of Asia, Africa and South America. The practice consists of clearing a part of a forest by cutting down and burning the vegetation and growing crops on the cleared land, and then moving on to another part of the forest when the soil gets exhausted. Earlier, people would leave the exhausted soil fallow for 20–25 years. During this time, the vegetation would grow back and the fertility of the soil would be restored. With growth in population, people are returning to the original piece of land much earlier. They are also clearing larger and larger parts of the forest. This has led to a large-scale destruction of forests.



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2. Commercial logging, or cutting down trees with electrically powered machines for industrial use, destroys forests in many ways. First of all, for every cubic metre of timber extracted, about double that quantity is destroyed. Nontimber trees and plants are also destroyed. The process of making roads and other facilities needed for commercial logging destroys more trees. Besides, roads made through forests encourage hunters, poachers and settlers to damage the forest further. Soon, a dense forest is reduced to small islands of green, which are more prone to soil erosion, winds, pests, and so on.
3. Trees check the flow of rainwater. When mountain slopes and uplands are deforested, the water rushes down and causes rivers to overflow and flood lower lands. The silt carried by the water from denuded slopes chokes rivers and aggravates the problem of flooding.

Deforestation can lead to droughts as well. Forests hold water and release it slowly. When they are cut down, the water rushes down very fast, and the uplands, especially, are deprived of water soon after the rains. By holding water and improving the water-retaining capacity of the soil, forests also help recharge groundwater. In India, deforestation of the Himalayas has changed perennial streams into seasonal streams, which run out of water soon after the monsoon.



4. Peat, the first stage in the ~~formation of~~ coal, has the lowest carbon content and is the most inferior type of coal. It was formed by the action of ~~anaerobic~~ bacteria on plant remains buried ~~under~~ swamps. Earthquakes and volcanic eruptions pushed the ~~decomposed~~ remains of plants under the ~~ground~~. As they sank, they experienced tremendous pressure and ~~temperature~~, which drove out gaseous ~~products~~ from the remains. This increased their carbon content. The lower the ~~remains~~ sank, the more their carbon content ~~increased~~. The best-quality coal, known as anthracite, is thus found at ~~greater~~ depths than bituminous coal and ~~lignite~~, which have a lower carbon content.

- D. 1. wood 2. carbonisation 3. biomass 4. geyser 5. global 6. synthetic
- E. 1. (a) 2. (a) 3. (c) 4. (b) 5. (c)

