

Assessment of understanding of the chapter could be done with the help of the given questions for the chapter.

TEXTBOOK ANSWERS

Objective Type Questions

1. Name the following:

- | | |
|--|------------------|
| (a) Air, water, forests, sunlight and soil | (b) Wind turbine |
| (c) Rainwater harvesting | (d) Solar panel |
| (e) Wood, Honey, Gum, Sealing wax, Catechu | (f) Soil erosion |
| (g) Natural gas | (h) Metal ores |

2. Fill in the following blanks with suitable words:

- | | | | |
|-------------------------|------------|--------------|----------|
| (a) Nitrogen and oxygen | (b) 70% | (c) Sun | (d) Soil |
| (e) Earthworms | (f) Marble | (g) Minerals | |

3. State whether the following statements are true or false:

- (a) False (b) True (c) True (d) False (e) True
(f) False (g) False

Subjective Type Questions

Short Answer Type Questions

1. **Renewable Resources:** Wind, Forest, Food

Non-renewable Resources: Rocks, Soil, Natural gas, Coal, Minerals, Petroleum, LPG, CNG

2. Petroleum is considered a non-renewable resource because it takes millions of years to form from the decomposition of organic matter. Once consumed, it cannot be replaced within human lifespan.

Products obtained by refining petroleum:

- (i) Petrol
- (ii) Diesel
- (iii) Kerosene
- (iv) Liquefied Petroleum Gas (LPG)

3. If the sun is not visible for a few days:

- (i) It will get dark even during the daytime, and we will need artificial lighting during the day.
- (ii) Crop plants will not be able to produce food efficiently as they depend on sunlight for photosynthesis.
- (iii) The temperature on Earth will begin to decrease, and the Earth's surface will gradually cool as it relies on the sun's heat to maintain warmth.

4. A solar panel is a device that consists of a large number of solar cells joined together in a definite pattern. It converts solar energy (sunlight) into electrical energy (electricity).

5. Large-scale cutting down of trees (deforestation) reduces the root cover that binds the soil. Without roots to hold the soil in place, the soil becomes loose and is easily washed away by wind and water, leading to soil erosion and loss of soil fertility.

6. Most of the water on Earth is located in the oceans. Ocean water is saline (salty) and cannot be used directly for drinking, irrigation, or other domestic purposes without desalination.

7. Forests prevent soil erosion because the roots of trees and plants in the forest bind the particles of topsoil and hold the soil together firmly. This binding prevents strong winds and flowing rainwater from carrying away the topsoil, thereby reducing soil erosion.

8. (i) **Air:**

- Provides oxygen for respiration.
- Supports combustion for various activities.

(ii) **Water:**

- Essential for drinking and irrigation.
- Used in industries for cooling and processing.

9. Recycling paper reduces the need to cut down trees to make new paper. Since paper is made from wood pulp, reusing and recycling it helps conserve forests, preserving natural habitats and reducing deforestation.
10. When natural gas is compressed by applying pressure and filled in cylinders, it is called Compressed Natural Gas. It is used as a fuel in vehicles to reduce air pollution.
11. The petroleum gas which has been liquefied by applying pressure and filled in cylinders is called Liquefied Petroleum Gas. It is used as a fuel for cooking food in homes.

Long Answer Type Questions

1. (a) The uppermost layer of the earth's crust (in which plants grow) is called soil. Soil is a dark brown (or black) solid material that is a mixture of 'rock particles of various sizes' and decayed (rotten) plants and animal material called humus.
Soil is formed from rocks through a slow process called disintegration, where rocks break apart due to the combined action of natural forces. Sun's heat causes rocks to expand and contract, leading to cracks. Wind and rain wear away rock surfaces while flowing water erodes rocks into smaller particles. Additionally, living organisms contribute to the breakdown of rocks. Over thousands of years, these tiny rock particles mix with humus to form fertile soil.
- (b) Granite: used for making flooring and floor tiles, countertops for kitchen and bathroom and statues.
Slate: The tiles made of slate are used for making the roofs of houses
- (c) Some minerals like common salt, iron, calcium, etc., are essential for our health. Common salt regulates blood pressure, iron transports oxygen through haemoglobin, and calcium builds and maintains strong bones and teeth.
2. A forest is a large area covered with trees and other vegetation, providing habitat to various species of plants and animals.

Need to Conserve Forests:

- (i) Forests prevent soil erosion by holding the soil together.
- (ii) They maintain the oxygen and carbon dioxide balance in the atmosphere.
- (iii) Forests provide habitat to a large number of species and maintain biodiversity.
- (iv) They regulate the water cycle and reduce the risk of floods.

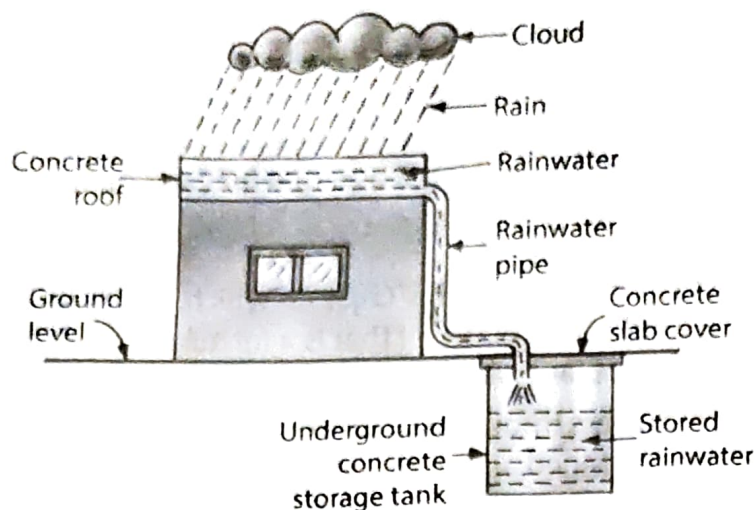
Ways to Conserve Forests:

- (i) Afforestation: Planting more trees to increase the forest cover.
- (ii) Preventing Deforestation: Controlling illegal cutting of trees and promoting sustainable use of forest resources.
3. Rainwater harvesting is the process of collecting and storing rainwater from roofs or other surfaces to use for domestic, agricultural, or industrial purposes.

Method: Rooftop Rainwater Harvesting

- (i) Rainwater is collected from rooftops and directed through pipes into storage tanks or underground reservoirs.

- (ii) This stored water can be used later for various purposes such as irrigation, household use, and recharging groundwater.



4. Air is a mixture of gases that surrounds the earth and is essential for the survival of all living organisms.

Composition of Air:

- (i) Nitrogen: 78%
- (ii) Oxygen: 21%
- (iii) Argon, Carbon dioxide and other gases: 1%

Properties of Air:

- (i) Air has mass and occupies space.
- (ii) Air exerts pressure in all directions.

Uses of Air:

- (i) Air is essential for respiration in living organisms.
- (ii) Air is used for combustion of fuels.

5. Solar energy is the energy obtained from the sun. It is a versatile and abundant resource that can be used for various purposes, such as heating water, cooking food, and producing electricity.

Production of electricity using solar energy: Solar cells convert sunlight directly into electricity. Since a single solar cell produces a small amount of electricity, multiple solar cells are connected to form a solar panel. Solar panels generate electricity for homes, offices, and even streetlights and traffic signals.

Advantages of using solar energy over fossil fuels:

- **Renewable and Clean Energy:** Solar energy is a renewable resource that does not cause pollution.
- **Reduces Dependence on Fossil Fuels:** It decreases the need for fossil fuels like coal and natural gas, which are limited and pollute the environment.

Multiple Choice Questions (MCQ)

1. (b) 21
2. (c) seawater
3. (d) vitamin D
4. (c) recycling of paper bags
5. (b) sandstone
6. (c) petrol
7. (d) forests
8. (c) rocks
9. (d) electricity
10. (d) causing soil erosion

21st Century Skills

1. (a) (i) Gas A: Oxygen (ii) Gas B: Nitrogen
(b) (i) Percentage of Gas A: 21% (ii) Percentage of Gas B: 78%
(c) Gas B (Nitrogen) does not support the process of burning of fuels.
(d) Another gas present in the air is carbon dioxide.
2. (a) (i) A: Petroleum (ii) B: Natural gas
(b) (i) C: Diesel (ii) D: Petrol
(c) The cleanest fuel out of B, C, and D is B (natural gas).
(d) None of these fuels is a renewable resource, as all are fossil fuels.
3. (a) Device X: Solar cooker
(b) The source of energy is solar energy (sunlight).
(c) This device cannot be used to cook food at night because it relies on sunlight, which is not available at night.
(d) One advantage: It is environmentally friendly as it does not cause pollution.