

CHAPTER 16

MANAGEMENT OF NATURAL RESOURCES

Syllabus

Conservation and judicious use of natural resources, Forest and wild life; Coal and Petroleum conservation, Examples of people's participation for conservation of natural resources, Big dams: advantages and limitations; alternatives, if any. Water harvesting, Sustainability of natural resources.

Trend Analysis

List of Concepts	2018	2019	2020
	OD	OD/D	OD
Natural resources, Sustainable development and biodiversity		1 Q (1 M)	Or 1 Q (1 M)
Water conservation, Water harvesting, fossil fuels	1 Q (3 M)		1 Q (1 M)



TOPIC - 1

Natural Resources, Sustainable Development and Biodiversity



Revision Notes

- **Natural Resources:** Anything in the environment which is useful to man or can be transformed into a useful product or can be used to produce a useful thing is called *natural resource*. e.g., soil, air, water, forests, wildlife, coal and petroleum.



Types of Resources

Exhaustible

These are present in limited quantity. E.g., Coal and petroleum of cannot be reproduced

Inexhaustible

These are present in unlimited quantity. E.g., Air and water can never get exhausted

- Coliform is a group of gram-negative, rod-shaped bacteria that are found in human intestine. Their presence in water is an indicator of contamination by disease-causing micro-organisms indicating faecal pollution. It includes *Klebsiella* and *Escherichia coli*.

TOPIC - 1

Natural Resources, Sustainable Development and Biodiversity

TOPIC - 2

Water Conservation and Fossil Fuels

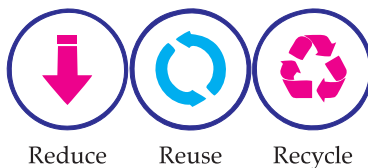
- Largely untreated sewage such as garbage and excreta are dumped into Ganga. Pollution is also caused by human activities such as bathing, washing and immersion of ashes or unburnt corpses.
- Industries also contribute in Ganga's pollution by discharging chemical effluents which are responsible for making the water toxic and killing aquatic organisms.
- Ganga Action Plan is a massive multi-core project launched in 1985, which has been undertaken to clean the excess pollution from river Ganga.
- **Management of Natural resources:** The principle of reducing waste, reusing and recycling resources is often called the *3R's principle*.
- **Sustainable Management:** Management of resources wisely so they meet current basic human needs while preserving them for the needs of future generations.
- **The management of natural resources requires :**
 - (a) Long term perspective so that these will last for generations to come.
 - (b) Ensure equitable distribution of resources so that all economic sections benefit from these resources.
 - (c) Safe disposal of waste.
- The objective of sustainable development is to provide the economic well being to the present and the future generations and to maintain a healthy environment and life support system.
- Forest is a 'biodiversity hotspot' because it is an area where number of species or range of different life form exists.
- **We need to manage natural resources because :**
 - (i) They are limited.
 - (ii) Utilisation of natural resources is increasing at an exponential rate due to increase in human population.
- Management of natural resource should ensure equitable distribution to all in order to get benefit from the development of these resources.
- Sustainable natural resource management should ensure the safe disposal of wastes produced while using or extracting the resources.
- Forests are 'biodiversity hot spots' where a number of species are found.
- Conserving forest will preserve the bio-diversity which ensure the ecological stability.
- Management of forest resources has to take into account the interests of various stakeholders.
- **Four stakeholders of forests are :**
 - (i) Local people who live in and around the forest and are dependent on the forest produce for their livelihood.
 - (ii) The Forest Department of the Government which owns the forest and controls the resources from forests.
 - (iii) Industrialists who use various forests produce for their factories.
 - (iv) Forest and wildlife activists who want to conserve the nature in its original form.
- Industries would consider the forest as merely a source of raw material for its factories.
- Wildlife enthusiasts are in no way dependent on the forests. However they take a great part in conserving the forest and wildlife.
- Amrita Devi Bishnoi, in 1731 sacrificed her life along with 363 others for the protection of 'khejri' trees in Khejrali village near Jodhpur in Rajasthan.
- The Government of India has recently instituted an 'Amrita Devi Bishnoi National Award for Wildlife Conservation' in the memory of Amrita Devi Bishnoi.
- The Chipko movement was a forest conservation movement in India where rural people embraced the trees to prevent them from being cut down.
- **Deforestation affects the :**
 - (i) Availability of forest products.
 - (ii) Quality of soil and the sources of water.

- Participation of the local people is important for efficient management of forests.
- Within a period of 10 years the previously worthless forests called sal forest in West Bengal became valuable by involving the local people in managing the resources.
- Forest resources should be managed in a manner such that they are both environmentally and developmentally viable.
- **Sustainable Management:** It is the management of resources wisely to make them available for future generations.



Mnemonics

Concept: 3R's of conservation



Interpretation:

Reduce, Reuse and Recycle

How is it done on the **GREENBOARD?**

Q. What is 'Sustainable Management of Natural Resources'? Why is it necessary? What one out of reuse and recycle, would you practise in your daily life and why?

3

Solution:

Step I: Managing resources to meet current basic human needs, while preserving the resources for the needs of future generations and maintaining the quality of the environment is known

as sustainable management of natural resources'.

Its importance is:

Step II: To maintain the quality of the environment.

Step III: To ensure the continuity of the resources

Step IV: I would practice reuse in my daily life.

Step V: It is because process of recycling uses some energy and takes some time.



Objective Type Questions

1 mark each



Multiple Choice Questions

Q. 1. It was found that water from a river was contaminated with Coliform bacteria. Which one of the following pollutant might have got mixed with the water?

- Fertilizer run off
- Industrial waste
- Pesticides
- Human faecal matter.

[CBSE SQP, 2020]

Ans. Correct option: (d)

Explanation: It is a group of bacteria found in human intestine whose presence in water indicates contamination by disease causing micro-organisms.

1

Q. 2. Which one of the following stakeholders of forests causes the maximum damage to forest?

- People who live in or around the forest.
- The forest department of the government.

- (c) The wildlife and native enthusiasts.
(d) The industrialists. [CBSE SQP, 2020]

Ans. Correct option: (d)

Explanation: Industrialists who use various forests produce for their factories causes the maximum damage to forest. 1

Q. 3. Soil fertility is determined by its ability to:

- (a) Decay organic matter
(b) Hold organic matter
(c) Hold water
(d) Support life [CBSE Delhi- Set-II, 2020]

Ans. Correct option: (d)

Explanation: Soil fertility is the ability of the soil to supply essential plant nutrients and soil water in adequate amounts for plant growth and reproduction, thereby support life. 1

Q. 4. The most appropriate definition of a natural resource is that it is a substance/commodity that is:

- (a) present only on land.
(b) a gift of nature which is very useful to mankind.
(c) a man-made substance placed in nature.
(d) available only in the forest. [NCERT Exemp.]

Ans. Correct option : (b)

Explanation : Natural resource is a gift of nature which is very useful to mankind. Option (c) can be easily ruled out because natural resources are not man-made. Option (a) can be ruled out, because natural resources are present everywhere. 1

B Assertions and Reasons Type Questions

Direction: In the following questions, a statement of assertion (A) is followed by a statement of reason (R). Mark the correct choice as :

- (a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).
(b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).
(c) Assertion (A) is true but reason (R) is false.
(d) Assertion (A) is false but reason (R) is true.

Q. 1. Assertion (A): We need to conserve natural resources.

Reason (R): Natural resources are limited.

Ans. Correct option : (a)

Explanation: We need to manage natural resources because natural resources are limited. Human population is increasing at a tremendous rate and utilization of natural resources is increasing at an exponential rate. Therefore, we need to conserve resources for future generations.

Q. 2. Assertion (A): Reuse is better than recycle.

Reason (R): Recycle prevents environmental pollution.

Ans. Correct option : (c)

Explanation: Reuse is better than recycle because it saves energy by using material again without

any changes and also, it prevents environmental pollution.

Q. 3. Assertion (A): The development which can be maintained for a long time without undue damage to the environment is called sustainable development.

Reason (R): It provide the economic well being to the present and future generation.

Ans. Correct option : (b)

Explanation: Sustainable development is the development which can be maintained for a longtime without undue damage to the environment. It has two main objectives: To provide economic well being to the present and future generations and to maintain a healthy environment and life support system.

Q. 4. Assertion (A): Chipko Andolan was done by women of Reni village.

Reason (R): Chipko Andolan was done to protect wild life.

Ans. Correct option : (c)

Explanation: Chipko movement was started in early 1970s in village Reni in Garhwal by the women of Uttarakhand to stop cutting of forest trees of their area.

Q. 5. Assertion (A): Wildlife should be conserved.

Reason (R): Human activities cause several plants and animals to extinct.

Ans. Correct option : (a)

Explanation: Wild life is found in forests. Over a period of time, wildlife has become extinct because of certain human activities like deforestation, hunting, poaching etc.

Q. 6. Assertion (A): Coliform is a group of bacteria found in human stomach.

Reason (R): Presence of coliform in water indicates contamination by disease causing microorganisms.

Ans. Correct option: (d)

Explanation: Coliform is a group of bacteria found in human intestine whose presence in water indicates contamination by disease causing micro-organisms.

C Very Short Answer Type Questions

Q. 1. Name two industries based on forest produce.

[A] [CBSE Board Outside Delhi, 2019]

Ans. Timber / Bidi / Paper / Medicine.

(Any two) $\frac{1}{2} + \frac{1}{2}$ [CBSE Marking Scheme, 2019]

Q. 2. The presence of a particular group of bacteria in water bodies indicates contamination. Identify the group.

[R] [CBSE, SQP, 2019]

Ans. Coliform bacteria [CBSE Marking Scheme, 2019] 1

Q. 3. Name the tree for which Amrita Devi Bishnoi and others sacrificed their lives.

[R]

Ans. Khejri trees.

1

Q. 4. List two items which can be easily recycled, but we generally throw them in the dustbins.

Ans. Steel cans and paper can be easily recycled, but we generally throw them in dustbins.

$\frac{1}{2} + \frac{1}{2}$

Q. 5. Write one negative effect of affluent lifestyle of few persons on the environment.

[R]

Ans. Due to exploitation and consumption of natural resources, our future generation will suffer by the lack of these resources.

AI Q. 6. Give one example each from your daily life where the domestic waste can be effectively reused and recycled.

[R]

Ans. **Reuse:** We can reuse the empty bottles of jam, pickles, etc. for the storage purposes.

Recycle: We can recycle old newspapers, aluminium cans, etc.

$\frac{1}{2} + \frac{1}{2}$

COMMONLY MADE ERROR

- Students often give incorrect or vague examples.

ANSWERING TIP

- Carefully learn the concept of 3R's of conservation. Lay emphasis on its example from your daily life.

AI Q. 7. 'We need to manage our resources'. List two reasons to justify this statement.

[AE]

Ans. We need to manage natural resources because :

- (i) A majority of natural resources is limited.
- (ii) Utilisation of natural resources is increasing at an exponential rate.
- (iii) Need to conserve resources for future generations.

(Any two) $\frac{1}{2} + \frac{1}{2}$



Short Answer Type Questions-I

2 marks each

AI Q. 1. What is sustainable management? Why is reuse considered better in comparison to recycle?

[U] [Delhi 31/1/1 2017]

Ans. Since natural resources are limited, if they are over exploited for short term gains, future generation will suffer heavily.

Reuse does not consume energy.

1+1

[CBSE Marking Scheme, 2017]

Detailed Answer:

Sustainable management is a resource management technique which aims to conserve the resources, use them efficiently and avoid their misuse for individual purpose such that they are conserved for future.

Reuse is better than recycle because:

- (i) Reuse saves energy by using material again without any changes
- (ii) Reuse prevents environmental pollution.
- (iii) Reuse saves time as same material is used again.

(Any two) 2

Q. 2. How do advantages of exploiting natural resources with short term gains in mind differ from the advantages of managing our resources with a long-term perspective?

[U] [Delhi 31/1/1 2017]

Ans. Former leads to huge immediate profits/selfish gains while latter leads to sustainable approach so that the resource may last for future generations too.

1+1

[CBSE Marking Scheme, 2017]

Detailed Answer:

Exploitation of natural resources with short term

gains aims at providing all the benefits to the current generation for their growth and development without any consideration for the future.

In case of long term perspective, the resources are utilised in a more judicious manner so that they are also conserved for the future generations. It ensures uniform distribution among the people.

1 + 1

COMMONLY MADE ERROR

- Students often get confused between the terms short term gains and long term gains. The terms long term prospective is generally mistaken as the use of resources for a long time.

ANSWERING TIP

- Remember that long term prospective refers to the use of resources in such a way that they can be preserved for future generation.

Q. 3. Explain how would the involvement of local people be useful for successful management of forests.

[U] [Delhi 31/1/1 2017]

Ans. The involvement of local people is useful for successful management of forests in the following ways :

- (i) People should be aware of the fact that diminishing forest cover would disturb the ecological balance.
- (ii) Phenomena like forest fires must be reported

immediately to the forest officers. The sooner the action taken more will be the area which can be protected. Forest fires purposely caused by local people must not be practiced. 1 + 1

COMMONLY MADE ERROR

- ➔ Many students fail to write the correct explanation. They get confused and could not relate the answer.

ANSWERING TIP

- ➔ Lay stress on understanding the terms/concepts instead of rote learning.

Q. 4. Management of forest and wild life resources is a very challenging task. Why? Give any two reasons. [U] [Delhi 31/1/1 2017]

Ans. Local people are dependent on forest produce for various aspects of their life, therefore they develop practices to ensure that the resources are used in sustainable manner. 1+1

[CBSE Marking Scheme, 2017]

Detailed Answer:

Management of forest and wildlife resources are considered as a challenging task because :

- There are many stakeholders of forest. Management of forest and wildlife has to take into account the interests of all these stakeholders which become a challenging task.
- Industries would consider the forest as merely a source of raw material for its factories and huge interest groups lobby the government for access to these raw materials. 2

Q. 5. What is sustainable development? State its two main objectives. [U] [Board Term II, Foreign I, 2016]

Ans. The development which can be maintained for a long time without undue damage to the environment. 1

Two objectives:

- To provide the economic well being to the present and future generation. ½
- To maintain a healthy environment and life support system. [CBSE Marking Scheme, 2016] ½

[AI] Q. 6. List four stakeholders of forests.

[R] [Board Term II, O.D. Set III, 2016]

OR

List four stakeholders which may be helpful in the conservation of forests.

[R] [Board Term II, O.D. Set III, 2016]

- Ans. (i)** The people living in or around the forests who are directly dependent on forest product.
- (ii)** The Forest Department of the government which owns the land and controls the resources from forests.

(iii) The industrialists who use the forest produce, but are not dependent on the forest of a particular area.

(iv) The wildlife and nature enthusiasts who want to conserve nature in its present form. $4 \times \frac{1}{2} = 2$

[CBSE Marking Scheme, 2016]

[AI] Q. 7. How did 'Chipko Andolan' ultimately benefit the local people? Explain briefly.

[U] [Board Term II, Foreign II, 2016, O.D. Set I, 2016]

Ans. The Government had to rethink their priorities in the use of forest produce and change their forest policies, this ensured a stable availability of the forest produce to the villagers. 1

It led to efficient management of forest and also resulted in conservation of soil and water which ultimately benefitted the local people. 1

[CBSE Marking Scheme, 2016]

[AI] Q. 8. Explain giving example where active involvement of local people lead to efficient management of forest.

[U] [Board Term II, Delhi Set I, 2016]

Ans. (i) In West Bengal the Sal forests had been very badly degraded. ½

(ii) A forest officer involved villagers in protection of Sal forest and gave them employment in silviculture and harvesting operations. ½

(iii) Villagers were allowed to collect firewood and fodder on a nominal payment. ½

(iv) Within a period of 10 years the previously worthless forests became valuable. ½

[CBSE Marking Scheme, 2016]

Q. 9. What is meant by biodiversity? List two advantages of conserving forests and wildlife.

[U] [CBSE O.D. Set II, 2015]

Ans. Biodiversity is the existence of a variety of species of plants, animals and micro-organisms in a natural habitat within a particular environment.

Two reasons each for conserving

- Forest:** (i) It helps in retaining the sub-soil water, (ii) It checks flood.
- Wildlife:** (i) To maintain ecological equilibrium, (ii) To protect the nature. 1+1

[AI] Q. 10. What is meant by three types of 'R' (3-R's) to save the environment? Explain with example how would you follow the 3-R's in your School to save the environment.

[A] [Board Term II, Foreign Set I, 2015]

Ans. Reduce, Reuse, Recycle (for all the three) 1 (only mark if two are mentioned) ½

Examples:

- Switch off the fans and bulbs when not in use,
- Reuse of paper, polythene bags, etc.,

(iii) Reduce the wastage of water / paper or any other item

(Or any other relevant example) (Any two) $\frac{1}{2} \times 2$
[CBSE Marking Scheme, 2015]

Q. 11. Write two advantages of sustainable management of natural resources. Out of the two—reuse and recycle—Which is better and why?

[A] [CBSE Foreign Set III, 2015]

Ans. Two advantages:

(i) Provides the resources for the present generation. $\frac{1}{2}$

(ii) Preserve the resources for the future generation as well. $\frac{1}{2}$

Reuse is better than recycling because it does not involve use of energy. $\frac{1}{2} + \frac{1}{2}$

[CBSE Marking Scheme, 2015]

Q. 12. Why are forest considered “biodiversity hot spots”? List two ways in which an individual can contribute effectively to the management of forests and wildlife? [A] [CBSE Delhi Set II, 2015]

Ans. Biodiversity is measured by the number of different life forms found in an area. In a forest, various species are available which include bacteria, fungi, ferns, plants, nematodes, insects, birds, reptiles and mammals. Forests are therefore, called biodiversity hot spots.

An individual can contribute in management of forest and wildlife by :

(i) Avoiding cutting of forest and killing of wildlife.
(ii) Educating people about the importance of forest and wildlife in our life. 1+1

[CBSE Marking Scheme, 2015]

Q. 13. What damage is caused to forests by the following:

(i) Building rest houses for tourist in national parks.
(ii) Grazing domestic animals in national parks.

[A] [CBSE, 2015]

Ans. (i) Disturbance in natural habitat. Waste disposal, restriction in movement, poaching / hunting.

(ii) Ecological imbalance less food for herbivores, overgrazing might result in loss of habitat. 1+1

[CBSE Marking Scheme, 2015]

Q. 14. List four measures that can be taken to conserve forests. [A] [CBSE Delhi Set I, 2015]

Ans. Four measures taken to conserve forest are:

(i) Deforestation should be banned.

(ii) Forest resources should be used in an environmentally and developmentally sound manner.

(iii) We should use natural resources cautiously.

(iv) Afforestation should be done. $\frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2}$

[CBSE Marking Scheme, 2015]

Q. 15. Everyone of us can do something to reduce our personal consumption of various natural resources. List four such activities based on 3-R approach.

[A] [CBSE Delhi Set III, 2015]

Ans. (i) By switching off unnecessary light and fans to save electricity.

(ii) By repairing leaky taps to save water.

(iii) Not to dump the materials that can be recycled like paper.

(iv) Plastic bottles of food items can be used to store things. $\frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2}$

[CBSE Marking Scheme, 2015]

Q. 16. List two problems that may arise by planting trees of single variety over vast tracts of a forest.

[A] [Board Term II, Foreign Set II, 2015]

Ans. (i) Loss of biodiversity.

(ii) Varied needs of the local people can no longer be met.

(iii) Degradation of soil. (Any two) 1 + 1

[CBSE Marking Scheme, 2015]



Short Answer Type Questions-II

3 marks each

[AI] Q. 1. List three advantages each of:

(i) exploiting resources with short term aims, and
(ii) using a long term perspective in managing our natural resources.

[A] [CBSE Board, Delhi Set-III, 2019]

Ans. Three advantages of exploiting resources with short term aims:

(i) Immediate benefit to few people.

(ii) Progress in science and technology for development in a country.

(iii) Urbanisation and Industrialisation of an area.

$\frac{1}{2} \times 3$

Three advantages of using a long time perspective:

(i) Resources will be made available for sustainable development.

(ii) Provides valuable contribution to the socio-economic development.

(iii) Quality of environment will be conserved.

[CBSE Marking Scheme, 2019] $\frac{1}{2} \times 3$

Q. 2. What is ‘Sustainable Management of Natural Resources’? Why is it necessary? What one out of reuse and recycle, would you practise in your daily life and why? [C] [CBSE Comptt. Set 1, 2, 3, 2018]

Ans. Managing resources to meet current basic human needs, while preserving the resources for the needs of future generations and maintaining the quality of the environment. 1

Importance :

To maintain the quality of the environment.

To ensure the continuity of the resources 1

Reuse :

Because process of recycling uses some energy and takes some time. 1

[CBSE, Comptt. Marking Scheme, 2018]

Q. 3. What changes can you make in your habits to become more environment-friendly? [R] [NCERT]

Ans. (i) By minimising the water usage and avoiding its wastage. ½

(ii) Saving power by switching off unnecessary lights and fans. ½

(iii) Avoiding wastage of food by consuming it rationally as per our needs. ½

(iv) Walking or use bicycle for going to nearby market instead of using vehicle. ½

(v) By segregating wastes into recyclable and non-recyclable. ½

(vi) Reuse carry bags, packing materials, plastic containers and other reusable material. ½



Long Answer Type Questions

5 marks each

Q. 1. Prepare a list of five activities that you perform daily in which natural resources can be conserved or energy utilisation can be minimised.

[C] [NCERT Exemp.]

Ans. (i) Unused water in the water bottle may be used for watering plant. 1

(ii) Close all the taps before you go to sleep. 1

(iii) Use fan and light only when required. 1

(iv) Use solar water heating devices. 1

(v) Use LEDs in place of conventional bulbs/tubes 1

Q. 2. What is the importance of forest as a resource?

[U] [NCERT Exemp.]

Ans. Forests are renewable resources which provide :

(i) Habitat, food and shelter to wildlife.

(ii) Help in balancing CO₂ and O₂ of atmosphere.

(iii) Improves water holding capacity of soil.

(iv) Regulates water cycle.

(v) They provide materials like fuel wood, timber pulp and paper, etc., which are essential for human beings.

(vi) They provides useful products like fruits, resins, gums, essential oils, bidi wrapper, etc., and other livelihood for the local people. (Any five) 5

Q. 3. Can you suggest some changes in your school which would make it environment-friendly?

[U] [NCERT Ex.]

Ans. (i) Grow trees along the boundary wall. 1

(ii) Grow shrubs and small plants on the sides of internal road and around the playground. 1

(iii) Harvest water from rooftop to be utilised for watering the plants. 1

(iv) Arrange awareness programmes among students through poster exhibition and seminars. 1

(v) Avoid wastage of water and ensure recycling of used paper. 1

Q. 4. How can you as an individual contribute or make a difference to the management of

(a) forests and wildlife,

(b) water resources and

(c) coal and petroleum?

[A] [NCERT Ex.]

Ans. (a) Forests and Wildlife :

1. Take part in community activities with focus on conserving forests and wildlife.

2. As a tourist follow all principles of conservation.

3. Help organisations engaged in conservation of forests and wildlife.

(b) Water Resources

1. Save water in domestic use.

2. Install a system for rainwater harvesting and ground water recharge.

(c) Coal and Petroleum

1. Save electricity whenever required.

2. Install electric gadgets that use less power. 5

Q. 5. List five things you have done over the last one week to :

(a) conserve our natural resources.

(b) increase the pressure on our natural resources.

[A] [NCERT Ex.]

Ans. (a) Five things done to conserve natural resources are :

1. Use energy efficient electrical appliances.

2. Use only as much of electricity as required.

3. Keep the water tap closed while brushing the teeth.

4. Convince mother to cook the food in a solar cooker.

5. Use public transport for school instead of parent's car. 2½

(b) Five things done to increase the pressure on natural resources :

1. Went to school on a bike instead of cycle.

2. Forgot to switch off fan while going out.

3. Wasted food.

4. Used more paper than required for printing on computer.

5. Wasted water resource. 2½



TOPIC - 2

Water Conservation and Fossil Fuels



Revision Notes

Fossil fuels

- Coal and petroleum are non-renewable natural resources.
- Coal was formed from the remains of trees buried deep inside the earth some 500 million years ago.
- Petroleum is formed by the bacterial decomposition of dead marine plants and animals, buried at the bottom of the seas.
- This decomposition takes place under high pressure and temperature and formation of petroleum take millions of years of time.
- **Necessity of judicious use of coal and petroleum:** The fossil fuels, coal and petroleum will get exhausted and their combustion pollutes our environment, so a judicious use of these resources is necessary.
- **Harmful effects of using fossil fuels are:**
 - (i) Combustion of coal and hydrocarbons release a large amount of carbon monoxide, carbon dioxide, sulphur dioxide, oxides of nitrogen, etc. These cause air pollution and cause various diseases like respiratory and throat problems, congestion etc.
 - (ii) Excessive emission of greenhouse gases like carbon dioxide causes a rise in atmospheric temperature (Global warming).
- The oxides of sulphur, nitrogen and carbon monoxide are poisonous at high concentrations.
- Carbon dioxide is a greenhouse gas which leads to global warming.
- **Water for all**
 - (a) Water is one of the most important and renewable natural resources and is the basic necessity for all forms of life. Therefore, its conservation is very necessary.
 - (b) Rain is an important source of water.
 - (c) Irrigation methods like tanks and canals have been used in various parts of India.
- **Dams:** Dams ensure the storage of adequate water for irrigation and are also used for generating electricity. Various dams have been built on rivers to regulate the flow of water.
 - e.g., (a) Tehri Dam— On river Ganga
 - (b) Sardar Sarovar Dam — On river Narmada
 - (c) Bhakra Nangal Dam — On river Satluj
- **Advantages of Dams**
 - (a) Ensures adequate water for irrigation.
 - (b) To generate electricity.
 - (c) Continuous supply of drinking water to cities and towns.
- **Disadvantages of Dams**
 - (a) **Social problems :**
 - (i) Many tribals and peasants are displaced and rendered homeless.
 - (ii) They do not get adequate compensation or rehabilitation.
 - (a) **Environmental problems :**
 - (i) Deforestation
 - (ii) Loss of biodiversity
 - (iii) Disturbed ecological balance
 - (c) **Economic problems :**
 - (i) Huge amount of public money is used.
 - (ii) No proportionate benefit to people.
 - (iii) No equitable distribution of water.
- **Rain Water Harvesting:** Rain water harvesting is to make rain water percolate under the ground so as to recharge 'groundwater'.
- Watershed management work on scientific soil and water conservation.
- The aim is to develop primary resources of land and water to produce secondary resources of plant and animal for use in a way that will not cause biological imbalance.
- **Advantages of storing water in the ground:**
 - (i) It does not evaporate.
 - (ii) It spreads out to recharge wells.
 - (iii) It provides moisture for vegetation over a wide area.
 - (iv) It does not provide breeding grounds for mosquitoes.
 - (v) It is protected from contamination by human and animal wastes.

How is it done on the **GREENBOARD?**

Q. What is a dam? Why do we seek to build large dams? While building large dams, which three main problems should particularly be addressed to maintain peace among local people? Mention them. 5

Solution:

Step I: Dams are massive barriers built across rivers and streams to arrest and utilise the flow of water for irrigation and generation of hydro-electricity.

We build large dams in order to :

Step II: Store large quantity of water for irrigation and electricity generation.

Step III: Transport water to distant locations through canals to use it for irrigation and drinking purposes.

Construction of large dams causes :

Step IV: Social problems as it involves displacement of large number of people from their original settlement to other locations.

Step V: Economic problems arising due to huge inputs without proportionate benefits distribution.

Step V: Environmental instability due to deforestation and loss of floral and faunal biodiversity.



Objective Type Questions

1 mark each

A Multiple Choice Questions

Q. 1. Which one of the following is responsible for the sustenance of underground water?

- (a) Loss of vegetation cover
- (b) Diversion for high water demanding crops
- (c) Pollution from urban wastes
- (d) Afforestation [Delhi, Set-I, 2020]

Ans. Correct option: (d)

Explanation: Afforestation (plantation of trees) will save ground water from getting depleted. 1

Q. 2. Incomplete combustion of coal and petroleum:

- (a) increases air pollution.
- (b) increases efficiency of machines.
- (c) reduces global warming.
- (d) produce poisonous gases.

The correct option is:

- (a) (a) and (b)
- (b) (a) and (d)
- (c) (b) and (c)
- (d) (c) and (d)

[Delhi, set-I, 2020]

Ans. Correct option: (b)

Explanation: Incomplete combustion of coal and petroleum increases air pollution and produce poisonous gases.

Q.3. Several factories were pouring their wastes in rivers A and B. Water samples were collected from these two rivers. It was observed that sample

collected from river A was acidic while that of river B was basic. The factories located near A and B are:

- (a) Soaps and detergents factories near A and alcohol distillery near B.
- (b) Soaps and detergents factories near B and alcohol distillery near A.
- (c) Lead storage battery manufacturing factories near A and soaps and detergents factories near B.
- (d) Lead storage battery manufacturing factories near B and soaps and detergents factories near B.

[Outside Delhi, Set- I, 2020]

Ans. Correct option: (d)

Explanation: Lead storage battery manufacturing factories near A and soaps and detergents factories near B led to the given observation.

Q. 4. Opposition to the construction of large dams is due to

- (a) social reasons.
- (b) economic reasons.
- (c) environmental reasons.
- (d) all the above.

[NCERT Exemp.]

Ans. Correct option : (d)

Explanation : Dam construction adversely affects local flora and fauna by raising social, economic and environmental problems. 1

Q. 5. Pick the right combination of terms which has no fossil fuel.

- (a) Wind, ocean and coal
- (b) Kerosene, wind and tide
- (c) Wind, wood, sun
- (d) Petroleum, wood, sun [NCERT Exemp.]

Ans. Correct option : (c)

Explanation : Wind, sun and wood are natural resources. 1

Q. 6. It is important to make small check dams across the flooded gullies because they

- (i) hold water for irrigation.
- (ii) hold water and prevent soil erosion.
- (iii) recharge ground water.
- (iv) hold water permanently.
- (a) (i) and (iv) (b) (ii) and (iii)
- (c) (iii) and (iv) (d) (ii) and (iv)

[NCERT Exemp.]

Ans. Correct option : (b)

Explanation : Small check dams or temporary dams across the flooded gullies helps to prevent adverse effects of flooding on nearby areas and land. 1

B Assertions and Reasons Type Questions

Directions: In the following questions, a statement of assertion (A) is followed by a statement of reason (R). Mark the correct choice as:

- (a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).
- (b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).
- (c) Assertion (A) is true but reason (R) is false.
- (d) Assertion (A) is false but reason (R) is true.

Q. 1. Assertion (A): Water is a valuable resource.

Reason (R): Turn off the taps when not in use.

Ans. Correct option : (b)

Explanation: Water is a valuable resource. So, we need to conserve it by turning off the taps when not in use.

Q. 2. Assertion (A): Coal and petroleum are categorised as natural resources, so should be used judiciously. Reason (R): They are formed from the degradation of biomass subjected to various biological and geological processes over a million of years.

Ans. Correct option : (a)

Explanation: Coal and petroleum are formed from the degradation of biomass subjected to various biological and geological processes over a million of years. Thus, cannot be manufactured by humans. Therefore, coal and petroleum are categorised as natural resource.

Q. 3. Assertion (A): Water harvesting is the method to capture every trickle of water that falls on the land.

Reason (R): Water harvesting recharges wells and ground water.

Ans. Correct option : (b)

Explanation: Water harvesting is a technique of capturing rain water when it falls and taking measure to keep the water clean. It recharges wells/ground water and provides moisture for vegetation over a wide area.

C Very Short Answer Type Questions

Q. 1. Write two advantages associated with water harvesting at the community level.

[R] [Board Outside Delhi, Set- II, 2019]

- Ans. (i) Recharged the ground water level $\frac{1}{2}$
- (ii) Brought rivers back to life $\frac{1}{2}$

[CBSE Marking Scheme, 2019]

Q. 2. Name two indigenous water saving methods.

[R] [CBSE, 2015]

- Ans. Digging small pits and lakes. 1

[CBSE Marking Scheme, 2015]

Q. 3. Water is a valuable resource. List two ways, that you would suggest every family member to save this resource. [A] [CBSE Delhi Set I, 2015]

- Ans. (i) Turning-off the taps when not in use.
- (ii) Checking the leaking water pipelines and getting them repaired. $\frac{1}{2} + \frac{1}{2}$

[AI] Q. 4. List two measures that you would suggest for the better management of water resources.

[AE] [CBSE Delhi Set II, 2014]

Ans. Two measures for the better management of water resources are :

- (i) Rainwater harvesting.
- (ii) Construction of dams. $\frac{1}{2} + \frac{1}{2}$

Q. 5. Mention one reason of discontentment among the people who have been displaced by building dams. [A]

Ans. It displaces large number of local people without adequate compensation and rehabilitation. 1

[AI] Q. 6. List two causes of pollution of river Ganga. [U]

Ans. Major causes of pollution of river Ganga :

- (i) Release of industrial waste into the river.
- (ii) People use river water for domestic purposes and add pollutants like surf, detergents, soap to the river.
- (iii) People flow food items, images of gods and goddesses into the river due to ritualistic reasons.

(Any two) $\frac{1}{2} + \frac{1}{2}$



Short Answer Type Questions-I

2 marks each

AI Q. 1. Explain two main advantages associated with water harvesting at the community level.

[U] [CBSE O.D. Set, I- 2018, OD 31/1 2017]

Ans. Two main advantages associated with water harvesting at the community level are:

- (i) Water does not evaporate instead it percolates into the ground. Therefore, results in the recharging of wells.
- (ii) The stored water provides moisture to the vegetation in and around the area. 1+1

Q. 2. You being an environmentalist are interested in contribution towards the conservation natural resources. List four activities that you can do on your own. [A] [OD 31/3 2017]

Ans. The four activities that we can do on our own are:

- (i) Reduce the use of water.
- (ii) Recycle the waste materials like paper.
- (iii) Avoid the use of non-renewable sources of energy.
- (iv) Planting trees. 2

Q. 3. Why is an equitable distribution of resources essential in a Society? List two forces which are against such distribution. [A] [OD 31/2 2017]

Ans. Equitable distribution of resources is essential in a society because there will be continuous flow of sufficient resources to, every section of the society. Also, the resources will not be exploited at the hands of a few persons. 1

Two forces which are against such distribution are :

- (i) Limited amount of resources in nature.
- (ii) Excessive consumption by the rich. 1

Q. 4. Why are coal and petroleum categorised as natural resources? Give a reason as to why they should be used judiciously. [R] [OD 31/3 2017]

Ans. Coal and petroleum are formed from the degradation of bio-mass subjected to various biological and geological processes over a million of years. Thus, cannot be manufactured by humans. Therefore, coal and petroleum are categorised as natural resource. 1

They should be used judiciously as they cannot be manufactured by humans and naturally it takes million of years to form. 1

Q. 5. "Burning of fossil fuels results in global warming". Give reasons to justify this statement.

[A] [CBSE O.D. Set I, 2016, Foreign 2017]

Ans. Burning of fossil fuels produces green house gases (CO , CO_2 , water vapour, oxides of nitrogen, sulphur). High concentration of CO_2 causes global warming. [CBSE Marking scheme, 2016] 1 + 1

Q. 6. What is water harvesting? How can this technique help in the conservation of water?

[U] [CBSE O.D. Set II, 2016]

Ans. (i) Water harvesting is a technique of capturing rain water when it falls and taking measure to keep the water clean. 1

(ii) Water is stored underground that remains unpolluted, it recharges wells and provides moisture for vegetation over a wide area.

[CBSE Marking Scheme, 2016] 1

AI Q. 7. The construction of large dams leads to social and environment problems. List two problems of each category. [A] [CBSE O.D. Set III, 2016]

Ans. Social problems:

- (i) Many people are rendered homeless.
- (ii) Displacement of large number of tribals without due compensation.
- (iii) Migration into the cities for settlements.

[2 × ½ = 1]

Environmental problems:

- (i) Deforestation / loss of biodiversity
- (ii) soil erosion / ecological imbalance [2 × ½ = 1]

[CBSE Marking Scheme, 2016]

AI Q. 8. List four advantages of properly managed watershed management. [A] [CBSE Delhi Set I, 2016]

Ans. Advantages of watershed management:

- (i) Mitigates drought and floods.
- (ii) Increase the life of the dams and reservoirs downstream.
- (iii) Increases the biomass production and thereby the income of the watershed community.
- (iv) Helps in maintaining ecological balance by scientific conservation of soil and water. (Or any other)

[CBSE Marking scheme, 2016] 4 × ½ = 2

Q. 9. Building of big dams gives rise to some problems. List three main problems that may arise. Suggest a solution to any one of these problems.

[A] [CBSE Foreign Set II, 2015]

Ans. (i) Social problems

- (ii) Economic problems
- (iii) Environmental problems.

Solution: (i) Adequate rehabilitation.

- (ii) Compensation to the displaced persons.
- (iii) Afforestation

[CBSE Marking scheme, 2015] 1 + 1

COMMONLY MADE ERROR

- Students often forget to answer the second part of the question.

ANSWERING TIP

- ➡ Read the question properly. Do not overlook any part of a question and avoid being in a hurry to conclude the answer.

Q. 10. Burning of fossil fuel is causing great environmental concern. Mention the consequences of combustion of fossil fuels. [A] [CBSE, 2015]

Ans. Combustion of fossil fuels release oxides of carbon, nitrogen and sulphur.

[CBSE Marking scheme, 2015] 2

Detailed Answer:

Combustion of fossil fuel leads to harmful effects on the environment. It releases a large amount of CO₂ along with a number of air pollutants into the atmosphere and CO₂ is a greenhouse gas, which is responsible for global warming.

AI Q. 11. List four advantages of conserving water in the form of ground water.

[A] [CBSE Delhi I, 2015, O.D. Set II, 2015]

Ans. Advantages of ground water:

- (i) It does not evaporate.
- (ii) Spreads out to recharge wells.
- (iii) Provides moisture for vegetation over a large area.
- (iv) Does not provide breeding ground for mosquitoes.

[CBSE Marking scheme, 2015] ½ × 4

COMMONLY MADE ERROR

- ➡ Students often write advantages in essay form rather than points and lose marks.

ANSWERING TIP

- ➡ Write answers point-wise rather than in the form of an essay.



Short Answer Type Questions-II

3 marks each

Q. 1. What is water harvesting? List two main advantages associated with water harvesting at the community level. Write two causes for the failure of sustained availability of groundwater.

[R] [CBSE Delhi Set- I, 2019]

Ans. Water harvesting: A technique used to collect and store water for future use.

Advantages: (a) Available resource in time of need.

(b) Recharging the ground water level.

Causes: (a) Overuse of ground water

(b) Deforestation

[CBSE Marking Scheme, 2019] 1 + 1 + 1

Q. 2. Why should there be equitable distribution of resources? List three forces that would be working against an equitable distribution of our resources.

[A] [CBSE Board Delhi, Set- II, 2019]

Ans. Need for equitable distribution of resources :

So that all and not just a handful of rich and powerful people benefit from the development of these resources / all living beings have a birthright to the available resources.

Forces against equitable distribution of resources :

1

- (1) Industrialists who work for their own benefit / profit.
- (2) When environmental laws / rules are not implemented properly.
- (3) Mismanagement in the distribution of natural resources or any other relevant answer.

(Or any other relevant point)

(Any two points) 1 + 1

[CBSE Marking Scheme, 2019]

Q. 3. (a) Water is an elixir of life, a very important natural resource. Your Science teacher wants you to prepare a plan for a formative assessment activity, "How to save water, the vital natural resource". Write any two ways that you will suggest to bring awareness in your neighbourhood, on 'how to save water'.

(b) Name and explain any one way by which the underground water table does not go down further.

[U] [CBSE O.D. Set I, 2017]



Topper Answer, 2017

Ans.

→ (a) 1) By making them understand the need and important of water.

2) By awaring them about water saving methods like - watering plants in evening or roof top rainwater harvesting.

3) By making them aware of less water using habits.

(b) 1) Increasing vegetation + → Increased vegetation allows percolation of water from the rain into the ground to increase water table level. We should use handpumps & wells judiciously.

AI Q. 4. (i) Name any two fossil fuels. Why are they so-called?

(ii) Mention the role of forests in conserving environment. How do the forest get depleted? **R**

Ans. (i) Coal and Petroleum. $\frac{1}{2}$

Formed from the degradation of biomass millions of years ago. $\frac{1}{2}$

(ii) (a) Preservation of biodiversity. $\frac{1}{2}$

(b) Forest products $\frac{1}{2}$

Reasons for depletion :

(a) Indiscriminate felling of trees. $\frac{1}{2}$

(b) Destroying biodiversity to produce one particular kind of trees. $\frac{1}{2}$

Q. 5. (i) Although coal and petroleum are produced by degradation of biomass, yet we need to conserve them. Why?

(ii) List any two causes for the failure of sustained availability of ground water. **A**

Ans. (i) As their formation is extremely slow, hence these resources may get exhausted. 1

(ii) Two causes are :

(a) Loss of vegetation cover and dumping of urban waste. 1

(b) Diversion for high water demanding crops and pollution from industrial effluents. 1



Long Answer Type Questions

5 marks each

Q. 1. What is a dam? Why do we seek to build large dams? While building large dams, which three main problems should particularly be addressed to maintain peace among local people? Mention them. **R** [CBSE Delhi/O.D., 2018]

Ans. Dams are massive barriers built across rivers and streams to arrest and utilise the flow of water for irrigation and generation of hydro-electricity. 1

We build large dams in order to :

(i) Store large quantity of water for irrigation and electricity generation.

(ii) Transport water to distant locations through canals to use it for irrigation and drinking purposes.

(iii) Uniform distribution of water over a large geographical track to enhance intensive cropping.

(iv) Flood control by storing water and regulating the flow of water during the rainy season 2

Construction of large dams causes :

(i) Social problems as it involves displacement of large number of people from their original settlement to other locations.

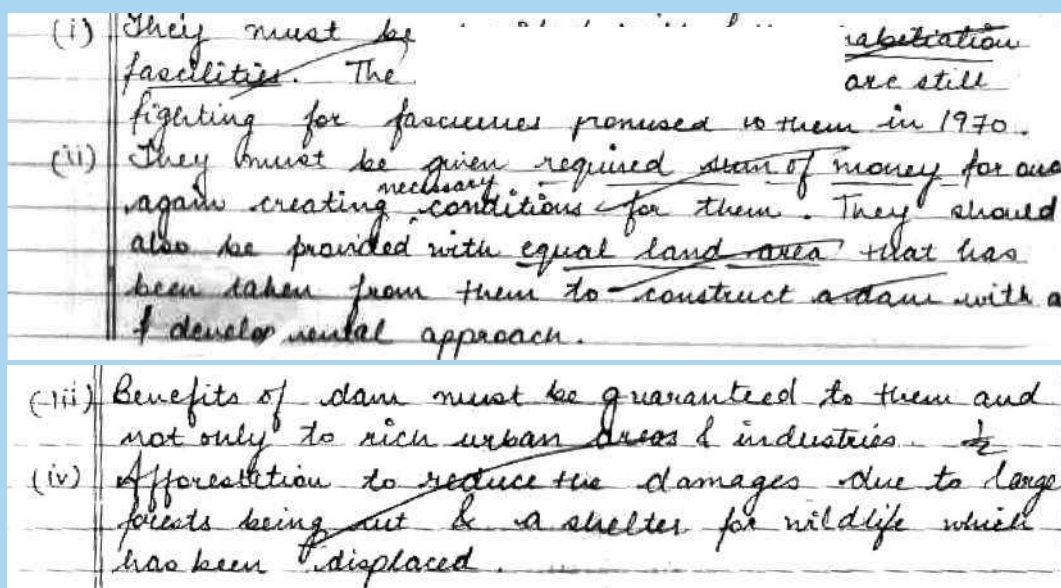
(ii) Economic problems arising due to huge inputs without proportionate benefits distribution.

(iii) Environmental instability due to deforestation and loss of floral and faunal biodiversity. 2



Topper Answer, 2018

→ Dam is a structure made to obstruct the flow of river for creating an impoundment or divert



Q. 2. (a) What is sustainable development? Why is it necessary?

(b) What is water harvesting? List its four benefits.

[U] [Delhi Comptt. 31/1/1 2017]

Ans. (a) **Sustainable development:** Development which meets the current basic human needs, while preserving the resources for the needs of future generation. 1

It is necessary for environment conservation. 1

(b) **Water harvesting:** It is a method to capture every trickle of water that falls on the land. 1

(i) Recharges wells/ Ground water

(ii) Provides moisture for vegetation

(iii) It is not lost by evaporation

(iv) It does not provide a breeding place for mosquitoes

(v) Prevents ground water from contamination due to human and animal wastes. (Any four) $\frac{1}{4} \times 4$

[CBSE Marking Scheme, 2017]

COMMONLY MADE ERROR

- ➔ Students often write repeated points and irrelevant stories.

ANSWERING TIP

- ➔ Always write the answer pointwise and each point must reflect a separate idea. Do not repeat the same point in different words.

Q. 3. (a) In the context of conservation of natural resources, explain the terms reduce, recycle and reuse.

(b) Why is conservation of water necessary? State any four reasons. [U] [OD 31/ 1 Comptt. 2017]

Ans. (a) (i) **Reduce:** Less use of natural resources/ avoid wastage of food, water, electricity etc. 1

(ii) **Recycle:** Collection of materials like plastic, glass, metals, paper, etc. and recycle these materials to make required items instead of synthesizing fresh ones. This would save natural resources. 1

(iii) **Reuse:** Still better than recycling as no energy is required here and the already used things/ items are used again and again. 1

(b) (i) Essential for living organisms.

(ii) It has limited availability.

(iii) Conservation of water allows its equitable distribution.

(iv) Essential for sustainable development.

(Any other relevant point) $\left[\frac{1}{2} \times 4\right]$

[CBSE Marking Scheme, 2017]

COMMONLY MADE ERROR

- ➔ Students often write incorrect examples of 3Rs. It seems they are confused about the term.

ANSWERING TIP

- ➔ Learn the concepts of 3Rs of conservation with proper examples.

[AI] Q. 4. Eco-club of your school is organising a debate on the topic 'Nature's Fury Unleashed by Human's Greed' (Uttarakhand Disaster).

(i) List three arguments that you will use to convince the audience that humans are responsible for this disaster.

(ii) List any three values that will be inculcated with this debate. [A] [CBSE, 2015]

Ans. (i) Mining, unnecessary use of resources, cutting of trees, building concrete jungle. **(Any three) 3**

(ii) To protect and improve the natural environment, social awareness, environmental conservation, eco-friendly approach, value for life. **(Any three)**

[CBSE Marking Scheme, 2015] **2**



Visual Case-based Questions

4 marks each

Q. 1. Observe the following diagram and answer any four questions from (a) to (e):

[CBSE–QB 2021]



(a) Choose the waste management strategy that is matched with correct example.

(c) According to the 'Solid Waste Management Rule 2016', the waste should be segregated into three categories. Observe the table below and select the row that has correct information

	Wet waste	Dry waste	Hazardous waste
(i)	Cooked food, vegetable peels	Used bulbs, fluorescent lamps	Plastic carry bags, bottles, newspaper, cardboard
(ii)	Coffee and tea powder, garden waste	Plastic carry bags, bottles, newspaper, cardboard	Expired medicines, razors, paint cans
(iii)	Leftover food, vegetable peels	Coffee and tea powder, garden waste	Insect repellents, cleaning solutions
(iv)	Uncooked food, tea leaves	Old crockery, frying pans	Coffee and tea powder, garden waste

(d) Effective segregation of wastes at the point of generation is very important. Select the appropriate statements giving the importance of waste segregation.

- (i)** less waste goes to the landfills
- (ii)** better for public health and the environment
- (iii)** help in reducing the waste
- (iv)** resulting in deterioration of a waste picker's health

- (1)** both (i) and (ii) **(2)** both (i) and (iii)
- (3)** both (ii) and (iii) **(4)** both (i) and (iv)

(e) When recycling a plastic water bottle, what should you do with the cap?

- (i)** The cap goes into a garbage can and the bottle goes in a recycling bin
- (ii)** Screw the cap back on the bottle, then put the bottle and cap in a recycling bin
- (iii)** Screw the cap back on the bottle, then put the bottle and cap in the garbage can

(i)	Refuse	Choose products that use less packaging
(ii)	Reduce	Give unwanted toys and books to hospitals or schools
(iii)	Reuse	Not using single use plastic
(iv)	Repurpose	Making flower pot from used plastic bottle

(b) Recycling of paper is a good practice but recycled paper should not be used as food packaging because

- (i)** recycled papers may release color /dyes on food items
- (ii)** recycled papers are not absorbent
- (iii)** recycled papers can cause infection due to release of methane
- (iv)** recycled papers are costly

(iv) Recycle the cap separately.

Ans. (a) (iv)

(b) (iii)

(c) (ii)

(d) (i)

(e) (i)

Q. 2. Study the passage and answer any of the four questions from (a) to (e).

Management and conservation of natural resources means the scientific utilization of resources. This method yields the greatest sustainable benefit of available resources to the present generations, while maintaining its potential to meet the needs and aspirations of future generations. In recent years, it has been observed that most of our natural resources are being depleted. It is mainly due to the over exploitation of resources as a result of changing lifestyle, over population and

technological development. Thus the need of the hour is to wisely manage our natural resources and minimize their wastage. For this, we should remember the 3 R's that can save environment.

- (a) Which of the following R's is not used to save the environment?
 - (i) Reduce (ii) Remove
 - (iii) Recycle (iv) Reuse
- (b) Why proper management of natural resources is essential?
- (c) If we are using discarded items of paper, plastic and sending them to the respective industries for making useful objects. Then which R to save the environment we are following?
- (d) Which of these you would practice in your daily life?
 - (i) Reuse (ii) Recycle
 and Why?
- (e) Select the incorrect statement:
 - (i) Economic development is linked to environmental conservation
 - (ii) Sustainable development encourages development for current generation and conservation of resources for future generations
 - (iii) Sustainable development does not consider the view points of stakeholders
 - (iv) Sustainable development is a long planned and persistent development

- Ans. (a) (ii)** Remove is not the 3 R's that can save the environment.
- (b)** Proper management of natural resources is essential for judicious use and conservation of natural resources.
- (c) (iii)** We are using recycle method to save the environment.
- (d)** Reuse, because process of recycling uses some energy and takes some time.
- (e) (iii)** Sustainable developments take into consideration both economic growth and ecological conservation simultaneously besides giving due considerations to the viewpoint any four stakeholders. 1 + 1 + 1 + 1

Q. 3. Study the given diagrams and answer any of the four questions from (a) to (e).

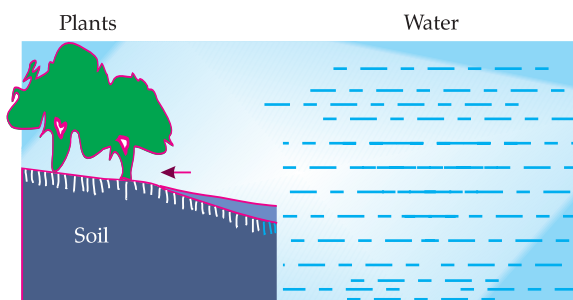


Fig. (1)

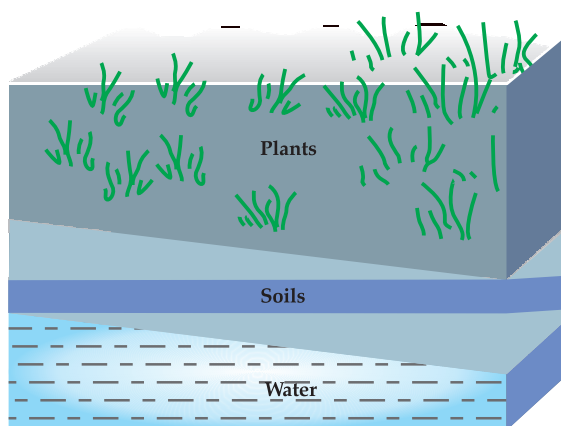


Fig. (2)

- (a) Locate and name the water reservoirs in the figures (1) and (2)
- (b) Which has an advantage over the other?
- (c) A village is suffering from chronic water shortage because most of the water is made available to the surrounding water theme park. Is this a judicious use of water resource?
- (d) Ground water will not be depleted due to :
 - (i) Afforestation
 - (ii) thermal power plants
 - (iii) loss of forest, and decreased rainfall
 - (iv) cropping of high water demanding crops
- (e) Khadins, Bundhis, Ahars and Kattas are ancient structures that are examples for
 - (i) grain storage.
 - (ii) wood storage.
 - (iii) water harvesting.
 - (iv) soil conservation.

- Ans. (a)** In fig 1, the water reservoir is a pond while in fig (2), it is underground water body.
- (b)** Fig (2) has more advantage than fig (1). It is because, ground water does not evaporate. It provides moisture for vegetation over a wide area. It is also protected from contamination by animal and human wastes.
- (c)** No. Authorities should first provide adequate supply of water to people. Requirement of water for theme park should be secondary.
- (d) (i)** Afforestation (plantation of trees) will save ground water from getting depleted.
- (e) (iii)** Khadins, Bundhis, Ahars and Kattas are ancient water conservation practices.



Know the Terms

- **Renewable resources:** Those resources which can be regenerated *e.g.*, forest, air and water.
- **Non-renewable resources:** These are available in limited amounts and cannot be reproduced *e.g.*, coal, petroleum, etc.
- **Pollution:** It is defined as the undesirable change in physical, chemical or biological characteristics of our soil, air or water, which affect human lives or the lives of other species.
- **Biodegradable pollutant:** Pollutants which are degraded by decomposers *e.g.* food, kitchen waste, etc.
- **Non-biodegradable pollutant:** Pollutants which are not degraded or decomposed by decomposers.
- **Wildlife:** It means all those naturally occurring animals, plants and their species that are not cultivated, domesticated and tamed.
- **Conservation:** It is the sensible use of the earth's natural resources in order to avoid excessive degradation and betterment of the environment.
- **Fossil fuels:** Fuels that are formed from organic material over the course of millions of years.

SELF ASSESSMENT TEST - 5

Maximum Time: 1 hour

MM: 35

Q. 1. Choose the correct alternative from the given options.

- (i) Choose the correct statement :
- (a) Sun can be taken as an inexhaustible source of energy.
 - (b) There is infinite storage of fossil fuel inside the Earth.
 - (c) Hydro energy and wind energy plants are non-polluting sources of energy.
 - (d) Waste from a nuclear power plant can be easily disposed off. 1
- (ii) In the given food chain, suppose the amount of energy at fourth trophic level is 5 kJ, what will be the energy available at the producer level?
- Grass → Grasshopper → Frog → Snake → Hawk
- (a) 5 kJ (b) 50 kJ
 - (c) 500 kJ (d) 5,000 kJ 1
- (iii) The main constituent of biogas is :
- (a) methane. (b) carbon dioxide.
 - (c) hydrogen. (d) hydrogen sulphide. 1

Q. 2. Case-Based Question

Read the passage and answer any four of the following questions.

A farmer is growing a crop regularly in his field. He uses chemical fertilizers, pesticides, organic manure as well as bio-fertilizers. Very close to his field is a factory which emits smoke as a byproduct. There is also a huge lake in the nearby area.

- (i) A considerable increase in plant life in the lake was noticed after the farming activity intensified. The most likely reason for this could be:
- (a) Chemical fertilizers leached into the lake from the field.
 - (b) Pesticides leached into the lake from the field.
 - (c) Organic manure leached into the lake from the field.
 - (d) Smoke particles from the industry got settled in moist surroundings of the lake.
- (ii) Consider the following food chain in the same lake.

Aquatic plant → Small fish → Big fish → Birds

Which of the above organisms is likely to show minimum amount of pesticide concentration in them after considerable time?

- (a) Aquatic plants. (b) Small fish.
 - (c) Big fish. (d) Birds.
- (iii) Will the levels of this magnification be different at different levels of the ecosystem?
- (iv) An expert agriculturist suggests to the farmer to minimize the use of chemical fertilizers and instead use biofertilizers as they have many advantages over chemical fertilizers.
- Which of the following is NOT true for biofertilizers?
- (a) They are economical.
 - (b) They help in reducing pollution in the lake
 - (c) They are renewable
 - (d) They require large set-up for their production. 1 × 4 = 4

- (v) State a way to prevent accumulation of harmful chemicals in our bodies.

Q. 3. Assertion and Reason

Directions : In the following questions, a statement of assertion (A) is followed by a statement of reason (R). Mark the correct choice as :

- (a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).
- (b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).
- (c) Assertion (A) is true but reason (R) is false.
- (d) Assertion (A) is false but reason (R) is true.

- (i) **Assertion (A) : Biogas is a boon to the farmers.**
Reason (R) : Spent slurry is used as manure and can be used to generate electricity. 1
- (ii) **Assertion (A) : Decomposers keep the environment clean.**
Reason (R) : They recycle matter by breaking down the organic remains and waste products of plants and animals. 1
- Q. 4. Why is a solar cooker painted black from outside ? 1
- Q. 5. Give one example each from your daily life where the domestic waste can be effectively reused and recycled. 1
- Q. 6. How is ozone both beneficial and damaging? How can we prevent the damaging effect of ozone ? 2
- Q. 7. Explain how would the involvement of local people be useful for successful management of forests. 2
- Q. 8. List three environmental consequences of using fossil fuels. Suggest three steps to minimise the pollution caused by various energy sources. 3
- Q. 9. The flow of energy between various components of the environment has been extensively studied. Give an outline of the findings. 3
- Q. 10. Differentiate between biodegradable and non-biodegradable substances with the help of one example each. List two changes in habit that people must adopt to dispose non-biodegradable waste, for saving the environment. 3
- Q. 11. (a) What is an ecosystem ? List its two main components.
 (b) We do not clean natural ponds or lakes, but an aquarium needs to be cleaned regularly. Why is it so ? Explain
 (c) Why is forest considered as a natural ecosystem ? 5
- Q. 12. In the context of conservation of natural resources, explain the terms- reduce, recycle and reuse. From among the materials that we use in daily life, identify two materials for each category. 5