

1 hour

Maximum marks: 25

ASSESS YOURSELF

1. Give reasons for the conservation of forests. (2)

2. Give reasons for the conservation of forests. (2)

3. Give reasons for the conservation of forests. (2)

4. Give reasons for the conservation of forests. (2)

5. Give reasons for the conservation of forests. (2)

6. Give reasons for the conservation of forests. (2)

7. Give reasons for the conservation of forests. (2)

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11. Give reasons for the conservation of forests. (2)

12. Give reasons for the conservation of forests. (2)

13. Give reasons for the conservation of forests. (2)

14. Give reasons for the conservation of forests. (2)

15. Give reasons for the conservation of forests. (2)

16. Give reasons for the conservation of forests. (2)

17. Give reasons for the conservation of forests. (2)

18. Give reasons for the conservation of forests. (2)

19. Give reasons for the conservation of forests. (2)

20. Give reasons for the conservation of forests. (2)

21. Give reasons for the conservation of forests. (2)

22. Give reasons for the conservation of forests. (2)

23. Give reasons for the conservation of forests. (2)

24. Give reasons for the conservation of forests. (2)

25. Give reasons for the conservation of forests. (2)

water conservation necessary? Give reasons. (2)

total amount of fresh water is more than enough to meet the needs of human beings. But due to its uneven distribution, wide seasonal as well as yearly fluctuation in rainfalls and water shortage are chronic problems in most of the world.

are the Arabari forests of Bengal known to be a good example of conserved forest? (2)

forest department developed a strategy in which the villagers were involved in the protection of the forest. In return for the labour, the villagers were paid and also had some benefit in harvesting operations. They were allowed to collect wood and fodder on payment of nominal fee. In this way, by the active and willing participation of the local people, the sal forests of Arabari were conserved.

[NCERT Exemplar]

[NCERT Exemplar]

Q. 4. Explain some harmful effects of agricultural practices on the environment.

- Ans.**
- (i) Excessive use of fertilisers changes the chemistry of soil and kills useful microbes.
 - (ii) Excessive use of non-biodegradable chemical pesticides leads to biological magnification.
 - (iii) Extensive cropping causes loss of soil fertility.
 - (iv) Damage to natural ecosystem or habitat.
 - (v) Excessive use of ground water for agriculture lowers the water table.

HOTS (Higher Order Thinking Skills)

Q. 1. Define biodiversity.

Ans. The occurrence of different types of genes and species from all the habitat and ecosystem in a particular various part of the earth is called biodiversity.

Q. 2. What is the slogan of Chipko Movement?

Ans. The slogan of Chipko movement is five Fs—Food, fodder, fuel, fibre and fertiliser.

Q. 3. State the reason each of conserving (a) forests and (b) wildlife.

Ans. Conservation of forests:

- (i) Forests are the only source of timber, wood, fuel, bamboo, fodder and a rich source of a variety of valuable products.
- (ii) Forests provide shelter and food to wildlife and tribal people.

Conservation of wildlife:

- (i) The range of different life forms is important. One of the main aim of conservation is to try and preserve the biodiversity we have inherited.
- (ii) In order to maintain ecological balance.

Q. 4. List any four changes you would like to incorporate in your lifestyle in a move towards a sustainable use of available resources in our country?

Ans. Four changes I would like to incorporate in our life-style in a move towards a sustainable use of available resources are:

- (i) I will collect plastic, paper, glass and metal items and recycle them to use again.
- (ii) I will save electricity by switching off unnecessary lights and fans.
- (iii) I will prefer walking or cycling than using vehicles.
- (iv) I will use potable water for drinking purpose only.

Q. 5. Prejudice against traditional use of forest areas has no basis. Explain giving an example.

Ans. In many forests, the local population may not be allowed to use forests in the manner they have been using for generations.

This may sometimes be harmful for the sustainability of forests.

When the nomadic shepherds were not allowed in the alpine meadows of the great Himalayan National Park to graze their sheep, it had an adverse effect on the growth of grass. Without regular grazing by sheep, the grass grew very tall and then fell over preventing fresh growth.

Q. 6. Why are local needs and local knowledge of forest dwellers important for maintaining forests?

Ans. Needs and knowledge of the local people needs to be given due consideration for maintaining forests. This gives insight on how the resources can be used in a sustainable manner.

When vast area of forest land was converted to monocultures of pine, teak, eucalyptus, etc. a large amount of biodiversity was destroyed and needs of local people (leaves for fodder, herbs for medicines, fruits and nuts for food) could no longer be met from such forests.

(iii) **Reuse:** means simply reusing things again and again instead of throwing away used ones. would incorporate the maximum of three R's, i.e., reduce, recycle and reuse in my daily life in a move towards sustainable use of our resources.

[CBSE (AI) 2009]

our advantages of water harvesting:
 (i) It does not evaporate, but spreads out to recharge wells and provides moisture for vegetation over a wide area.
 (ii) The ground-water is also relatively protected from contamination by human and animal waste.
 (iii) It provides year round supply of drinking water.
 (iv) It does not provide breeding grounds for mosquitoes like stagnant water collected in ponds or artificial lakes.

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

Both the energy sources, coal and petroleum, take millions of years for their formation. As these sources are being utilised at a much faster rate than their formation, they will be exhausted in the near future. Hence, they need to be conserved.

Answer Questions

(5 marks)

Prepare a list of five activities that you perform daily in which natural resources can be conserved

[NCERT Exemplar]

energy utilisation can be minimised.
 (i) Unused water in the water bottle may be used for watering plant.
 (ii) Close all the taps before you go to sleep.
 (iii) Avoid using a hose pipe for watering plants and instead use mug.
 (iv) Wash vehicles only when they are dirty.
 (v) Use fan and light only when required.
 (vi) Use solar water heating devices.
 (vii) Use CFL in place of conventional bulbs/tubes.

[NCERT Exemplar]

What is the importance of forest as a resource?
 Forests are renewable resources which
 (i) provide habitat, food, protection to wild life.
 (ii) help in balancing CO₂ and O₂ of atmosphere.
 (iii) improve water holding capacity of soil.
 (iv) regulate water cycle.
 (v) are the source for all essential commodities like fuel wood, timber, pulp and paper, etc., for human beings.
 (vi) provide useful products like fruits, resins, gums, essential oils, bidi wrapper, etc.

[NCERT Exemplar]

Suggest a few useful ways of utilising waste water.
 Waste water can be used for the following ways:
 (i) For recharging the ground water.
 (ii) Can be used for irrigation.
 (iii) Treated municipal water can be used for washing cars or watering the gardens.
 (iv) Certain pollutants in sewage water can become fertiliser for various crops.

Q. 23. Name any two renewable and non-renewable resources.

Ans. Renewable resources — Forest and wildlife.
Non-renewable Resources — Coal and petroleum.

Q. 24. Why is reuse better than recycling?

Ans. Reuse is better than recycling because the process of recycling uses some energy. In strategy, we simply use things again and again without utilising energy.

Q. 25. List two advantages associated with water harvesting at the community level. [NCERT]

Ans. (a) The ground water level increases due to recharging of wells.
(b) Ground water keeps the layers of soil above it moist and prevents loss of water by evaporation.
(c) The water can be stored during rainy season and can be used when required.

Q. 26. List any four measures for conserving forests. [CBSE]

Ans. Four measures for conserving forests are:

- Replenish the trees cut down for timber by planting more trees so that there is no net loss of trees.
- Consumption of wood and charcoal should be discouraged. Instead, use conventional sources of energy such as biogas.
- Deforestation should either be stopped or reduced to minimum and should be followed by reforestation.
- Active participation of local people need to be taken for the conservation of forests.

Q. 27. In a village in Karnataka, people started cultivating crops all around a lake which was filled with water. They added fertilisers to their field in order to enhance the yield. They discovered that the waterbody was completely covered with green floating plants and many fish started dying in large numbers.

Analyse the situation and give reasons for excessive growth of plants and death of fish in the lake. [NCERT]

Ans. Since people used excessive fertilisers in the fields, they were carried down to the lake due to runoff. As many fertilisers contain phosphates and nitrates, the water body became enriched with these chemicals. These chemicals promote excessive growth of aquatic plants and the surface of the lake was completely covered with plants (eutrophication).

Depletion of light in the water body and insufficient availability of dissolved oxygen and resulted in the death of fish.

Q. 28. What is 'Chipko Movement'? Why should we conserve forests? [CBSE]

Ans. 'Chipko Movement' ('Hug the Trees Movement') originated in a remote village called Gairwal during the early 1970s. On a particular day, the women of the village reached the forest and clung to the tree thus preventing the workers from felling the trees.

We should conserve forest because:

- There are large number of species, both plants and animals that are found in forests. However, the range of different life forms is also important in order to preserve biodiversity we have inherited.
- Forests are the only source of timber, wood, fuel, bamboo, fodder and a rich source of many other valuable products.

Q. 29. An environmentalist on visit to your school suggested the use of three R's to save the environment. Explain what he meant by three R's and how you would follow his advice at home. [CBSE]

Ans. By three R's he meant the following:

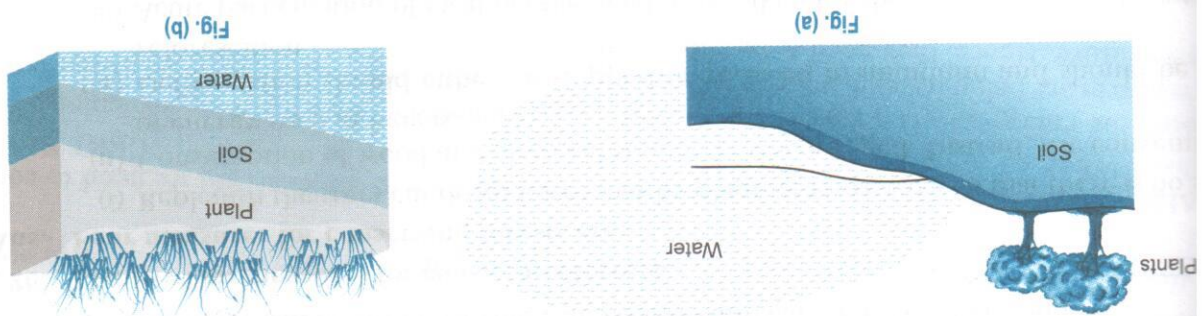
- Reduce:** means to use less.
- Recycle:** means collecting plastic, paper, glass and metal items and recycle these materials to make required things instead of synthesising.

What is Narmada Bachao Andolan? What is Narmada Bachao Andolan (Save the Narmada Movement) is a movement to protest about the impact of Sardar Sarovar Dam on the river Narmada, thereby criticising large dams for addressing non-renewable resources are limited in availability, i.e., once used, they are lost forever as they are not restored. Example: metallic minerals, coal, petroleum, natural gas, etc.

Locate and name the water reservoirs in Figure (a) and (b).

Which has an advantage over the other and why?

[NCERT Exemplar]



The water reservoir is a pond in Figure (a) and underground water body in Figure (b). Figure (b) has more advantage than Figure (a) because the advantages of water stored in the ground are many. For example:

- (i) It does not evaporate.
- (ii) It spreads out to recharge wells.
- (iii) Provides moisture for vegetation over a wide area.
- (iv) It is protected from contamination by animal and human wastes.
- (v) It prevents breeding of insects.

With the help of an example show that 'reuse' strategy is better than 'recycling'. [CBSE (AI) 2010]

Distances like paper and plastic bottles can be reused instead of recycling. This is because recycling requires energy and it needs segregation of wastes, whereas there is no such requirement for reuse.

State any four changes you would like to incorporate in your lifestyle in a move towards a sustainable use of available resources in our country. [CBSE (AI) 2009, 2010]

- (f) Save electricity by switching off unnecessary lights and fans.
- (g) Reuse of used envelopes, plastic bottles.
- (h) Opt for carpool.
- (i) Cycling to school.

Name any two endangered plant and animal species.

Endangered plant species—*Nepenthes khasiana* (Pitcher plant) and Snow orchid.

Endangered animal species—Indian Wild Ass and Great Indian Rhinoceros.

Name the river with which the following dams are associated.

- (i) Tehri dam, (ii) Sardar Sarovar dam.
- (j) Tehri dam on the river Ganga.
- (k) Sardar Sarovar dam on the river Narmada.

- (ii) One of the main aims of conservations is to try and preserve the biodiversity inherited because loss of biodiversity may lead to a loss of ecological stability.
- (b) Two causes of deforestation are:
- Indiscriminate felling (*i.e.*, cutting) of trees for the purpose of timber, fuel and in demand of wood.
 - Over-grazing by a large livestock population.

Q. 10. Why is replenishment of forest necessary? State four reasons.

Ans. The replenishment of forest is necessary because of the following reasons:

- It is used to conserve soil.
- It provides shelter to wild animals.
- It reduces atmospheric pollution.
- It controls flood and increases frequency of rainfall.

Q. 11. Prepare a list of five items that you use daily in the school. Identify from the list such items that can be recycled. [NCERT Exe]

Ans. Paper, rexin bag, blade, pen, plastic box, scale, eraser, compass and dividers (metallic), steel box, steel spoon.

Paper, blade, plastic box, eraser, compass, steel lunch box and steel spoon can be recycled.

Q. 12. Explain the role of forests in conserving the environment. How do the forests get depleted and its consequences?

Ans. Role of forests in conservation of forest:

- Prevent soil erosion and help in maintaining fertility of soil.
- It provides shelter to wild animals and are areas that sustain biodiversity.
- It reduces atmospheric pollution.
- It increase humidity and frequency of rainfall.

The forests get depleted due to forest fires, urbanisation, industrialisation, overgrazing by animal. The consequences of deforestation will be:

- Change in climate and global warming.
- Soil erosion and floods.
- Extinction of wildlife, etc.

Q. 13. Who was Amrita Devi Bishnoi?

Ans. Amrita Devi Bishnoi was a social worker, who in 1731 sacrificed her life along with 363 others for the protection of Khejri tree in Khejrli village near Jodhpur in Rajasthan.

Q. 14. What measures would you take to conserve electricity in your house? [NCERT Exe]

- Ans.**
- Put off the fans and lights when they are not required.
 - Maximum use of solar radiation.
 - Use of solar water heating system during winters.
 - Use of fluorescent tubes or CFL.

Q. 15. Suggest a few measures for controlling carbon dioxide levels in the atmosphere. [NCERT Exe]

- Ans.**
- Reduce the consumption of petrol in the automobiles.
 - Use of CNG or clean fuel.
 - Instead of burning litter prepare manure out of it.
 - Treatment of smoke to remove harmful gases before discharging into the atmosphere.
 - Plant more trees.

(i) Forests produce a large number of products of commercial use such as timber, raw materials for the manufacture of paper, bidi leaves, gums, resins, essential oils. Thus, forests helps in economic development.

We must conserve our forests for the following reasons:

must we conserve our forests? List any two causes for deforestation taking place.
 Renewable sources of energy from the following list are sun and biogas.

Renewable sources of energy	Non-renewable sources of energy
1. Those sources of energy which are being produced continuously in nature and are inexhaustible are called renewable sources of energy. 2. Renewable sources of energy are available in unlimited quantities. Example: Air, water, solar radiation etc.	1. Those sources of energy which have been accumulated in nature over a long time and cannot be quickly replaced if once exhausted are called non-renewable sources of energy. 2. Non-renewable sources of energy are available in limited quantity. Example: Coal, petroleum, natural gas etc.

Coal, biogas, sun, natural gas
 Choose the renewable sources of energy from the following list:

Distinguish between renewable and non-renewable sources of energy.
 In this, the grass first grows very tall and then falls over preventing fresh growth from below. But after the formation of national park, this practice was stopped. great Himalayan National park contains alpine meadows within its reserved areas. These meadows are prejudice against the traditional use of forest areas have no basis". Explain.

It is the impact of excessive irrigation and intensification of agriculture? Water logging has resulted in environmental degradation and creation of few waste lands. Water logging has rarely caused development of saline soil.

Water harvesting structures are as follows:
 Khadins, tanks and nadis in Rajasthan, *bandharas* and *tals* in Maharashtra.
 water harvesting structures are as follows:
 profile.
 off area into a run-on area, where the collected water is either used directly or stored in the
 r harvesting is defined as the process of collecting and conserving run-off water from the

It is water harvesting? Mention any two water harvesting structures.
 Capturing run off water from local catchments.

Two ways by which water harvesting can be undertaken.
 Capturing run off water from roof tops.
Two ways in which water harvesting can be undertaken.
 Immersion of ashes or even dead bodies in the river performed as a ritual.
 Releasing chemical effluents from industries directly into the river water.
 Millions of people bathe and wash their clothes, animals and vehicles in the river water.
 Dumping of garbage and untreated sewage from all the towns and cities on the banks of the river.

Causes of pollution of river Ganga?
 causes of pollution of river Ganga are as follows:
 Dumping of garbage and untreated sewage from all the towns and cities on the banks of the river.
 Millions of people bathe and wash their clothes, animals and vehicles in the river water.
 Releasing chemical effluents from industries directly into the river water.
 Immersion of ashes or even dead bodies in the river performed as a ritual.

Factors that work against an equitable distribution of these resources are:
 money and (ii) power.

- (c) Wasted water while bathing.
- (d) Frequently used heating devices.
- (e) Visited my friend's house on a bike.

Q. 7. On the basis of the issues raised in this chapter, what changes would you incorporate in your lifestyle in a move towards a sustainable use of our resources?

Ans. I would incorporate the three R's, *i.e.*, reduce, recycle and reuse in my lifestyle in a move towards a sustainable use of our resources.

Very Short Answer Questions

Q. 1. What are natural resources?

Ans. Natural resources are naturally occurring substances useful to man in their unmodified forms.

Q. 2. A person lives near a forest. Make a list of four items which he can get from the forest to meet his daily needs. [CBSE]

Ans. Firewood, small timber, thatch, bamboo, fruits, nuts and medicines. (*Any two*)

Q. 3. Why is maintaining biodiversity important?

Ans. Maintaining biodiversity is important because experiments and field studies suggest that a loss of biodiversity may lead to a loss of ecological stability.

Q. 4. Give one criticism about large dams.

Ans. Large dams consume large amount of public money without the generation of proportionate employment.

Q. 5. Name the award given in the memory of Amrita Devi Bishnoi.

Ans. Amrita Devi Bishnoi award for wildlife conservation.

Q. 6. Name the prominent ecologist who is responsible for Chipko movement.

Ans. Shri Sundarlal Bahuguna.

Q. 7. Name the industries which are based on forest produce.

Ans. Timber, paper and sports industries.

Q. 8. Give an example of a community for whom conservation of forest and wildlife has been a way of life.

Ans. For Bishnoi community in Rajasthan, conservation of forest and wildlife has been a religious duty.

Q. 9. List any two industries based on forest produce. [CBSE]

Ans. Paper, timber, lac, sports equipments. (*Any two*)

Q. 10. What are biodiversity hotspots?

Ans. Biodiversity hotspots are regions rich in biodiversity.

Short Answer Questions

Q. 1. What legislative measures are taken in India to conserve wildlife?

Ans. In India, several laws and acts have been passed from time to time in order to protect wildlife. Out of all, the Wildlife Protection Act in 1972 has been the most effective. Unauthorised hunting, possession, trapping, shooting of wild animals alive or dead; serving their meat for eating; using them as transport, etc., are completely under strict control or prohibited.

Q. 2. What are natural resources? State two factors that work against an equitable distribution of natural resources. [CBSE]

Ans. Natural resources are the stocks of nature whether living or non-living, such as air, water, animals and plants which are useful to the mankind.

Now in this chapter that there are four main stakeholders when it comes to forests and wildlife. Which among these should have the authority to decide the management of forest produce? Why do you think so?

Local people who live in or around forests should have the authority to decide the management of forest produce. These people know the practices to use the resources in a sustainable manner. People have been using the forest and wildlife resources since the ancient times without causing any environmental damage. However, they should be constantly checked and monitored by environmentalists and ecologists.

Can you as an individual contribute or make a difference to the management of forests and wildlife, Coal and petroleum, and, Water resources, and,

**Forests and wildlife:
Coal and petroleum:**

- (a) I will stress on the conservation of biodiversity.
- (b) I will prevent cutting down of trees in forest, which will itself protect the habitat of wild animals.
- (c) I will try to educate people on the importance of forests and their role in our life.

Water resources:

- (a) I will stress on the conservation of water by turning off the tap while brushing or shaving.
- (b) I will use potable water for drinking purpose only.
- (c) I will not use it for cleaning car, or watering the plants.
- (d) The judicious use of water is essential to avoid undue wastage of water.
- (e) I will adopt water harvesting system.

Coal and petroleum: These are the main sources of energy today. We can save them by:

- (a) Using fluorescent tubes.
- (b) Switching off unnecessary lights and electronic devices.
- (c) Using solar devices.
- (d) Prefer walking or cycling rather than using vehicles or use public transport to save petrol.
- (e) I will get my car properly tuned to improve fuel efficiency.

Can you as an individual do to reduce your consumption of the various natural resources? In an individual, I will try my best to use or consume only minimum and the required amount of resources.

Five things you have done over the last one week to:

conserve our natural resources. (ii) increase the pressure on our natural resources.

Five things that I have done over the last one week to conserve our natural resources are:

- (a) Saved electricity by switching off unnecessary lights.
 - (b) Repaired leaky taps for saving water.
 - (c) Used empty plastic bottles of jams for storing purpose.
 - (d) I have not purchased plastic toys.
 - (e) I have not used petroleum products.
- Five things which I have done over the last one week to increase the pressure on our natural resources:
- (a) I did not switch off my room's light last night.
 - (b) Wasted food.

Q. 6. Suggest some approaches towards the conservation of forests.

[CBSE Delhi]

Ans. The following measures are suggested for the conservation of forests:

- (i) Plantation of indigenous species to develop forests in all the available land.
- (ii) Indiscriminate felling of trees for the purpose of timber must be reduced.
- (iii) The forest reserves must be protected from fuel-starved villagers, fodder-starved cattle and commercial exploitation.
- (iv) Participation of local people and villagers must be taken in conservation of forests and they should be given proper employment.
- (v) Promoting reforestation practices on barren lands.

Q. 7. Find out about the traditional systems of water harvesting/management in your region.

Ans. The traditional system of water harvesting/management in our region are ponds, pits, lakes and other water reservoirs where rain water is stored.

Q. 8. Compare the above system with the probable systems in hilly/mountainous areas or plains or regions.

Ans. Water harvesting system in the hilly areas are quite different from those of plain areas. Himachal Pradesh, had evolved the local system of canal irrigation called *kulhs* over four hundred years ago. The water flowing in the streams was diverted into man-made channels which took water to numerous villages down the hillside. In addition to irrigation, water from these *Kulhs* percolated into the soil and fed springs at various points.

Q. 9. Find out the source of water in your region/locality. Is water from this source available to all the people living in that area?

Ans. The sources of water in my locality is groundwater through hand pump and the municipal water supply. Sometimes, especially in summer season, water from these sources becomes scanty. In my locality, water is available to all the people.

Textbook Exercises

Q. 1. What changes would you suggest in your home in order to be environment friendly?

Ans. By pursuing the three *R*'s, *i.e.*, Reduce, Recycle and Reuse, we can save the environment in an effective way.

- (i) **Reduce:** It means to use less. I would save electricity by switching off unnecessary lights, fans, prefer walking or cycling than using a vehicle, turn off the engine of car at red light, fix leaky taps, and would not waste food.
- (ii) **Recycle:** It means to collect used things like plastic, paper, glass and metal items and reuse these materials to make required things instead of synthesising or extracting fresh paper, glass or metal.
- (iii) **Reuse:** It refers to use things again and again. For example, instead of throwing away old envelopes, they can be used by pasting new labels.

Q. 2. Can you suggest some changes in your school which would make it environment friendly?

Ans. The changes that would make my school environment friendly are:

- (i) Save energy by turning off lights that are not being used.
- (ii) I will suggest to buy recycled paper for decoration and other purposes.
- (iii) Use writing paper on both the sides.
- (iv) I can suggest to grow plants and trees all around the playground.

26. **Non-renewable energy sources:** These are energy sources which cannot be replaced easily when they get exhausted and are also called conventional sources of energy. They are used for many years and take millions of years to form. Examples: Fossil fuels.
27. **Renewable natural resources:** Naturally occurring useful natural resources which can be replenished or reproduced spontaneously or in a short period of time are called renewable natural resources. Air, water, solar energy and forests are examples of renewable natural resources.
28. Conservation of resources can be done at individual level by following the three R's: Reduce, Recycle and Reuse.

SUMMATIVE ASSESSMENT

Textbook Questions

- Q. 1. What changes can you make in your habits to become more environment friendly?
- Ans. We can make the following changes in our habits to become more environment friendly:
- We must collect plastic, paper, glass and metal items and recycle them to make the required things instead of synthesising fresh plastic, paper, glass or metals.
 - By saving water and not wasting food.
 - Plantation of trees.
 - Save the energy by switching off unnecessary lights and fans.
 - Reducing the use of non-renewable energy sources like petrol, diesel, etc.
 - Converting biodegradable plant and animal waste to manure by composting.
- Q. 2. What would be the advantages of exploiting resources with short-term aims?
- Ans. Exploiting resources with short-term aims provide immediate advantage that meet current basic human needs.
- Q. 3. How would these advantages differ from the advantages of using a long-term perspective in managing our resources?
- Ans. Exploiting resources with short-term aim is beneficial for the present generation to meet current basic human needs while a long-term perspective aims to fulfil the need of future generation. A long-term perspective in managing our resources is a sustainable practice that enables the present generation to use natural resources judiciously so that their availability is ensured for the future generations too.
- Q. 4. Why do you think there should be equitable distribution of resources? What forces would be working against an equitable distribution of our resources?
- Ans. The management should ensure equitable distribution of resources, so that both rich and poor people, are benefited. Powerful and rich people take advantage of their influence and get more benefits as compared to poor people. Money and power are important factors which work against the distribution of our resources.
- Q. 5. Why should we conserve forests and wildlife?

OR

- Why should we conserve forests?
- Ans. There are large number of species, both plant and animal, found in the forest. However, the range of different life forms (bacteria, fungi, ferns, flowering plants, nematodes, insects, birds, reptiles and so on) is also important. One of the main aim of conservation is to try and preserve the biodiversity we have inherited. Experiments and field studies suggest that a loss of diversity may lead to a loss of ecological stability.

[CBSE Delhi! 2008C]

14. People like **Sundarlal Bahuguna** and **Chandiprasad Bhatt** have been responsible for carrying the conservation movement forward over the years.
15. **Wildlife** means all those naturally occurring animals, plants and their species which are not domesticated and tamed.
16. **Amrita Devi Bishnoi National Award.** In 1731, Amrita Devi Bishnoi sacrificed her life along with other persons for the protection of 'Khejri' trees in Khejrli village near Jodhpur in Rajasthan. In her memory, Government of India has recently instituted this award for 'wildlife conservation'.
17. **Rain Water Harvesting (RWH)** is a method of collecting rain water and storing it to use during non-rainy season. Harvested water can be used for several purposes including bathing, gardening, etc. Rain water harvesting has wide applications in urban and semi-urban areas as the reliability and quality of municipal water are increasingly being questioned.
18. **Techniques of water harvesting:** Water harvesting techniques are mainly location specific.
- Ferrocement tanks can be built for storing water.
 - Capturing of runoff water from roof tops.
 - Capturing of runoff water from local catchment.
 - Capturing seasonal flood water from local streams by building pits and trenches.
19. **Benefits of water harvesting:** The advantages of storing water in the ground are many:
- It does not evaporate, but spreads out to recharge wells and provides moisture for vegetation over a wide area.
 - Reduces storm water discharge, urban flood and overloading of sewage treatment plant.
 - It does not provide breeding grounds for mosquitoes like stagnant water collected in artificial lakes.
20. **Dams:** Dams can ensure the storage of adequate water not just for irrigation, but also for generating electricity. Canal systems leading from these dams can transfer large amounts of water over long distances. The Indira Gandhi Canal has brought greenery to considerable areas of Rajasthan.
21. **Criticism about large dams:**
- Social problems:** They displace large number of farmers and tribals without adequate compensation.
 - Economic problems:** They consume huge amount of public money without proportionate benefits.
 - Environmental problems:** They cause deforestation and loss of biological diversity.
22. The construction of large dams on Narmada river in Central India and its impact on thousands of people living in the river valley has become one of the most contentious issues in the last two decades. The protests of the people of the Narmada Valley against large dams began in the late 1970s. A number of protest movements have been launched. Medha Patekar, Menka Gandhi, Baba Janardhan and other activists have started *Narmada Bachao Andolan* against the eviction of villagers and tribals from pollution and ecological imbalances likely to be caused by the construction of Sardar Sarovar Dam on the Narmada.
23. **Fossil fuels:** The fossil fuels are obtained from the remains of plants and animals which have been buried beneath the earth millions of years ago and changed into coal, petroleum and natural gas by excessive heat and high pressure inside the earth.
24. **Coal:** It contains chiefly carbon and its compounds mainly are nitrogen, oxygen, sulphur and hydrogen. It also consists of inorganic matter.
25. **Petroleum:** 'Petro' means rocks and 'oleum' means oil. Petroleum is therefore, the oil found in the complex mixture of solid, liquid and gaseous hydrocarbons. It also contains small amounts of compounds of carbon, hydrogen, oxygen, nitrogen and sulphur. Large reservoirs of petroleum are preserved by nature for millions of years between porous rocks beneath the earth.

al resources: The resources which are found in nature such as soil, air, water, minerals, coal, forest and wildlife that are useful to mankind in many ways.

ion: It is an undesirable change in physical, chemical and biological characteristics of air, land and water which harmfully affects human lives or the lives of other species.

orm: It is a group of bacteria, found in human intestines. Their presence in water is an indicator of contamination by disease-causing microorganisms.

a Action Plan: It is a multi-crore project implemented in 1985, which has been undertaken to control the excess of pollutants from the river Ganga.

tion of the Ganga: Many industries contribute to the Ganga's pollution by loading chemical wastes and make water toxic, killing aquatic organisms. Pollution is also caused by other human activities like bathing, washing and immersion of ashes or unburnt corpses. Many numbers of untreated sewage such as garbage and excreta are dumped into the Ganga.

itants: The substances that cause pollution are called pollutants. Some of the common pollutants are pesticides, industrial wastes and emissions, exhaust fumes from vehicles and sewage.

ycle: This means to collect plastic, paper, glass and metal items and recycle these materials to make new things instead of synthesising or extracting fresh plastic, paper, glass or metal.

re: It means 'to use things again and again'. The plastic bottles in which you buy various food items can be used for storing things in the kitchen.

ervation of natural resources means wise use of earth's resources by humanity.

management of natural resources requires a long term perspective so that these will last for the generations to come and will not merely be exploited to the hilt for short term gains.

ustainable development is maintained for a long time without undue damage to the environment.

stakeholders of the forests are:

The **local people** living in or around the forests, which are directly dependent on forest products.

The **Forest Department** of the Government, which owns the land and controls the resources from the forests.

The **industrialists** who use the forest produce, but are not dependent on the forests of a particular area.

The **wildlife and nature enthusiasts** who want to conserve nature in its unspoiled form.

ko Movement: The 'Chipko Andolan' ('Hug the Trees Movement') was a movement of the local people to resist the deforestation attempt on the hill slopes. During 1970s in Reni village of Garhwal, a contractor was allowed to cut trees in a forest near the village. When the contractor's workers tried to reach the village quickly and clasp the tree trunks with their hands, thus, preventing the workers from cutting down the trees.

MANAGEMENT OF NATURAL RESOURCES

Refrigerator
A.C.
Coolant
- Aerosol spray

3	the phenomenon that causes accumulation of pesticides in the body of human and animals.
1	Why is food chain having two steps most advantageous in terms of energy?
1	Why is ozone getting depleted at the higher levels of the atmosphere?
1	What are two artificial ecosystems.
1	What are the common forms of household waste?
2	Differentiate between biodegradable and non-biodegradable substances. Cite examples.
2	Why do harmful chemicals enter our bodies through a food chain?
2	What are any two practices which can help in the protection of our environment.
2	What is the role of decomposers in the ecosystem?
3	Differentiate between food chain and food web.
3	What is biological magnification? Will the levels of this magnification be different at different levels of the ecosystem?
3	With the help of an example explain how indiscriminate use of pesticides may result in the radiation of the environment.
3	What is the best suitable mechanism(s) for waste management in fertiliser industries.

Maximum marks: 25

Time: 1 hour

ASSESS YOURSELF

incineration means 'reducing to ashes'. The burning of a substance at high temperature to form ash is called incineration.

What is incineration?

96% in terrestrial habitats and 0.29% in aquatic ecosystems is the percentage of solar energy trapped and utilised.

Why does vegetarian habit help us in getting more energy? In terms of energy who is at an advantageous position (vegetarian or a non-vegetarian)? Why?

We know that, vegetarians obtain food directly from plants while non-vegetarians get the food from animals. Animals (herbivores) contain 10% of food energy as compared to plants (producers). For example; the same amount of producer which supplies say 1000 J of food energy to a vegetarian will provide only 100 J of food energy to a non-vegetarian. Hence, a vegetarian will be at an advantageous position.

Why does a food chain consist of only three to four steps?

On an average, only 10% of the food available to a trophic level is transferred to the next trophic level. Since, the amount of available energy keeps on becoming less as we move to higher trophic levels, so very little usable energy remains after four trophic levels. That is why a food chain consists of only three to four steps.

Give three characteristics of food chain.

Characteristics of food chain:

(i) A food chain is always straight and proceeds in a progressive straight line.

(ii) A food chain helps in understanding the food relationship and interactions among various organisms in an ecosystem.

(iii) It also help to understand the movement of toxic substances in an ecosystem and the problem of their biological magnification.

Why is it said that flow of energy in an ecosystem is unidirectional?

Solar energy that is captured by the autotrophs cannot revert back to the Sun. Also, the energy obtained by herbivores from plants cannot go back to plants. That is why it is said that flow of energy in the biosphere is unidirectional.

un —> plants —> herbivores —> carnivores

Flow of energy in an ecosystem

Why is improper disposal of waste a curse to environment?

Wastes pollute our environment, air, soil and water, and cause harmful effects on all living organisms.

(Higher Order Thinking Skills)

Q. 24. How is ozone formed in the higher level of atmosphere? "Damage to the ozone layer is concern." Justify this statement.



Ozone shields the earth's surface at the higher levels from UV radiations coming from the sun. These radiations are highly damaging to organisms as they cause skin cancer and cataracts.

Long Answer Questions

Q. 1. Indicate the flow of energy in an ecosystem. Why is it unidirectional? Justify. [NCERT]

Ans. The flow of energy generally is Sun → producer → herbivore → carnivore → top carnivore. The flow is progressively from one trophic level to another and does not revert back, it is unidirectional. The energy that is captured by the autotrophs does not revert to the solar energy. The energy which passes to the herbivores does not come back to autotrophs. As it goes from one level to another, the available energy decreases in the higher trophic levels making it impossible for energy to reverse direction.

Q. 2. Suggest any five activities in daily life which are eco-friendly.

- Ans.**
- (i) Separation of biodegradable and non-biodegradable substances
 - (ii) Gardening
 - (iii) Use of gunny bags/paper bags in place of polythene/plastic bags
 - (iv) Use of compost and vermicompost in place of fertilisers
 - (v) Harvesting rain water

Q. 3. Name the wastes which are generated in your house daily. What measures would you suggest for their disposal? [NCERT]

- Ans.**
- (i) Kitchen wastes.
 - (ii) Paper wastes like newspapers, bags, envelopes.
 - (iii) Plastic bags.
 - (iv) Vegetable/fruit peels/rind.

Measures for disposal

- (i) Segregation of biodegradable and non-biodegradable wastes.
- (ii) Safe disposal of plastic bags.
- (iii) Vegetable/fruit peels can be placed near trees/plants, which on decomposition will enrich the soil with nutrients.
- (iv) Give paper wastes for recycling.
- (v) Prepare a compost pit for kitchen wastes.

Q. 4. Explain some harmful effects of agricultural practices on environment? [NCERT]

- Ans.**
- (i) Excessive use of fertilisers changes the chemistry of soil and kills useful microbes.
 - (ii) Excessive use of non-biodegradable chemical pesticides leads to biological magnification.
 - (iii) Extensive cropping causes loss of soil fertility.
 - (iv) Excess use of ground water for agriculture lowers the water table.
 - (v) Damage to natural ecosystem/habitat.

can be reused
do not pollute our environment
are made of biodegradable material
are capable of carrying more things

What are the advantages of cloth bags over plastic bags during shopping? [NCERT Exemplar]

cloth bags are better than plastic bags because they are made of natural materials and are biodegradable. They do not pollute the environment and can be reused. Plastic bags, on the other hand, are made of non-biodegradable material and are not reusable. They also cause air pollution and are harmful to the environment.



What is ozone formed in the upper atmosphere? What causes its damage? [CBSE (AI) 2008]

Food chain	Food web
1. Food chain is a series of organisms feeding on one another. 2. Members of higher trophic level feed upon a single type of organism of the lower trophic level.	1. Food web consists of a number of interlinked food chains. 2. Members of higher trophic level can feed upon organisms of the lower trophic levels of other food chain.

There are two differences between food chain and food web.

1. In a food chain, the flow of energy and nutrients is unidirectional, while in a food web, it is multidirectional.
 2. A food chain is a linear sequence of organisms, while a food web is a complex network of interconnected food chains.

Explain the phenomenon of "biological magnification". How does it affect organisms belonging to different trophic levels particularly the tertiary consumers? [CBSE Delhi 2010, (AI) 2010]

Biological magnification is the process by which the concentration of toxic substances increases at each trophic level of a food chain. This phenomenon is known as biological magnification. The concentration of toxic substances is found to be maximum in tertiary consumers.

What are decomposers? What will be the consequence of their absence in an ecosystem?

Decomposers are organisms that break down the complex organic substances of garbage, dead animals and plants into simpler inorganic substances that go into the soil and are used up again by the plants. In the absence of decomposers, recycling of material in the biosphere will not take place.

What are the by-products of fertiliser industries? How do they affect the environment?

By-products of fertiliser industries include sulphur dioxide (SO₂) and nitrogen dioxide (NO₂). These gases are harmful to the environment and cause acid rain.

Q. 9. In a lake contaminated with pesticides, which one of the following organism living in the lake will contain the maximum amount of pesticide?

Small fish, zooplankton, big fish, phytoplankton.

Ans. The concentration of pesticide will increase with the rise of trophic level in the food chain.

Phytoplankton → Zooplankton → Small fish → Big fish (maximum pesticide)

Therefore, big fishes will have maximum amount of pesticides.

Q. 10. Why are crop fields known as artificial ecosystems?

[NCERT Exemplar]

Ans. Crop fields are man-made and some biotic and abiotic components are manipulated by humans. Therefore, they are known as artificial ecosystems.

Q. 11. Differentiate between biodegradable and non-degradable substances. Cite examples.

[NCERT Exemplar]

Ans. Substances that are broken down into simpler substances by biological processes are said to be biodegradable. For example, wood, paper.

Substances that cannot be broken down into simpler ones by biological processes are said to be non-biodegradable. For example, plastic, DDT.

Q. 12. What is meant by a biodegradable waste? Which of the following is/are biodegradable?

Agricultural residue, plastics, insecticides and sewage.

Ans. Biodegradable waste: The waste which is broken down by the activity of microorganisms and enters into the biogeochemical cycle are known as biodegradable waste.

Agricultural residue and sewage are biodegradable in nature.

Q. 13. Calculate the amount of energy available to tiger in the following food chain if plants have 30,000 J of energy available from the Sun:

Plant → Deer → Tiger

Ans. Plants can trap only 1% of the sun's energy falling on them. Now, 1% of 30,000 J is 300 J which is the energy available to plants.

The plants are eaten up by deer. According to 10% law, 10% of 300 J, i.e., 30 J of energy will be available to deer as flesh food.

The deer will transfer 10% of its 30 J energy to the tiger. Thus, the food energy available to the tiger will be 10% of 30 J which is 3 J.

$$\begin{array}{ccccccc} \text{Sun} & \xrightarrow{1\% \text{ absorbed}} & \text{Plants} & \xrightarrow{10\%} & \text{Deer} & \xrightarrow{10\%} & \text{Tiger} \\ (30,000\text{J}) & & (300\text{J}) & & (30\text{J}) & & (3\text{J}) \end{array}$$

Q. 14. Suggest one word for each of the following statements/definitions:

(i) The physical and biological world where we live in

(ii) Each level of food chain where transfer of energy takes place

(iii) The physical factors like temperature, rainfall, wind and soil of an ecosystem

(iv) Organisms which depend on the producers either directly or indirectly for food.

[NCERT Exemplar]

Ans. (i) Environment/biosphere

(ii) Trophic level

(iii) Abiotic factors

(iv) Consumers/heterotrophs

Q. 15. Explain the role of decomposers in the environment?

[NCERT Exemplar]

Ans. Decomposers break down the dead and decaying organic matter and return the nutrients to the soil. Thus, they play a very important role in the nutrient recycling in the environment.

Q. 16. Why are bacteria and fungi called decomposers? List any two advantages of decomposers to the environment.

Ans. Bacteria and fungi are called decomposers because bacteria and fungi decompose the dead remains of producers and consumers into simpler substances.

Which of the following are non-biodegradable?

oil, glass, silver foil and leather.

plastic and silver foil.

Why is it necessary to conserve our environment?

It is necessary to conserve our environment in order to maintain ecological balance.

Answer Questions

(2,3 marks)

Describe any four modes of disposal of waste.

(i) Disposing of biodegradable wastes in bio-gas plants so that it can help in the preparation of bio-gas and manure.

(ii) Solid wastes should be buried in urban areas as landfills.

(iii) Some solid wastes (plastic, paper and metals) should be recycled.

(iv) Large amount of waste must be burnt at high temperature (incineration).

With the help of an example explain how indiscriminate use of pesticides may result in the degradation of the environment.

Discriminate use of pesticides may result in the degradation of the environment. For example, DDT is an organic pesticide which is used to kill pests in crop fields. When it is used in large quantity, it can be passed along the food chain from crops to man or other animals and birds and can harm them.

State any two practices which can help in the protection of our environment?

(i) Disposal of the waste after its separation as biodegradable and non-biodegradable waste material.

(ii) Judicious use of unleaded petrol and alternate sources of energy.

Consider the food chain: Grass → Deer → Lion. What will happen if lions are removed from the above food chain?

Removal of lions from the above food chain will increase the number of deer to such an extent that they will eat up the whole grass. The density of producer like grass will be very much reduced and this will turn the area into a desert.

Which of the following belongs to the same trophic level?

Grass, Hawk, Rabbit, Frog and Deer.

Grass is producer, hawk and frog are carnivores (top and lower), rabbit and deer are herbivores. Hence, rabbit and deer are both herbivores, so they belong to the same trophic level.

Construct an aquatic food chain showing four trophic levels.

Phytoplanktons → Zooplanktons → Small fish → Big fish.

[NCERT Exemplar]

Write the common food chain of a pond ecosystem.

Phytoplanktons and aquatic plants → small aquatic animal larvae and insects → birds.

The number of malarial patients in a village increased tremendously when large number of frogs were exported from the village. What could be the cause for this?

First we will see the food chain:

Phytoplankton → Zooplankton → Mosquito larva → Frogs

In the absence of frogs (as they were exported), more mosquito larvae survived giving rise to large number of mosquitoes. The large number of mosquitoes caused increased incidences of malaria.

ultraviolet radiations have extremely harmful effects on human beings, other animals as well as plants. For example, ultraviolet rays can cause skin cancer. They also damage the eyes by causing an eye disease called cataract. Ultraviolet rays damage immune system by lowering the body's resistance to diseases. Thus, ozone layer in upper atmosphere protect us from these diseases by absorbing ultraviolet rays coming from the sun.

The amount of ozone in the atmosphere began to drop sharply since 1980s. This decrease is linked to synthetic chemicals like chlorofluorocarbons (CFCs) which are used as refrigerants and fire extinguishers. In 1987, the United Nations Environment Programme (UNEP) succeeded in forging an agreement to freeze CFC production at 1986 levels. By developing substitutes for CFCs; scientists have already developed some substitutes which are ozone friendly.

Very Short Answer Questions

Q. 1. What are the two main components of our environment?

[CBSE Delhi]

Ans. The two components are biotic or living and abiotic or non-living component.

Q. 2. Name any two biodegradable pollutants.

Ans. Domestic sewage and wood.

Q. 3. List any two non-biodegradable pollutants.

Ans. Plastic and DDT.

Q. 4. List four common waste disposal methods.

Ans. Compost, recycling of wastes, landfills and incineration.

Q. 5. Name three major biotic components of an ecosystem.

Ans. Microorganisms, animals and plants.

Q. 6. Name any two abiotic components of an environment.

[CBSE Delhi]

Ans. Abiotic components of an environment include soil and water.

Q. 7. Name the radiations that are absorbed by ozone layer.

Ans. Ultraviolet (UV) radiations.

Q. 8. Name two decomposers.

Ans. Bacteria and fungi.

Q. 9. Give reason why ozone layer in the stratosphere is considered useful.

Ans. Ozone layer is very important for the existence of life on earth because it absorbs harmful ultraviolet (UV) radiations coming from the Sun.

Q. 10. Write an aquatic food chain.

Ans. Phytoplankton → Zooplankton → Fish → Seal.

Q. 11. What destructive effect do chlorofluorocarbons bring about in the atmosphere?

Ans. It depletes ozone from ozone shield, resulting in increasing the passage of harmful ultraviolet radiation to the earth.

Q. 12. Draw a food chain with four trophic levels.

Ans. Plants → Rats → Snakes → Hawks

Q. 13. Which two of the following are biodegradable?

Tomato leaves, aluminium wire, synthetic fibre and wool

Ans. Tomato leaves and wool.

Q. 14. What do you call the functional unit of the environment comprising both living and non-living components?

Ans. Ecosystem.

UV radiation is very important for the existence of life on earth because it absorbs most of the harmful ultraviolet radiations coming from the Sun and prevents them from reaching the earth. The

[CBSE Delhi 2008]

Why is damage to the ozone layer a cause for concern? What steps are being taken to limit this damage?

The ozone layer is very important for the existence of life on earth because it absorbs most of the harmful ultraviolet radiations coming from the Sun and prevents them from reaching the earth. The damage to the ozone layer is a cause for concern because it leads to an increase in the number of skin cancers and other health problems. Steps are being taken to limit this damage, such as the Montreal Protocol, which aims to reduce the production and consumption of ozone-depleting substances.

If all the waste we generate is biodegradable, will this have no impact on the environment?

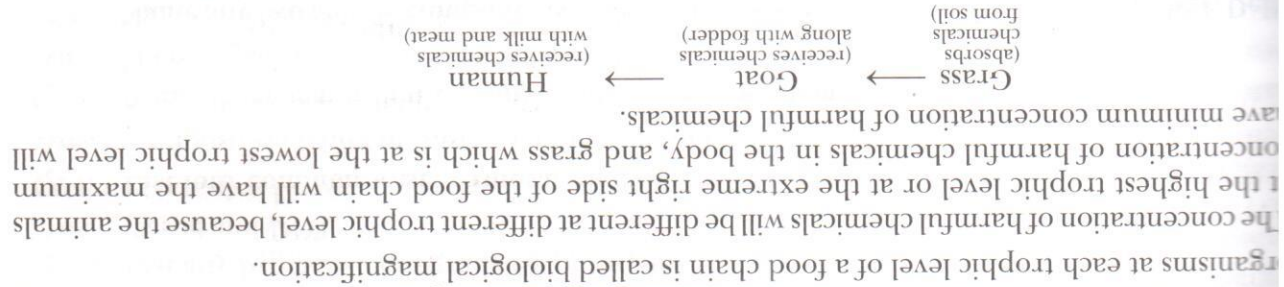
(i) The non-biodegradable wastes cannot be decomposed by microorganisms like bacteria. So, the volume of these wastes will not decrease, creating the problem of their disposal. They have to be dumped on land. Hence, the land becomes unfit for other purposes.

(ii) Heavy metals present in industrial waste like copper, lead, nickel, mercury, etc., remain in the soil indefinitely. Slowly, they pass into vegetation and crops and thus harm both plants and animals.

(iii) Pesticides and other toxins pollute underground water, surface water and soil. The chemicals enter food chain thereby harming animals and humans, and the soil may become acidic or alkaline.

(iv) In the process of removing recyclable materials from solid wastes, the rag-pickers are exposed to many disease-causing microbes and toxins.

What are the problems caused by the non-biodegradable wastes that we generate?



The problems caused by the non-biodegradable wastes that we generate are:

(i) The non-biodegradable wastes cannot be decomposed by microorganisms like bacteria. So, the volume of these wastes will not decrease, creating the problem of their disposal.

(ii) They have to be dumped on land. Hence, the land becomes unfit for other purposes.

(iii) Heavy metals present in industrial waste like copper, lead, nickel, mercury, etc., remain in the soil indefinitely. Slowly, they pass into vegetation and crops and thus harm both plants and animals.

(iv) Pesticides and other toxins pollute underground water, surface water and soil. The chemicals enter food chain thereby harming animals and humans, and the soil may become acidic or alkaline.

(v) In the process of removing recyclable materials from solid wastes, the rag-pickers are exposed to many disease-causing microbes and toxins.

What is biological magnification? Will the levels of this magnification be different at different levels of the ecosystem?

The increase in concentration of harmful chemical substances (pesticides) in the body of living organisms at each trophic level of a food chain is called biological magnification. The concentration of harmful chemicals will be different at different trophic level, because the animals at the highest trophic level or at the extreme right side of the food chain will have the maximum concentration of harmful chemicals in the body, and grass which is at the lowest trophic level will have minimum concentration of harmful chemicals.

Will the impact of removing all the organisms in a trophic level be different for different trophic levels? Can the organisms of any trophic level be removed without causing any damage to the ecosystem?

removal of all the organisms in a trophic level will cause the same type of disturbance in an ecosystem as killing of higher trophic level and population explosion in the lower level organisms. If all producers are killed, there will be no food available for herbivores present in the ecosystem. In the absence of herbivores, various categories of carnivores will be affected. Since, all categories of organisms are linked through a food chain, removal of organisms of any trophic level will ultimately affect the ecosystem.

What will happen if we kill all the organisms in one trophic level?

So, there will be overpopulation of individuals belonging to the previous trophic level. The organisms of higher trophic level will also die due to lack of food. Hence, it will cause imbalance in the ecosystem.

We kill all the organisms in one trophic level, the transfer of food energy to next level will stop. We kill all the organisms in one trophic level, the transfer of food energy to next level will stop.

Q. 4. What are trophic levels? Give an example of a food chain and state the different trophic levels.

Ans. Each step or division in a food chain where transfer of energy occurs are called trophic levels. Let us consider the following food chain:



In this food chain, grass is producer (first trophic level). Insect is a herbivore and eats grass. Insect is at second trophic level. Insect, in turn, is eaten by frog (carnivores I). Thus, frog is at third trophic level. Frog, in turn is eaten by snake (carnivores II). Thus, snake is at fourth trophic level. Snake, in turn is eaten by peacock (carnivores III). Thus, peacock is at fifth trophic level.

Q. 5. What is the role of decomposers in the ecosystem?

Ans. Refer to Glimpses Point 9.

Q. 6. What is ozone and how does it affect any ecosystem?

Ans. Ozone is an isotope of oxygen. It is formed by three atoms of oxygen (O_3), whereas normal oxygen molecule is diatomic (O_2). Oxygen is essential for all aerobic forms of life and for various biological activities. Ozone, is a deadly poison. Very little of it is present in lower part of the atmosphere. In the stratosphere, ozone layer comprises high concentration of ozone some 10-15 km above. Ozone performs an essential function. It shields the surface of the earth from harmful (UV) radiation of the Sun.

Q. 7. How can you help in reducing the problem of waste disposal? Give any two methods.

Ans. We can help in reducing the problem of waste disposal by changing our life style and attitude. We can minimise the use of disposable articles and start using only those articles which can be easily recycled. The quantity of waste can be reduced.

1. Ways of reducing non-biodegradable waste: Most often the non-biodegradable waste is recycled. It is taken away by rag-pickers.

2. Ways of reducing biodegradable waste: Biodegradable waste is putrescible. It can be composted or vermicomposted to prepare compost for our kitchen gardens.

Some prominent methods of waste disposal are land fills, production of bio-gas and municipal solid waste incineration.

Textbook Exercises

Q. 1. Which of the following groups contain only biodegradable items?

- (i) Grass, flowers and leather (ii) Grass, wood and plastic
(iii) Fruit-peels, cake and lime-juice (iv) Cake, wood and grass.

Ans. (i), (iii) and (iv).

Q. 2. Which of the following constitute a food chain?

- (i) Grass, wheat and mango (ii) Grass, goat and human
(iii) Goat, cow and elephant (iv) Grass, fish and goat

Ans. (ii).

Q. 3. Which of the following are environment-friendly practices?

- (i) Carrying cloth-bags to put purchases in while shopping.
(ii) Switching off unnecessary lights and fans.
(iii) Walking to school instead of getting your mother to drop you on her scooter.
(iv) All of the above.

Ans. (iv).

Some of the non-biodegradable wastes (pesticides and heavy metals) on a piece of land convert the same into barren land and enter the food chain and affect human beings and other biotic components of the environment. Pesticides and other chemicals enter water and food chains. They affect the fertility of soil and harm all kind of living organisms. Human beings are harmed the most because they are at the top of the food chain.

any two ways in which non-biodegradable substances would affect the environment.
 [CBSE Delhi 2008]

Flies breed at huge heaps of biodegradable wastes, carrying the germs and spread diseases such as typhoid, diarrhoea, tuberculosis, cholera, etc. Decomposition of biodegradable wastes produces foul smell which spreads in the environment and makes the life of people miserable. Ways in which biodegradable substances would affect the environment are:

any two ways in which biodegradable substances would affect the environment.
 [CBSE Delhi 2008]

But environment, microorganisms such as bacteria and fungi secrete enzymes. These enzymes break organic compounds, present in the dead remains of plants and animals and their waste products into simpler harmless substances. These wastes are termed as biodegradable. On the other hand, these enzymes cannot degrade certain category of wastes like plastics, glass, etc. These wastes persist in the environment and are termed as non-biodegradable.

are some substances biodegradable and some non-biodegradable?

Questions

SUMMATIVE ASSESSMENT

on-biodegradable wastes: These are substances that cannot be decomposed by microorganisms and accumulate in the environment. These concentrate in the food chain and harm the various members of ecosystem. Example: Plastic, DDT, glass, aluminium cans, insecticides, pesticides, radioactive wastes, etc.

biodegradable wastes: These are the substances that can be decomposed by microorganisms. Example: Sewage, agricultural residue, paper, wood, domestic waste products, clothes, cattle dung, etc.

Waste we generate can be classified into:

Beneficial: Harmful, synthetic chemicals widely used in refrigerators and air conditioners as coolants. Chlorofluorocarbons are mainly responsible for ozone depletion. These are being depleted by air pollutants such as chlorofluorocarbons (CFCs) and the earth. Ozone is being depleted by the ozone layer which protects all forms of life on the earth. The ultraviolet rays (UV) are absorbed by the ozone layer which protects all forms of life on the earth. Ozone is being depleted by air pollutants such as chlorofluorocarbons (CFCs) and the earth. Ozone is being depleted by the ozone layer which protects all forms of life on the earth. The ultraviolet rays (UV) are absorbed by the ozone layer which protects all forms of life on the earth.

Energy: The flow of energy through different steps in a food chain is unidirectional. Green plants capture about 1% of energy of the sunlight that falls on their leaves and convert it into food. When green plants are eaten by primary consumers, energy is lost as heat in environment. An average of 10% of the food eaten is turned into its own body and made available for next level of consumers. Thus, 10% can be taken as an average value for the amount of organic matter present in each trophic level to reach the next level of consumers.

Web: Each organism is generally eaten by two or more other kinds of organisms which in turn, are eaten by several other organisms. So, instead of a straight line food chain, the relationship can be as a series of branching lines. Thus, the network of interconnected food chain is called **food web**.