CONSERVATION OF PLANTS AND ANIMALS

In this chapter, we will discuss carbon, its various forms, its compounds, fuels and petroleum and their types.

Conservation

It is a term used to describe the prudent (careful and sensible) use of natural resources like air, water, soil, minerals, fuels, forests, plants and animals.

Forest

A forest is a large area covered with trees and plants. It provides habitats for animals and plants.

Deforestation and its Causes

The process of clearing away forests by cutting them down or burning them is called deforestation. People clear forests to use the wood or to make way for farming or development.

The various causes of deforestation are

(i) **Procuring land for cultivation** Forest trees are cut down to obtain more agricultural land for cultivation of crops to feed the increasing population.

(ii) **Building houses and factories** The trees are cut down to build homes, factories, roads, dams, etc.

(iii) **Making various products** These such as paper or wood for making doors, windows, etc., are obtained from trees.

(iv) **Natural causes** It includes forest fires, severe droughts, etc.

Consequences of Deforestation

Deforestation has the following adverse effects on the environment.

1. **Global warming** Plants use carbon dioxide for photosynthesis (preparation of food). When fewer trees will be left due to deforestation, less carbon dioxide will be used up. This will result in its increased amount in the atmosphere. A possible consequence is global warming as carbon dioxide traps the heat rays reflected by the surface of the earth.

2. **Disturbance in water cycle** The consequent increase in temperature on the earth disturbs the water cycle. This leads to decrease in rainfall that lowers the groundwater level and could cause **droughts.**

3. **Soil Erosion and desertification** When the forest trees are cut, there are no roots and the bare topsoil becomes loose quickly and erodes rapidly. This results in more **soil erosion,** exposing the lower layer that has less humus and is less fertile.

4. **Desertification** The properties like nutrient content, texture, etc., of soil also changes. Overtime continued soil erosion can thus convert the land into a desert. This is called desertification.

5. **Floods** The roots of forest trees help in absorbing the rainwater and make it percolate into the ground. Due to deforestation, there is decrease in the water-holding capacity of the soil. The movement of water from the soil surface into the ground is reduced. This results in floods (excess water overflowing from the banks of the river into the adjoining areas).

Reforestation

It is restocking of the destroyed forests by planting new trees (generally of the same species.

In India, there are following conservation acts to save forests:

(i) The Government of India has enacted a **Forest Conservation Act (1980)** to save forests. It aims at preservation and conservation of natural forests, while meeting the basic needs of the people living in or near the forests at the same time.

(ii) The **Chipko Andolan,** a people's movement to save trees, started in a couple of villages in Uttarakhand and spread over the Himalayan region under the leadership of activists like Sunderlal Bahuguna and Chandi Prasad Bhatt.

(iii) The **Joint Forest Management Programme** launched by the government aims at regenerating and protecting degraded forests with the people's participation.

Conservation of Forests and Wildlife

The efforts to protect and preserve forests and wildlife are directed generally along the following lines:

(i) **Protection by law** It is very necessary to have strict laws and their enforcement for the protection and preservation of wildlife, e.g. hunting regulation, rules for unauthorised felling of trees, etc.

(ii) **Afforestation** It is the act of planting more trees to replace the ones that are cut. It also takes place naturally if the area is left undisturbed.

(iii) **Protection from forest fires** It can be done by spraying fire extinguishing solutions from aircrafts or by changing the direction of wind by using strong blowers.

(iv) **Personal and society efforts** Some organisations help in conservation of forests through their projects, programmes and joint efforts with the government, e.g. Van Mahotsava programme is celebrated every year during the first week of July in India (initiated in 1950).

(v) **Habitat preservation** In this method, protected areas such as wildlife sanctuaries, national parks, biosphere reserve, etc are established. These areas are large enough to protect the diverse and whole set of ecosystems. Plantation, cultivation, grazing, cutting of trees, hunting and poaching are prohibited in these protected areas.

Biodiversity

It refers to the variety of organisms existing on the earth, their inter-relationships and relationships with the environment. India is sixth on the list of 12 mega-biodiversity countries in the world. It contains two of the 34 biodiversity hotspots of the world— Eastern Himalayas and the Western Ghats. These areas are very rich in biodiversity.

India contains 172 species of animals considered globally threatened or 2.9% of the world's total number of threatened species. Eastern Himalayas hotspot has merely 163 globally threatened species including several animal and plant species. India contains globally important population of some of Asia's rarest animals such as the Bengal fox, Marbled cat, Asiatic lion, Indian elephant, Asiatic wild ass, Indian rhinoceros, gaur, wild Asiatic water buffalo, etc.

Wildlife Sanctuary

A wildlife sanctuary is a protected area for animals in their natural environment like forests. There is no disturbance to animals and their habitat. Killing (poaching) and capturing of wild animals is strictly prohibited.

Some of the threatened wild animals like black buck, white-eyed buck, elephant, golden cat, pink-headed duck, gharial, marsh crocodile, python, rhinoceros, etc are protected and preserved in our wildlife sanctuaries.

It is important to take a note of zoos or zoological parks, it is a large area where many types of wild animals and birds brought from different parts of the world are kept in cages or enclosures, so that people can see them.

National Park

It is a relatively large protected area and is maintained by the government to preserve flora and fauna, landscape, historic objects of the area and places of scientific interest. People are allowed to enter these areas but exploitation of natural resources is strictly prohibited.

India has more than 105 national parks. Many of these national parks were initially wildlife sanctuaries, e.g. Keoladeo national park.

A national park has a large species of wild animals in it, e.g. **Satpura national park** in Pachmarhi Reserve has tiger, gaur (Indian bison), leopard, Indian giant squirrel, sambar, sloth bear, cheetal, barking deer, wild boar, Rhesus monkey, langur, nilgai, hyena, wild dog, porcupine, marsh crocodile and four-horned antelope.

Project Tiger

It is a wildlife conservation project which was launched by the Government of India in 1973 to protect the tigers in the country. The objective of this project was to ensure the survival and maintenance of the tiger population in the country.

From 9 tiger reserves in its formative years, the Project Tiger coverage has increased to 47 at present. There is a 'Satpura Tiger Reserve' in the Satpura national park which is a part of Project Tiger.

Species

It is a group of population which is capable of interbreeding. This means that the members of a species can reproduce fertile offspring (one which can reproduce its own kind) only with the members of their own species and not with members of other species. Members of a species have common characteristics, e.g. human, tiger. There are about 6,00,000 species of animals and 4,00,000 species of plants in the world.

Endemic Species

These are the species of plants and animals which are found exclusively in a particular area, e.g. sal and wild mango are examples of endemic flora of the Pachmarhi biosphere reserve. Bison, Indian giant squirrel and flying squirrel are endemic fauna of this area.

Endangered Animals and Extinct Animals

The species which no longer exist anywhere on the earth are called **extinct animals**. These have died out completely. A species becomes extinct when the last living member of that species dies, e.g. dodo, dinosaurs, iris deer, etc.

Animals whose numbers are diminishing to a level that they might face extinction are called **endangered animals**. These are on the verge of vanishing from the earth and if appropriate actions to save them are not taken, they may become extinct, e.g. lion-tailed macaque, tiger, snow leopard, Asiatic lion, etc.

The small animals are much more in danger of becoming extinct than the bigger animals.

Red Data Book

- A Red Data Book contains list of species whose continued existence is threatened, i.e. endangered animals and plants. Species are classified into different categories of perceived risk such as 'critically endangered', 'endangered' and 'vulnerable'.
- Some of the endangered species in Red Data Book of India are black buck, great Indian rhinoceros, Himalayan musk deer, etc.

Migration

The process of an animal (or bird) to move from one place to another on the basis of season is called migration. It is an adaptation to escape the harsh and cold conditions of their normal habitat, so as to survive and reproduce, e.g. Siberian crane, one of the most common migratory bird which comes to India every year from Siberia (when it is winters there). It comes to warmer places in India such as Bharatpur (Rajasthan).

PRACTICE EXERCISE

1. Which of the following does a forest prevent?
   (a) Floods
   (b) Soil erosion
   (c) Water table from going down
   (d) All of the above

2. Forests are not responsible for
   (a) providing medicinal plants
   (b) maintaining the flow of water into the streams
   (c) creating flood conditions
   (d) absorbing rainwater and maintaining water table

3. Which of the following products is not obtained from a forest?
   (a) Honey   (b) Catechu
   (c) Gum   (d) Ginger

4. Which of the following is not a correct statement?
   (a) Forest trees are cut done to obtain timber
   (b) Forest trees are cut down to obtain paper
   (c) Forest trees are cut down to obtain honey
   (d) Forest trees are cut down to obtain firewood

5. Which one of the following is a role of forests?
   (a) Provide food, shelter, water and medicines
   (b) Prevent soil erosion
   (c) Prevent flood
   (d) All of the above

6. Which one of the following is an animal product?
   (a) Gum   (b) Catechu (c) Honey   (d) Rubber

7. Trees help in reducing the pollution of our environment. Lakhs of trees are planted by people in the month of July every year. This occasion is called, as
   (a) Forest conservation Day
   (b) Plantation month
   (c) Van Mahotsav
   (d) Wildlife week

8. Which of the following is not done in a wildlife sanctuary?
   (a) Fauna is conserved
   (b) Flora is conserved
   (c) Soil and flora is utilised
   (d) Hunting is prohibited

9. Endemic plants are those, which are
   (a) Cosmopolitan in distribution
   (b) restricted to grow over certain areas
   (c) found in Arctic region
   (d) gregarious in habit

10. Which animal is the symbol of WWF?
    (a) Tiger   (b) Hornbill
    (c) Giant Panda   (d) White bear

11. Animals whose numbers are diminishing to a level that they might face extinction are known as
    (a) endangered   (b) endemic
    (c) flora   (d) fauna

12. Among the following the threatened wild animal is
    (a) black buck
    (b) white eyed buck
    (c) golden cat
    (d) All of the above

13. Dudhwa national park is in
    (a) Odisha
    (b) Gujarat
    (c) Uttar Pradesh
    (d) Himachal Pradesh

14. Siberian cranes are regular visitors of
    (a) Bharatpur sanctuary, Rajasthan
    (b) Lalbagh, Bengaluru
    (c) Vedanthgol Sanctuary, Tamil Nadu
    (d) Jim Corbett National Park, Uttarakhand

15. The book which helps a record of all the endangered animals and plants is
    (a) Pink Data Book
    (b) Red Data Book
    (c) Black Data Book
    (d) None of these

16. The species, which is going to become extinct due to the lack of proper care would be celled
(a) flora
(b) endangered
(c) fauna
(d) extinct

17. Wildlife is
(a) any living organism in any habitat
(b) predatory animals in their natural habitat
(c) any living organism in its natural habitat
(d) economically important animals and plants

18. Which amongst the following birds are migratory birds?
(a) Siberian crane
(b) Parrot
(c) Kite
(d) Swan

19. Number of wildlife is continuously decreasing. What is the main reason of this?
(a) Predation
(b) Cutting down of forests
(c) Destruction of habitats
(d) Hunting

20. Manas sanctuary is located at
(a) Rajasthan
(b) Asom
(c) Bihar
(d) Gujarat

21. The place where animals receive protection is
(a) Botanical garden
(b) Museum
(c) Zoo
(d) Both (a) and (c)

22. Ranthambor national park is situated in
(a) Asom
(b) Jharkhand
(c) Uttarakhand
(d) Rajasthan

23. Rajaji national park is situated in
(a) Tamil Nadu
(b) Karnataka
(c) Uttarakhand
(d) Rajasthan

24. Indian rhinoceros are protected in
(a) Gir forest
(b) Kaziranga national park
(c) Bandipur national park
(d) Ranthambor national park

25. Which one of the following is the first national park in India
(a) Kanha national park
(b) Periyar national park
(c) Corbett national park
(d) Bandipur national park

26. In your opinion which is the most effective way to conserve the plant diversity of an area?
(a) By tissue culture method
(b) By creating biosphere reserve
(c) By creating botanical garden
(d) By developing seed bank

27. The species which is slowly disappering from our forests
(a) Tiger
(b) Monkey
(c) Dog
(d) None of these

28. An animal which became extinct a long time ago is
(a) black buck
(b) tiger
(c) dinosaurs
(d) python

Answers

1	(d)	2	(c)	3	(d)	4	(c)	5	(d)	6	(c)	7	(c)	8	(c)	9	(b)	10	(c)
11	(a)	12	(d)	13	(c)	14	(a)	15	(b)	16	(b)	17	(c)	18	(a)	19	(c)	20	(b)
21	(c)	22	(d)	23	(c)	24	(b)	25	(c)	26	(b)	27	(a)	28	(c)				