

## 19. Bio-diversity and its Conservation

### Exercise Questions

#### 1. Question

The measurement unit of the balance of any ecosystem is-

- A. Species
- B. Biodiversity
- C. Animal variety
- D. None of these

#### Answer

Species	The organisms which are <b>similar in appearance</b> , and <b>have the capability to produce offspring</b> in the natural environment.	The example of species are humans, dogs, cats, etc. <b>Similar appearance</b> provides the <b>capability to produce offspring</b> . The offspring will also have similar appearance and capability to reproduce.
Biodiversity	'bio' means life, 'diversity' means differences. Biodiversity means differences in living organisms.	Biodiversity includes all <b>species</b> and <b>differences</b> amongst them. <b>The capability of species to produce offspring gives rise to similarities and differences between organisms / biodiversity</b>

#### 2. Question

What is the rank of India according to agricultural help in the world?

- A. Eight
- B. Ninth
- C. Seventh
- D. Tenth

#### Answer

.

#### 3. Question

How many Biodiversity hotspots are there in the worlds?

A. 25

B. 20

C. 34

D. 33

**Answer**

.

25 was the number of Biodiversity hotspots in 1999.

#### **4. Question**

Which is the national aquatic animal of India?

A. Gangetic Dolphin

B. Whale

C. Star fish

D. None of these

**Answer**

In the year 2009, Gangetic dolphin was declared as our national water animal.

#### **5. Question**

Which of these Biodiversity hotspot is located in India?

A. Madagascar Island

B. East Malaysia Island

C. Indo-Burma

D. None of these

**Answer**

Indo-Burma Biodiversity hotspot is a tropic region spread over China in East Asia, India, Myanmar, Vietnam, Thailand and Malaysia

#### **6. Question**

When is international biodiversity day celebrated?

A. 21 May

B. 23 May

C. 22 May

D. 24 May

**Answer**

United Nations declared 22 May as International biodiversity day

**7. Question**

When is international biodiversity year celebrated?

A. 2012

B. 2010

C. 2011

D. 2009

**Answer**

.

**8. Question**

Today How many animal species are on the verge of extinction?

A. 8000

B. 2000

C. 2800

D. 4000

**Answer**

Today, approximately 4000 animal species and 60,000 plant species are facing the danger of extinction

**9. Question**

Which of the following creatures has been killed by the rural people due to misleading assumption?

A. Goyra

B. Godawan

C. Frog

D. DoDo

**Answer**

In rural villages of Rajasthan, it is a misconception that breath of Goyra is poisonous, so villagers try to kill it when they see it.

### 10. Question

In 1992, in Which city was the Earth Convention held?

- A. New Delhi
- B. Paris
- C. Perth
- D. Rio-di-Jeneiro

**Answer**

.

### 11. Question

Mention the three levels of biodiversity.

**Answer**

#### 1. Species Diversity

- The number of living organisms (plants and animals) found in a particular area.

#### 2. Genetic Diversity

- the variation found in different members of same species due to the genetic unit.

#### 3. Ecosystem diversity

- Created by the interaction between biotic (living) and abiotic (nonliving) components of a particular region.

### 12. Question

What percentage of available species on the earth have been identified by the scientists?

**Answer**

According to the Millennium Ecosystem assessment, there are 50 to 300 lakh species of organisms found on earth, out of which only 20 lakhs have been identified by the scientists.

### 13. Question

What is a Biodiversity hotspot?

**Answer**

The areas where large biodiversity is found are called biodiversity hotspots.

Some famous biodiversity hotspots on earth are Atlantic forest, East Malaysia Island, Northwest Mountains of China, Island of Madagascar, Middle America, Colombo Choking, Middle Chilli, eastern Himalayas, Western Ghats, Sri Lanka, Indo Burma, etc.

#### **14. Question**

Which is the national aquatic animal of India.

#### **Answer**

In 2009, the Gangetic dolphin was declared as a national aquatic animal of India.

The importance of dolphin in the river ecological system is similar to that of tiger in the forest.

#### **15. Question**

Write the names of the biodiversity hotspots of India?

#### **Answer**

Out of Biodiversity hotspots of the world, the Eastern Ghats and the Western Ghats are fully situated in India, while Indo Burma Biodiversity hotspot has only some parts of India

#### **16. Question**

Write the names of two endemic species.

#### **Answer**

1. Lion-tailed Macaque monkey is found only in the Western Ghats, India
2. Lemur Monkey is limited to Madagascar island only.

#### **17. Question**

Write the names of two endangered species?

#### **Answer**

1. Tiger
2. Cheetah

#### **18. Question**

What is the rank of India in Biodiversity of the world?

#### **Answer**

India ranks seventh amongst the diversified countries in the world. The geographical location of India enriches India with 7-8 percent of the world's

diversity.

### **19. Question**

Describe the meaning of biodiversity.

#### **Answer**

- 'Bio' means life, and 'diversity' means variety. So biodiversity means differences in the living beings found on earth.
- The living beings include plants-trees (vegetation) and animals.
- Biodiversity can also be defined as variety and variability among living organisms, and ecological complexes in which they occur.

### **20. Question**

write a short essay on biodiversity found in Eastern Himalaya Biodiversity hotspot.

#### **Answer**

- Eastern Himalaya biodiversity hotspot includes Assam, Arunachal Pradesh, Sikkim and West Bengal region.
- Area of the Biodiversity is 7,50,000 square kilometers
- 10,000 species of plants out of which 2160 are endemic
- 300 species of animals, out of which 12 are endemic
- 997 species of birds, out of which 15 are endemic
- 176 species of reptiles, out of which 15 are endemic
- 105 species of amphibians, out of which 40 are endemic
- 269 species of fishes are found, out of which 33 are endemic
- Some animals include Himalayan Tohr, golden langur, hoolock gibbon, pygmy hog, flying squirrel, snow leopard, takia, Gangetic dolphin, etc.

### **21. Question**

Which are the countries included in the Indo-Burma biodiversity hotspot?

#### **Answer**

Indo-Burma Biodiversity hotspot is a tropic region spread over China in East Asia, India, Myanmar, Vietnam, Thailand and Malaysia

### **22. Question**

How do the attacks of foreign Species affect the biodiversity?

## **Answer**

- Willing or the unwilling arrival of a foreign species threatens the existence of local species and creates an imbalance in the ecosystem

- An example of the willing arrival of foreign species is lengthened.

-It was brought by the British and was planted in the Kolkata botanical garden.

-Today, this plant is a danger for local biodiversity as it does not allow the nearby plant to grow and is not eaten by the plants.

- Another example of willing arrival is hyacinth.

-It is also called the water lily was brought to India from Brazil for its purplish flowers. The uncontrolled spreading of water hyacinth covers the water surface and restricts the sunlight from entering into the water.

-This results in the plants inside the water bodies to get destroyed, and the organisms can die to lack of oxygen.

- Example of unwilling arrival is Parthenium.

-Parthenium came in with imported wheat from America.

-Parthenium grass seed is one of the most dangerous plant weed, which is not eaten by animals. This plant contains chemicals, which cause allergy.

## **23. Question**

Explain this statement-“Exports of frog legs have adverse effects on biodiversity.”

## **Answer**

In Europe and North America, legs of frogs were used to increase the taste of the food. Many Asian Countries, Including India, used to export the legs of a frog. In the year 1983, India exported 36500 metric tonnes of frog legs. As a result, the number of frogs in the forest reduced very much, and the insects which were eaten by frog increased tremendously.

## **24. Question**

Write down the effort made at the national level for biodiversity conservation.

## **Answer**

- On considering India's commitment to international convention C.B.D (convention on biodiversity), Central Government of India passed an act in 2002, with three main objectives

(i) Conservation of biodiversity

(ii) Sustainable use of biodiversity, so that it is available for a long time

(iii) Equal distribution of benefits of country's bio resources, so that maximum person can take advantage of it.

● To achieve this goal, there are three levels of organization in biodiversity act 2002, NBA

- National Biodiversity Authority

- State Biodiversity Board

- Local Biodiversity Management Committee

● To bring environment, forest, water, air and biodiversity under a law in India, the Indian Government constituted the National Green Tribunal in the year 2010. Now under these new laws, an appeal will be launched in the National Green Tribunal, instead of the High Court. It will help resolve the dispute quick and fast.

The National Green Tribunal headquarter is established at Bhopal.

## **25. Question**

Mention the types of Biodiversity Conservation.

### **Answer**

Currently Biodiversity protection and conservation can be done in two ways

#### **1. In situ Conservation**

It works on the principle that Natural Habitats are best suitable for development and growth of an organism.

Endangered species are provided with the suitable condition and natural habitat for conservation.

#### **2. Ex Situ Conservation**

In this process of biodiversity conservation, endangered species of plants and animals are shifted from natural to artificial habitat for conservation.

## **26. Question**

Describe the different levels of biodiversity.

### **Answer**

#### **1. Species Diversity**

● Species are a group of organisms, with similar appearance and capability to produce offspring



- The number of living organisms (plants and animals) found in a particular area is called the species biodiversity of that area.
- It is the measurement unit to assess the balance in the ecosystem
- The quantity and diversity in microorganisms are maxima among all organisms.

## **2. Genetic Diversity**

- the variation found in different members of the same species due to the genetic unit.
- This variety is found among different population groups of one species, or different population group of different species, or between different members of a population.
- Genetic variation promotes the better ability for adaptation, hence fewer chances of extinction
- Due to genetic diversity (variation), new members of species are born

## **3. Ecosystem diversity**

- Created by the interaction between biotic (living) and abiotic (nonliving) components of a particular region.
- There are many ecosystems present on earth. Examples are grasslands, mountains, deserts, humid land, sea, river valley, tropics, and forests, etc.
- These ecosystems have their geographical and environmental importance, which causes variation among plants and animals.

## **27. Question**

Explain about biodiversity hotspots.

### **Answer**

- Areas, where large biodiversity is found, are called Biodiversity hotspots
- At present, there are 34 biodiversity hotspots in the world, whose total area is 2.3 percent of the total land area of the earth.
- 50 percent of the world's endemic plant species are found in these biodiversity hotspots.
- To declare any area as a biodiversity hotspot, 2 conditions need to be fulfilled

(I) more than 0.5 percent of total endemic species in the world should be present in that area. According to the number of population, there should be at least 1500 endemic species in that area

(II) 70 percent of the original residences of that area have been depleted or ruined. It means that place has been facing the difficulty of human activities in that area.

- Such areas required conservation efforts immediately, So they are declared as biodiversity hotspots, and here the conservation programs are carried out at large scale.

- In the world declared 34 biodiversity hotspots, 42% of endemic species are vertebrates, 55% of fresh water species and 50% of endemic plants species are found

- Some famous biodiversity hotspots are western Ghats, Madagascar island, east Malaysia island, northwest mountains of China, middle America, eastern Himalayas, etc

## **28. Question**

Describe the important of biodiversity.

### **Answer**

#### **Economical Value**

- Biodiversity provides us with food, fuel, fodder, timber and raw materials. We get different varieties of food, grains, paddy, fruits, and vegetables due to biodiversity.

- Biodiversity is used to increase production of agriculture to fulfill the requirements of increasing population along with the development of anti-disease and insect resistant crops

For example, oryzanivara, a forest paddy species cultivated in eastern UP had developed resistant power to disease

#### **Medicinal value**

- According to an estimate, approximately 40% of medicines are obtained from plants.

- Many incurable diseases over the time, have been cured through biodiversity

- Treatment of malignant malaria fever was found in the bark of cinchona plant

- Today the cure of epidemic disease AIDS is only possible through biodiversity, basil, Brahmins, Ashwagandha, aspharagus.

#### **Environmental value**

##### **(i) Conservation of food chain**

- Extinction Of any one species can disturb the food chain

- rich biodiversity will cause more food chains to interconnect, forming a food web

## **(ii) Nutritional cycle control**

- The micro diversity present in the soil will decompose the dead parts of plants, and animals recycle the nutrients again to the plants. The nutrient cycle is maintained this way

## **(iii) Disposal of environmental pollution**

- Some vegetation have the property to decompose and absorb the pollutants.
- For example, *catharanthus roseus* named plant has the property to decompose trinitrotoluene, a fatal explosive
- Other examples are *pseudomonas putida*, *arthrobacter viscosus* and *citrobacter* have the capacity to remove heavy from the industrial wastes.

## **Sociology cultural spiritual value**

- Even today there are some tribes, which are completely dependent on the environment to fulfill their needs.
- Some plants like *Ficus religiosa*, Banyan, mango, basil, Amla, banana even today have an important place in our culture, and they are worshipped on many occasions.
- Animals like cow, peacock, swan, rats, and elephants have an important place in our culture.
- There are still many forests, which are referred to as 'dev van' and people make efforts to conserve them.

## **29. Question**

Discuss various reason that are responsible for the loss of biodiversity.

### **Answer**

#### **1. Habitat Loss**

- Nature has decided a particular habitat for every living being, in which it increases its population, by living under the laws of nature.
- In order to fulfil the requirements and need of world's increasing population, we are destroying natural habitats, and converting them into residential and industrial area.
- Due to deforestation in Europe, 50% of fungus species has been extinct in last 60 years.

#### **2. Habitat fragmentation**

- Natural habitats of wild animals, which were previously spread across broad areas, have been fragmented by construction of roads, railways, gas pipelines, canals, electric lines, dams, which affect the natural activities of wildlife
- They feel unsafe by these activities. Many animals have died because of accidents.
- Every year about half dozen of tigers and other wild animals are victims to accidents on railway line passing through Dudhwa National Park.

### **3. Climate change**

- Due to human activities, the greenhouse gases are significantly rising, increasing the Earth's temperature.
- Due to increase in Earth's temperature, the ice poles are melting and the sea levels are rising.
- This has an adverse effect on marine biological diversity
- According to a research, if Earth's temperature rises by 3.5°, 70% of world's species will be extinct.

### **4. Environmental pollution**

- Due to the adverse effects of industrial pollution, many plants and animals are destroyed by industrial waste on polluted land and water.
- Many micro organisms and vegetation are destroyed by acid rain due to excessive air pollution

### **5. Over exploitation of natural resources**

- The use of natural resources for local needs is not harmful. However, human has exploited excessive and uncontrolled use of trees and other living organisms for commercial benefits.
- This has threatened the existence of many species.
- In Europe and North America, legs of frogs were used to increase the taste of the food. Many Asian countries, including India, used to export the legs of frog
- In the year 1983, India exported 36500 metric tonnes of frog legs. As a result, the number of frogs in the forest reduced very much, and the insects which were eaten by frog increased tremendously.

### **6. Commercial practices in agriculture and forestry**

- Before green revolution farmers used to produce various varieties of cereal fruits and vegetables in their fields and used to keep a cattle of a different breed.

- But in the greed of more production during a short time, the farmers now grow hybrid varieties of crop and keep hybrid cattle. This is causing the destruction of biodiversity.
- It is dangerous for the future, because if any epidemic condition arises, then all crops will be eliminated, and there will be death because of hunger
- Likewise, forests of same species are being destroyed, by cutting natural forests for paper, timber, match box, and one species are growing fast, thereby decreasing biodiversity.

## **7. Invasion of foreign species**

- Willing or the unwilling arrival of a foreign species threatens the existence of local species and creates an imbalance in the ecosystem
- An example of the willing arrival of foreign species is lengthened. It was brought by the British and was planted in the Kolkata botanical garden. today, this plant is a danger for local biodiversity as it does not allow the nearby plant to grow and is not eaten by the plants.
- Another example of willing arrival is hyacinth. It is also called the water lily was brought to India from Brazil for its purplish flowers. The uncontrolled spreading of water hyacinth covers the water surface and restricts the sunlight from entering into the water. This results in the plants inside the water bodies to get destroyed, and the organisms can die to lack of oxygen.
- An example of unwilling arrival is Parthenium. It came in with imported wheat from America. Parthenium grass seed is one of the most dangerous plant weed, which is not eaten by animals. This plant contains chemicals, which cause allergy.

## **8. Superstition and ignorance**

- In gagroni, parrots are caught in large numbers, hence they are near to extinct.
- Godawan bird is known to enhance sex power, so it's large hunting has caused it to be an endangered species.

## **30. Question**

Write a note on efforts for the conservation of biodiversity.

### **Answer**

#### **National Efforts**

- On considering India's commitment to international convention C.B.D (convention on biodiversity), Central Government of India passed an act in 2002, with three main objectives

(iv) Conservation of biodiversity

(v) Sustainable use of biodiversity, so that it is available for a long time

(vi) Equal distribution of benefits of country's bio resources, so that maximum person can take advantage of it.

● To achieve this goal, there are three levels of organization in biodiversity act 2002, NBA

- National Biodiversity Authority

- State Biodiversity Board

- Local Biodiversity Management Committee

● To bring environment, forest, water, air and biodiversity under a law in India, the Indian Government constituted the National Green Tribunal in the year 2010. Now under these new laws, an appeal will be launched in the National Green Tribunal, instead of the High Court. It will help resolve the dispute quick and fast.

The National Green Tribunal headquarter is established at Bhopal.

### **International efforts**

● In the year 1973, IUCN organized a convention of international trade in endangered species, which gave their consent to protect the endangered species.

● In the year 1992, in the Rio-di-Janeiro, city of Brazil, in earth convention, CBD convention of Biodiversity came into existence, which has been accepted by 193 countries.

### **In situ and ex situ conservation**