

Name of the student: *Date:* 05/10/2020

Biodiversity:

Biodiversity is the variety and variability of life on Earth.

Biodiversity can be categorized into three main types. They are—

1) Species diversity

Species diversity refers to the variety of different types of species found in a particular area.

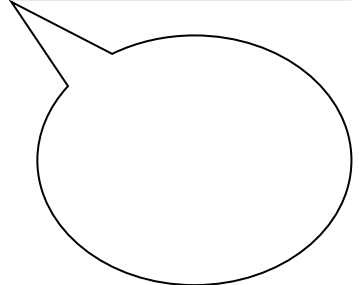
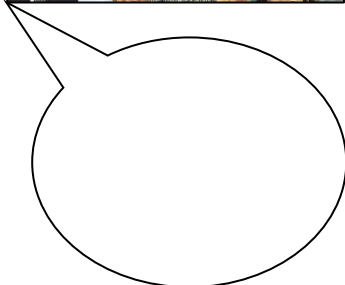
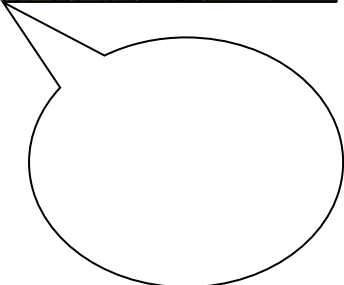
2) Genetic diversity

Genetic variability among the members of any plant or animal species is known as genetic diversity.

3) Ecological diversity

Ecological biodiversity refers to the variations in the plant and animal species living together and connected by food chains and food webs.

Q. What type of diversity do the following images indicate?



Loss of Biodiversity

Loss of biodiversity is the decrease in the number of a particular species in a certain habitat. Loss of biodiversity also leads to the extinction of the plant and animal species and this loss can be either reversible or permanent.

Causes of Loss of Biodiversity

Some of the major causes that have resulted in the loss of biodiversity are mentioned below:

1. The natural habitat of the ecosystem plays a major role in maintaining the ecological balance. Several trees are cut down every year for the construction of industries, highways, settlements and so on to fulfill the human demands. As a result, the species become the target of predation and eventually dies.
2. Hunting of the wild animals for commercialization of their products has been a major reason for the loss of biodiversity.
3. The exploitation of the medicinal plants for several laboratory purposes has resulted in the extinction of these species. Also, several animals are sacrificed for various research in science and medicine.
4. Natural calamities like floods, earthquakes, forest fires also lead to the loss of biodiversity.
5. Air pollution has a major role in the loss of biodiversity. Rapid cutting down of the trees has resulted in the increase of carbon dioxide in the atmosphere leading to climate change. As a result, there has been an increase in the land and ocean temperature leaving an inimical impact on species.

Q. Write the name of five extinct animals of Bangladesh with causes of their extinction.



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Importance of Biodiversity

Biodiversity plays a major role in maintaining the ecological balance of the ecosystem. It refers to the number of different species belonging to a particular region. In biodiversity, each species has a major role to play in the ecosystem.

Ecological Role of Biodiversity

Apart from providing ecological balance to the environment, each species of biodiversity has a major function to play in the ecosystem. They play a major role in the production and decomposition of organic wastes, fixing atmospheric gases, and regulation of water and nutrients throughout the ecosystem. The stability of the ecosystem increases with the diversity of the species.

Economical Role of Biodiversity

Biodiversity acts as a source of energy and has a major role in providing raw materials for industrial products such as oils, lubricants, perfumes, dyes, paper, waxes, rubber, etc. The importance of plant species for various medicinal use has been known for ages. According to reports, more than 70 % of the anti-cancer drugs are derived from plants in the tropical rainforests.

Scientific Role of Biodiversity

Each species of the ecosystem contributes to providing enough evidence as to how life evolved on this planet and the role of each species in maintaining the sustainability of the ecosystem.

Ethical Importance

All the species have a right to exist. Humans should not cause their voluntary extinction. Biodiversity preserves different cultures and spiritual heritage. Therefore, it is very important to conserve biodiversity.

Biodiversity Conservation

Biodiversity conservation refers to the protection, upliftment and management of biodiversity in order to derive sustainable benefits for present and future generations.

Biodiversity and its Conservation Methods

Biodiversity refers to the variability of life on earth. It can be conserved in the following ways:

1. In-situ Conservation
2. Ex-situ Conservation

In-situ Conservation

In-situ conservation of biodiversity is the conservation of species within their natural habitat. In this method, the natural ecosystem is maintained and protected.

In-situ conservation of Biodiversity includes biosphere reserves, national parks, wildlife sanctuaries, etc.

The in-situ conservation has several advantages. Following are the important advantages of in-situ conservation:

- 1) It is a cost-effective and a convenient method of conserving biodiversity.
- 2) A large number of living organisms can be conserved simultaneously.
- 3) Since the organisms are in a natural ecosystem, they can evolve better and can easily adjust to different environmental conditions.

Ex-situ Conservation

It is the methods of conserving all the living species in the artificial habitats that reflect their natural living habitats. Ex-situ Conservation of Biodiversity comprises of aquariums, botanical gardens, Cryopreservation (preservation of cells & tissue), DNA banks, zoos, etc.

There is less competition for food, water and space among the organisms.

Ex-situ conservation has the following advantages:

- 1) The animals are provided with a longer time and breeding activity.
- 2) The species bred in captivity can be reintroduced in the wild.
- 3) Genetic techniques can be used for the preservation of endangered species.

Q. Write down three differences between in-situ and ex-situ conservation.



In-situ	Ex-situ

