BIODIVERSITY

Introduction:

It means variability among living organisms or in other words, it is the variety and variability of life on earth. It is the measure of variation at the genetic, species and ecosystem level. Biodiversity includes not only species we consider rare, threatened, or endangered but also every living things from humans to organisms we know little about such as microbes, fungi and invertebrates. It is the most complex and important feature of our planet.

Definition: Biodiversity (biological diversity) refers to the variety of life forms on Earth, including the diversity within species, between species, and of ecosystems.

Types of Biodiversity:

- **Genetic Diversity:**
  Variability in the genetic makeup among individuals within a species.
  Example: Different breeds of dogs or varieties of rice.
- **Species Diversity:**
  Variety of species within a region or ecosystem.
  Example: Tigers, oak trees, butterflies, etc.
- **Ecosystem Diversity:**
  Diversity of ecosystems like forests, deserts, wetlands, etc

Importance of Biodiversity:

- **Ecological Balance:** Supports ecosystem functions like pollination, nutrient cycling, and food chains.
- **Economic Value:** Provides resources like food, medicine, and raw materials.
- **Cultural Significance:** Many cultures and traditions depend on biodiversity.
- **Scientific Research:** Source of genetic material and new discoveries.

Threats to Biodiversity

- Increasing population of human being has put an immense amount of pressure on the plant. Having more people means more resources needed like land, water and food, which will lead to loss of biodiversity.
- Habitat loss or degradation is the other threat. This happens when an area that was once used as a habitat is no longer inhabited by natural. Due to deforestation, mining agriculture and industrial activities, habitat space of wild life and plants are removed.
- Sometime invasive species threaten and often outcompete the plants and animals already present in a habitat and creates a loss in biodiversity.

Biodiversity Conservation

1. In-situ Conservation (within natural habitats)

- Protects species in their natural environment

Ex. National parks

- Wildlife sanctuaries
- Biosphere reserves

2. Ex-situ Conservation (outside natural habitats)

- Conserves endangered species by removing part of the population from a threatened habitat.
  - Zoos
  - Botanical gardens
  - Seed banks
  - Gene banks

3. Create protected areas **(national parks, wildlife sanctuaries)**

4. Afforestation **(planting trees)**

5. Use of renewable resources

6. Reduce, Reuse, Recycle

7. Environmental **laws** and awareness campaigns