Conservation of Biodiversity

1 Mark Questions

1.Write the importance of cryopreservation in conservation of biodiversity. [Delhi 2011]

Ans. Gametes of threatened species can be preserved in viable and fertile conditions for long periods by cryopreservation.

2.Mention one application of pollen bank. How are pollen stored in a bank? [Delhi 2008C]

Ans. Pollen banks can be used to store pollen grains like seed banks. Stored pollen grains can be used in pollen breeding programmes. Pollen grains can be stored in liquid nitrogen -196°C for many years.

2 Marks Questions

3. State the uses of biodiversity in modern agriculture. [All India 2011]

Ans. Uses of biodiversity in modern agriculture are:

(i) Humans obtain food, fibres, medicines and many industrial products from plants.

(ii) Wild varieties of plants are used for breeding to obtain disease and pest resistant crops with many desirable traits.

(iii) By exploring molecular, genetic and species level diversity for economically important products, rich biodiversity can be obtained.

4. Differentiate between insitu and exsitu approaches of conservation of biodiversity. [All India 2011]

Ans. Differences between in situ and ex situ approaches of conservation of biodiversity are:

***In situ* conservation**	***Ex situ* conservation**
This method involves protection of endangered species in their natural habitat.	It involves placing of threatened animals and plants in special care unit for their protection.
It helps in recovering populations in the surroundings where they have developed their distinct features.	It helps in recovering populations or preventing their extinction under stimulated conditions that closely resemble their natural habitats.
e.g. national parks, biosphere reserves, wildlife sanctuaries, etc.	e.g. botanical garden, zoological parks.

5. Biodiversity must be conserved as it plays an important role in many ecosystem services that nature provides. Explain any two services of the ecosystem. [Delhi 2010]

Ans. The two ecosystem services are:

(i) Forest ecosystem, mitigates droughts and floods.

(ii) The wildlife help in pollination of crops.

6. Why certain region have been declared as biodiversity hot spots by environmentalists of the world? Name any two hot spot regions of India. [Delhi 2010]

Ans. Certain regions are declared hot spots by the environmentalists because these regions have very high levels of species richness and high degree of endemism. Hot spots of India are Western Ghats and Sri Lanka, Himalayas and Indo-Burma

3 Marks Questions

7. There are many animals that have become extinct in the wild but continue to be maintained in zoological parks. '

- **What type of biodiversity conservation is observed in this case?**
- **Explain any other two ways which help this type of conservation. [Delhi 2014]**

Ans. (i) The animals maintained in zoological parks is an example of ex situ conservation, as it involves threatened animals in special conditions, away from natural habitat, in order to protect them.

(ii) The other ways of maintaining the endangered animals or species by ex situ conservation are botanical gardens and wildlife safari parks.

8. White Bengal tigers are protected in special settings in zoological parks. Tiger reserves are maintained in Western Ghats.

- **How do these two approaches differ from each other? Mention the advantages of each one.**
- **What is the significance of cryopreservation technique? [All India 2010C]**

Ans. White Bengal tigers are protected in special settings in zoological parks. This is called ex situ conservation, while tiger reserves are maintained in Western Ghats. This is called in situ

(i) For differences between two approaches, i.e. in situ conservation and ex situ conservation and their advantages.

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(ii) Using cryopreservation technique:

- Gametes of threatened species can be preserved in viable and fertile conditions for long.
- Plants are propagated by tissue culture method.
- Eggs can be fertilised in vitro.

5 Marks Questions

9. (i) Why is there a need to conserve biodiversity?

(ii) Name and explain any two ways that are responsible for the loss of biodiversity. [All India 2014]

Ans.(i) The biodiversity needs to be conserved because of three categories: .

- **Narrow utilarian** includes most of the resources required for our day-io-day life, e.g. food, oil, clothes, firewood, drugs and medicines, industrial products all are derived from nature, thus needs to be conserved to reap more benefits.
- **Broadly utilarian** includes most of the ecosystem services provided to us by nature. Such as release of oxygen and fixation of $C0_2$ by photosynthesis in plants, pollination and dispersal of seeds, etc. Therefore, for the continuation of these services biodiversity needs to be conserved.
- **Ethical reasons** as it becomes our moral duty to take care of all living species in our surroundings irrespective of their economic importance and pass this biological legacy to our future generations.

(ii) The two ways that are responsible for the loss of biodiversity are:

- Habitat loss and fragmentation of natural habitats due to the natural reasons or human activities and pollution results in degradation of habitats, thereby threatening the survival of many species concerned.

- **Co-extinction** also leads to loss of biodiversity as when a species becomes extinct, the plant and animal species associated with it in obligatory way also become extinct, e.g. when a host organism (fish) becomes extinct, the parasites exclusive to it also becomes extinct

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(ii) Hot spots are regions exhibiting high degree of endemism and great species richness, therefore designating these areas as 'biodiversity hot spots' allows their maximum protection and reduce the ongoing extinction by about 30%.

Such hot spot regions in India are Western Ghats and Himalayas.