

# Important Questions for Class 12 Biology Biodiversity and Conservation **Answers at the Bottom**

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## Ch-13 Biodiversity and Conservation

1. Buffer zone in biosphere reserve is zero for
  1. Forestry
  2. Agriculture
  3. Tourism and restoration
  4. Research and education
2. Indeterminate species are those species which are in danger but
  1. Are less in number.
  2. Are not reproducing in current habitat.
  3. Reason of extinction is known.
  4. Reason of extinction is not known.
3. The extent to which numbers of different species are equal or skewed will refer to:
  1. Species evenness & relative abundance
  2. only relative abundance
  3. Species richness & species evenness
  4. Species evenness only
4. Match the following:

Ecologist	Contribution
a) Edward Wilson	i) estimated global species diversity
b) Paul Ehrlich	ii) term biodiversity
c) A.V.Humboldt	iii) Rivet Popper Hypothesis
d) Robert May	iv) relation b/w species richness & explored area

1. a)-ii, b)-iii, c)-iv, d)-i
  2. a)-ii, b)-i, c)-iv, d)-iii
  3. a)-iv, b)-i, c)-ii, d)-iii
  4. a)-ii, b)-iii, c)-ii, d)-iv
5. Diversity can be promoted by:
    1. Fugitive species
    2. Pioneer species
    3. Recessive species
    4. Dominant species
  6. Name the two most diversity rich zones of India.
  7. About 200 species of cichlid fish became extinct when a particular fish was introduced in Lake Victoria of Africa. Name the invasive fish.

8. Animals are not essential in an ecosystem. Justify.
9. What is red list? Give two uses of red list.
10. Name the three important components of biodiversity.
11. Define biodiversity. Name the two most biodiversity rich zones of India.
12. What does the term genetic diversity refer to? What is the significance of large genetic diversity in a population?
13. Why are
  - (i) alien species invasion and
  - (ii) loss of habitat and fragmentation considered to be the major cause of loss of biodiversity? Explain with the help of one example each.
14. You find that a lake in your neighboring area has been covered by Water hyacinth. You have contacted your friends to remove this weed. Nobody agrees to support you. How will you explain the necessity of this?
15. What is the significance of the slope of regression in a species area relationship?

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#### Answer

1.
  - d. Research and education, **Explanation:** Buffer zone is managed to accommodate variety of resources for restoration of degraded ecosystems and habitats, conservation of genetic resources, species and ecosystem and monitoring of development and conservation programme. It is mainly for research and education.
2.
  - d. Reason of extinction is not known, **Explanation:** Indeterminate species that are susceptible to being in danger, but reason of extinction is not known and we do not have enough information to place them in another category. For example- short eared rabbit of Sumatra and Mexican Prairie Dog.
3.
  - a. Species evenness & relative abundance, **Explanation:** The extent to which numbers of different species are equal or skewed well refer to species evenness or relative abundance. Species evenness or relative abundance depends upon availability of natural resources essential for organisms.

4.
  - a. a)-ii, b)-iii, c)-iv, d)-i, **Explanation:** Edward Wilson coined the term biodiversity. Paul Ehrlich proposed Rivet Popper Hypothesis. A.V. Humboldt shows relation between species richness and explored area. Robert May estimated global species diversity.
5.
  - d. Dominant species, **Explanation:** The species that predominates in an ecological community, particularly when they are most numerous or form the bulk of the biomass. Diversity can be promoted by dominant species. Dominant species of an ecosystem determine the way of diversity which may be linear or diverse.
6. The two biodiversity hotspots or rich zones are:
  - (a) Western Ghats
  - (b) Eastern Himalayas
7. Nile Perch. Introduction of this large predator fish in the lake caused the extinction of the native fish.
8. Because producer-decomposer food chains can keep an ecosystem self sufficient and viable.<
9. IUCN maintains a red data book or red list which is a catalogue of taxa facing risk of extinction. It aims to convey the urgency of conserving threatened species to the public and policy makers so as to reduce species extinction.  
**Uses:**
  - (i) Identification and documentation of endangered species of plants and animals.
  - (ii) Creating awareness about importance of preserving the threatened biodiversity.
10. The three important components of biodiversity are:
  1. Genetic diversity
  2. Species diversity
  3. Ecosystem diversity
11. Biodiversity is the occurrence of different types of ecosystems, different species of organisms with the whole range of their variants (biotypes) and genes along with their interactions and processes. This term was coined by Edward Wilson.  
Two biodiversity rich zones of India are:
  - Western Ghats
  - North East region.
12. The term genetic diversity refers to the diversity of genes within a species.  
It is important for the following reasons:
  - (i) Greater the genetic diversity among organisms of a species, the more chances it has in surviving environmental perturbations.
  - (ii) Species with higher genetic variations tend to be more resistant to diseases. They also show greater adaptability to changing environmental conditions. On the other hand, genetically uniform populations are highly prone to diseases and harsh environment.

13. (i) The alien species become invasive and cause a decline or extinction of indigenous species.

e.g. the Nile Perch introduced into Lake Victoria in east Africa led to the extinction of more than 200 species of Cichlid fish in the lake.

(ii) Habitat loss and fragmentation deprive the organisms of their natural home and hence leads to their extinction.

When large habitats are broken up into small fragments, mammals and birds which require large territories and certain animals with migratory habits are seriously affected. This leads to decline in their population.

e.g. When the Amazon forest is cut and cleared for conversion into grasslands, many species are affected due to destruction of their habitat.<

14. Friends should be explained how water hyacinth can damage the ecosystem of the lake and harm the environment. Excessive growth of such aquatic weeds cause ageing of a lake by mineral enrichment of water (eutrophication) which is harmful to aquatic life.

### Values

- Problem solving
- Critical thinking
- Responsibility
- Concern for others

15. Alexander Von Humboldt observed that within a region species richness increased with increase in explored area, but only up to certain limit. This relationship between species richness and area is a rectangular hyperbola for a large variety of taxa such as angiosperm plants, birds, bats and freshwater fishes.

On a logarithmic scale, the relationship is a straight line which can be described by following equation:

$$\log S = \log C + Z \log A$$

where S = species richness

Z = slope of line (regression coefficient)

C = Y-intercept

A = Area

Z is generally 0.1-0.2 regardless of taxonomic group or region i.e. when analysis of species area relationship is done among small areas, the values of slopes of regression are remarkably similar regardless of the taxonomic group or the region. If analysis of species area relationship is done among very large areas like a whole continent, the slope of regression line would be much steeper. In such cases, the Z values occur in the range of 0.6 to 1.2