



Blue Print (As per PU Board)

Topic	1 mark questions	2 marks questions	3 marks questions	5 marks questions	Total Marks
Biodiversity and Conservation	3	2	-	3	22

One mark questions

- Name the process that plays a major role in causing genetic diversity** (1 mark)
Answer: The process of crossing over during meiosis
- What are alien species?** (1 mark)
Answer: These species are exotic species. That are introduced from a foreign country.
- How is the sacred grove important in conservation of biodiversity?** (1 mark)
Answer: Trees & wild life can be protected

Two marks questions

- “India is rich in genetic diversity” Justify this statement by giving two examples** (2 marks)
Answer: The genetic variation shown by the medicinal plant Rauwolfia vomitoria
1. India has more than 50,000 genetically different strains of rice
2. India has more than 1,000 varieties of mango
- What are Alien species invasions? Explain with a suitable example** (2 marks)
Answer: The intentional or non-intentional introduction of species from outside into an area, where they turn invasive & cause decline & depletion of native species is called alien species invasions.
Eg:- The Nile perch introduced to Lake Victoria in Africa caused the extinction of more than 200 species of cichlid fishes.
- Write a note on MAB programme** (2 marks)
Answer: Man & biosphere programme (MAB) is an international biological programme of UNESCO (United Nations Educational Scientific & Cultural Organisation) which was started in 1971 but was introduced in India in 1986. MAB has studied human environment input of human interference & pollution on biotic & abiotic environment & Conservation strategies for the present as well as the future

Three marks questions

- What is the importance of species diversity to ecosystems?** (Any 3 carries- 3marks)
Answer: importance of species diversity to ecosystem are followed:-
1. stability:-
Biodiversity is essential for stability of an ecosystem. Communities with more species tend to be more stable than those with less species as it is able to resist occasional disturbance & resist invasive species.
2. productivity:- Ecosystems with higher biodiversity like tropical forest are more productive than ecosystem with lower biodiversity. i.e. temperate forest
Experiments of David Tilman have confirmed that increased diversity contributes to higher productivity.
3. Ecosystem health:-
Biodiversity is essential for maintenance & health of ecosystem through the occurrence of various checks, controls, negative & positive feed backs & keystone species.
- Define the terms**
a) **Bioprospecting**
b) **Natural parks (NP)**
c) **Sanctuaries**



Answer:

(a) Bioprospecting:-

Exploring molecular, genetic & species level biodiversity for products of economic importance
(1 mark)

(b) Natural parks (NP):-

These are areas reserved for wildlife & include plantations, cultivation grazing filling of trees & habitat changes are prohibited.

Eg:- Kaziranga & Manas (1 mark)

(c) Sanctuaries:-

These are large areas of land where animals are protected from exploitation habitat disturbance, collection of minor forest products harvesting of timber & wood cultivation allowed without affecting wild life. (1 mark)

9. **Write a note on "Rivet popper hypothesis"** (3 marks)

Answer: Ecologist Raul enrich has proposed a "Rivet popper hypothesis" for the effect of decrease in biodiversity on the ecosystem.

No species occurs in isolation. Rather all the species are interlinked through various types of relationships killing or disappearance of even a few species may have a destabilizing effect.

Paul ehrich states this hypothesis, by comparing an aeroplane to an ecosystem & the rivets to species, removing one rivet will not effect the flight safety i.e function of ecosystem initially, but as more & more rivets are removed the plane becomes dangerously weak over a period of time. From which place the rivets are removed is also important. Removal of rivets from the wings (key species that drives major ecosystem function J is more a serious threat to flight safety, than other areas.

Thus, the Rivet popper hypothesis says that the ecosystem function is maintained by species diversity & that loss of species will at some point result in the loss of ecosystem function

Five marks questions

10. **What is biodiversity? Describe its types, citing example for each**

Answer: Biodiversity is defined as the "totality of genes, species & ecosystems of a given region" (2 marks)

There are three types of biodiversity:-

1) Genetic diversity:-

It is the diversity of genes within a species.

Eg:- India has more than 50,000 genetically different strains of rice. (1 mark)

2) Species diversity:-

It is the diversity among species in an ecosystem.

Eg:- Western Ghats have greater amphibian diversity than eastern Ghats. (1 mark)

3) Ecosystem diversity:-

It is the diversity of ecosystems on earth.

Eg:- India with its deserts, wetlands estuaries has greater ecosystem diversity than Scandinavian country like Norway. (1 mark)

11. **What is conservation of biodiversity? Give a brief account of the various approaches as a strategy for conservation of biodiversity?**

Answer: Conservation is the scientific management, preservation & restoration of earth's physical & biological resources. (2 marks)

There are two main approaches of biodiversity conservation:- (1.5 mark)

1) In situ conservation (on site conservation):-

This is a conservation strategy where endangered species are protected within their natural habitat so that entire ecosystem is protected.

a) National parks:-

These are the protected areas covering thousands of square kilometres in which endangered animals are protected. Presently there are 90 national parks in India.



b) Wild life Sanctuaries:-

These are the protected natural habitats covering few hundreds of square kilometres. Where specific threatened species are well protected, Presently India has 448 sanctuaries.

c) It is a legally protected area for the whole ecosystem where one or more endangered species are protected.

India has 14 biosphere reserves.

Eg:- Nilagiri biosphere reserves (TamilNadu, Karnataka & Kerala)

d) Sacred Grooves:-

These are tracts of forests protected by local tribal communities.

Eg:- Khasi & Jaintia hills in Meghalaya

(1.5 mark)

2) Ex-sites (off-site conservation) conservation strategies:-

It is the protection of threatened animals & plants away from their natural habitat.

a) Botanical gardens:-

These are the collection of variety of living plants allowed to perpetuate, they have seed gene bank, tissue culture labs & other technologies for storing & growing of germplasm.

b) Zoological parks:-

These are the places where wild animals are protected in conditions similar to their natural habitat, they have facilities for breeding animals to avoid their extinction.

c) Seed banks:-

Seeds of different genetic strains of commercially important plants can be kept for long periods.

d) Cryopreservation:-

It is preservation of gametes of threatened species in viable & fertile conditions for future use.

(1.5 mark)

12. Write a note on Biogeographic regions of India

(5 marks)

Answer: India is one of the twelve mega diversity regions of the world with 8.2% of genetic resources of the world wildlife institute of India has divided the country into ten biogeographical regions.

- | | |
|------------------------------|-----------------------|
| 1. Trans- Himalayan regions. | 2. Himalayas |
| 3. Desert | 4. Semi arid regions. |
| 5. Western Ghats | 6. Deccan Peninsula |
| 7. Gangetic plain | 8. North east regions |
| 9. Coastal areas | 10. Islands |

The largest bio-geographical region is Deccan peninsula which occupies 42% land mass of the country. The most biodiversity rich regions are western Ghats & North East Trans Himalayan are a cold desert with sparse vegetation. It has a rich community of Goat & wild sheep besides snow leopards.

North-east & western Ghats have a wild relatives of a number of cultivated plants like Banana, Citrus, mango, pepper etc. Very good evergreen forests occur in islands of Andaman Nicobar & Lakshadweep. Mangrove vegetation is found in swamps along the coasts.

Eg:- Sunder bans, Ratnagiri & pichavaram 33% flowering plants, 10% of mammals, 36% reptiles, 60% amphibians & 53% fresh water fish are endemic most of the endemics occurs in North-east, North-west, western Ghats, Andaman Nicobar islands. Western Ghats possess a very large number of endemic amphibian species.