Chapter 14: Biodiversity and Conservation

Exercises — Exercises

Q1 Multiple choice. (i) Conservation of biodiversity is important for: (a) Animals (b) Animals and plants (c) Plants (d) All organisms

(d) All organisms. All forms of life are closely interlinked, so disturbance in one group unbalances the others; conserving biodiversity therefore benefits every organism, including humans.

Q2 Multiple choice. (ii) Threatened species are those which: (a) threaten others (b) Lion and tiger (c) are abundant in number (d) are suffering from the danger of extinction

(d) are suffering from the danger of extinction. The IUCN groups threatened species as endangered, vulnerable and rare, all of which face risk of disappearing; they are not necessarily harmful to others or limited to lions and tigers.

Q3 Multiple choice. (iii) National parks and sanctuaries are established for the purpose of: (a) Recreation (b) Hunting (c) Pets (d) Conservation

(d) Conservation. Under the Wild Life (Protection) Act, 1972, national parks and sanctuaries were set up to protect, preserve and propagate the variety of species within natural boundaries.

Q4 Multiple choice. (iv) Biodiversity is richer in: (a) Tropical Regions (b) Polar Regions (c) Temperate Regions (d) Oceans

(a) Tropical Regions. Biodiversity is consistently richer in the tropics, while towards the poles one finds larger populations of fewer and fewer species. Tropical forests alone hold about 50 per cent of the earth's species.

Q5 Multiple choice. (v) In which one of the following countries was the 'Earth Summit' held? (a) the UK (b) Mexico (c) Brazil (d) China

(c) Brazil. The Earth Summit was held at Rio de Janeiro, Brazil, in June 1992, where India and 155 other nations signed the Convention on Biodiversity.

Q6 Answer in about 30 words. (i) What is biodiversity?

Biodiversity (bio = life, diversity = variety) is the number and variety of organisms in a specified geographic region. It covers plants, animals and micro-organisms, their genes, and the ecosystems they form, including variability within and between species.

Q7 Answer in about 30 words. (ii) What are the different levels of biodiversity?

Biodiversity is discussed at three levels: genetic diversity (variation of genes within a species), species diversity (the variety of species in an area), and ecosystem diversity (the variety of habitats, communities and ecological processes).

Q8 Answer in about 30 words. (iii) What do you understand by 'hotspots'?

Hotspots are areas especially rich in species diversity and most vulnerable to loss. The IUCN identifies them mainly by their vegetation, so that conservation resources can be concentrated on these threatened areas.

Q9 Answer in about 30 words. (iv) Discuss briefly the importance of animals to humankind.

Animals supply economic commodities such as food, livestock products, fish and medicinal resources. They also perform ecological functions in ecosystems, help cycle nutrients, and each species offers scientific clues about how life evolves and functions.

Q10 Answer in about 30 words. (v) What do you understand by 'exotic species'?

Exotic species are those that are not natural inhabitants of a local habitat but have been introduced into it. Their introduction has often seriously damaged the native biotic community of the ecosystem.

Q11 Answer in about 150 words. (i) What are the roles played by biodiversity in the shaping of nature?

Biodiversity plays ecological, economic and scientific roles. Ecologically, species perform functions in ecosystems: they capture and store energy, produce and decompose organic material, help cycle water and nutrients, fix atmospheric gases and help regulate climate. The more diverse an ecosystem, the better its species can survive adversity and attack, the more productive and stable it is, and the better it can adapt to environmental change; loss of species reduces its ability to sustain itself. Economically, biodiversity is a reservoir of resources for food, pharmaceutical and cosmetic products, including crop diversity (agro-biodiversity), livestock, forests, fish and medicinal resources. Scientifically, each species gives clues about how life evolved and will continue to evolve, and helps us understand how life functions and what role each species plays in sustaining ecosystems. Ethically, every species has an intrinsic right to exist, so causing extinction is morally wrong, and biodiversity is a good indicator of how we relate to other living species.

Q12 Answer in about 150 words. (ii) What are the major factors that are responsible for the loss of biodiversity? What steps are needed to prevent them?

Major causes of loss: growing human population raising consumption of natural resources; over-exploitation and deforestation, destroying habitats especially in tropical rain forests, which hold about 50 per cent of species; natural calamities such as earthquakes, floods, volcanic eruptions, forest fires and droughts; pesticides and pollutants such as hydrocarbons and toxic heavy metals that destroy weak, sensitive species; introduction of exotic species; and poaching of tigers, elephants, rhinoceros, crocodiles and others for horns, tusks and hides. Steps to prevent loss: preserve endangered species; plan and manage to prevent extinction; preserve food crops, forage plants, timber trees, livestock and their wild relatives; protect habitats of wild relatives and the places where species feed, breed, rest and nurse young; regulate international trade in wild plants and animals; enforce laws like the Wild Life (Protection) Act, 1972 with national parks, sanctuaries and biosphere reserves; educate people toward sustainable practices; and involve local communities and institutions.