Unit-6

Lesson - 21

Biodiversity

Concept of biosphere

All the palces on the earth where life is present in one form or the other are included in Biosphere. On the basis of the scientific information received so far, it can be said that the conditions that supports life are found only on the earth. Although the various forms of life on the earth are found from the maximum depths of the oceans to the highest mountain peaks but in fact, the most influential life forms are found only up to a few meters of height or depth from the earth's surface.

Organisms from microscopic protozoa to giant whales, from microscopic lichen, to huge trees , all are part of biodiversity which is available on earth. This biodiversity is the result of constant process of earth's development. All the living organisms found on earth are dependent on available food sources in that environment, which provide them the energy and nutrition. This energy and nutrition are transferred constantly from one consumer level to the other. Biosphere is also called Biosystem as there is constant cyclic process of movement of energy and nutrition.

Biosphere is the result of mutually complex actions of organic (biotic) and inorganic (abiotic) elements found on the earth. Ecological science studies these mutually complex processes between biotic and abiotic actions and reactions. All biotic elements are sensitive to the changes in environment and most of their activities are towards findings suitable ecological environment and maintaining distance from un-suitable stimulations. Thus, all organisms are adaptive to environment. The adaptations of organisms are of two types:

1. Inherited
2. Acquired

Inherited adaptation is obtained from birth as sense organs, while acquired adaptation are produced as a response to any special stimulation. For example, the production of antibiotics for protection against disease.

In the same way, in addition to organisms' response to environmental changes, organisms have ability of adjustment to the environment. This results in their existence and equilibrium of biosphere.

Structure of Biosphere:

The study of structure of biosphere can be done on the basis of lithosphere, hydrosphere, and atmosphere as follows:

(a) Lithosphere:

Lithosphere is the solid portion of the earth that covers 29.2% part of earth in the form of continents and islands. The upper layer of this is formed of unorganized soil and rocks are found beneath this layer. From the perspective of biosphere, the upper layer of the surface of the earth is important because all forms of organisms receive nutrition from the soil found on lithosphere.

(b) Hydrosphere:

About 70.8% of the whole earth is covered by oceans. If we add rivers, ponds, and other sources of water, about 72% of earth's surface is covered with water, which is called as hydrosphere. Water is the most important need of organisms after oxygen, hence water is also called as life. The required

oxygen and hydrogen by the body is met by water. According to an estimate, about 1360 million cubic kilometre of water is available on the surface of the earth, out of which 97% i.e. 1320 million cubic kilometre of water is present in oceans and remaining 30 million cubic kilometres is in the form of ice and remaining less than 1 percent is available in the form of groundwater. The water present on the surface of the earth is transformed in a cyclic process and again by in the process of condensation, it comes down in the form of rain on the earth.

(c) Atmosphere:

The layer of gases that surrounds the earth from all the directions, is called atmosphere. This atmosphere extends for thousands of kilometres height over the earth's surface. It has many types of gases, water vapour and dust particles mixed in it. The mixture of these elements is not uniform everywhere. It changes with altitude, latitude, and weather conditions. Troposphere, the lowest layer of atmosphere; has uniform average percentage of gases except water vapour and dust particles because circulating nature of gases, air masses and winds help in maintaining its average.

Nitrogen (78%) and oxygen (21%) constitute the largest quantities of gases in atmosphere. In the remaining 1% constitutes Carbon dioxide, Neon, Argon, and Ozone are included.

Various investigations have suggested that there is difference in average percentage of atmospheric gases in troposphere up to the height of 50 kilometres. Heavy and dense gas like carbon dioxide is found only up to the height of 20 kilometres. At the height of 140 kilometres, the oxygen and nitrogen gases are also reduced to negligible amount. Hydrogen, is the only significant gas, found above the height of 150 kilometres in the atmosphere.

Oxygen is necessary for respiration of organisms while carbon dioxide is very important for the process of photosynthesis in plants. All the organisms have nitrogen as an important component which is received through food.

The above interpretation clearly states that all the organic elements of the biosphere derive all the important elements from three spheres. While atmosphere provides oxygen, hydrosphere provides water which forms 75% portion of protoplasm. Food is supplied by lithosphere, hence it is said that there is no possibility of life beyond biosphere.

Biodiversity

The number of species of animals and plants found in any natural region, is called biodiversity. The word 'biodiversity' was first used by American entomologist E.O. Wilson in 1986, which was then accepted as a concept by other scientists and environmentalists.

There are countless organisms which have genetic, species and ecological diversities. Biodiversity in organisms is necessary for maintaining equilibrium in eco system.

(1) Genetic biodiversity:

The characteristics of all organisms are determined at the genetic level by genes. Difference in interpretations of same genes in various forms of organisms of any species, is called genetic biodiversity. The species will be able to adjust to environmental changes. Contrary to this, on reduction of genetic biodiversity, the chances of extinction of specie increases as that specie will not be able to adjust to the environmental changes. The genetic biodiversity helps in creation of new species in plants.

(2) Species biodiversity:

The number of organisms of available species of various types in eco system are called species biodiversity.

(3) Ecological diversity:

The diversity in natural habitats .i.e. forests, deserts, grassland is called ecological diversity. The ecological diversity involves the processes like transfer of energy in food chains, circulating process of balanced diet, water, and minerals. There is difference of biological diversities in salt water system and non-salt water systems. While, the salt water ecosystem contains big fishes like whale, shark. These fishes are not found in the non-salt water ecosystems. The different species of plants and organisms are found in the forests, plains and deserts.

Biodiversity in India

Biodiversity is not distributed evenly across the world. It is absent in some places, lesser in some and in abundance in some places. Due to geographical diversities and differences in climates

found in large of India, a great Biodiversity is found in plants and animals. Indian climate is mainly tropical, but due to physical differences like Himalayas in north, vast oceans in the south, humid regions on east and dry region in west, the climatic conditions are diverse. India occupies about 24% of earth's surface while 6.5% of species of organisms and 8% of plant species are found in India. India is one of the 12 countries with diverse biodiversity in the world. After the survey of about 70% of the entire area of the country, 46,000 species of plants and 81,000 species of organisms have been classified. National biodiversity policy and action plan was issued on January 6, 2000. The objective this policy is to push the efforts of conservation of biodiversity and sustainability for future use. The biodiversity bill was passed in Loksabha on 02, December 2002 and in Rajyasabha on 11 December 2002. The main objectives of this policy are conservation of India's biodiversity, checking the unilateral use by foreign agencies and citizens and stop bio piracy.

Hot spots of Biodiversity in India:

Those parts of the world that have abundance of organisms and rare species but the existence of these species is in danger due to excessive exploitation, are called hot spots of biodiversity. A total of 1.4% part of world is considered as hot spot where 60% of the biodiversity is found. In year 1988, British environmentalist Norman Mayers first introduced the concept of hot spot. Till today, about 25 hot spots have been identified. Among these, 2 of the hot spots are identified in India.

1. Western Ghat Hot spot: This hot spot is spread along the western coast in 1600 kilometers Sq. kilometer area in Maharashtra, Karnataka, Tamilnadu and Kerala. This accounts for only 5% of total geographical area of country but about 25% of plant species are found here. Two centres are important from biodiversity point of view:
   a. Amambalam Reserve
   b. Agasthyamlai Hills

2. Eastern Himalayan Hot Spot: The temperate forests are spread at height of 1700 to 3500 meters in which 11540 plant species are found out of which, 4052 are local species.

Threats to Biodiversity:

From ancient times, various species have been in the process of extinct in natural way and due to genetic diversity, new species have been evolved in changing environment. In the past century, human beings have harmed the nature by over exploitation of natural resources in pursuit of higher standards of living using science and technological advancements. This has resulted into increased rate of extinction of natural species in eco system from one species per decade to 100 species per decade. If this rate of extinction continues at this rate, many of species of plants and organisms will face extinction in near future. The human effect has caused serious threat to the survival of remaining species at present.

Destruction of natural habitats of animals, hunting, increasing pollution due to economic activities of human being are the main causes of decrease of biodiversity at present. Natural factors like increase in global warming, climatic changes, shallowing of ozone layer, acidic rainfall etc. are also responsible for decreasing rate of biodiversity.

Conservation of Biodiversity

In order to control the constant decline of biodiversity and to conserve the biodiversity and the natural resources, through proper management, keeping in mind the interest of human, is termed as Conservation of biodiversity. Since ancient times, the culture of our country admires forest and wildlife. Our ancient texts provide detailed description of the magnificence of trees. According to Matysya Purana, the magnificence about the trees has been described as-

" Dash koop- smapwapi , ashwapi samohraday |
Dash hrdye smh putroo, das putr smodudrmah ||"

It means 10 wells are equal to a step-well, 10 step-wells are equal to a pond, 10 ponds are equal to a son, whereas 10 sons are equal to a tree.

Not only this, in our culture, in order to protect the trees, they have been described as the abode of various deities. For example , God Vishnu in Ficus Religiosa (Peepal tree), Goddess Laxmi in Phyllantchus Emblica tree (Amla Tree), Lord of Universe, Lord Bhrama in Banyan tree, Lord Shiva in Aegle Marmelos (Belpatra Tree), Lord Krishna in Neolamarckia Kadamba (Kadamh Tree), Lord

Gandhrva in Buteamonosperma (PalasTree), Lord of Moon in Cinnamomum Camphora (Kapoor), Lord Indra in Saraca Asoca (Ashoka Tree) and many other deities dwell in trees.

Two valuable epics of our country Ramayana and Mahabharata provide detailed descriptions of Arynaye culture.The main basis of Buddhism and Jainism is non-violence, the ultimate duty (religion). The great emperor, Ashoka prohibited wildlife hunting, which is mentioned in his inscriptions.Later, during the ruling periods, there was considerable emphasis on conservation of the nature.

In our culture, along with tree magnificence, the attention of the society has been attracted towards the protection of animal life by key note of non-violence, a great religion. Many creatures were considered as deities and provisions were made to prohibit their hunting. For example Garud (Eagle) as the Vahana of God Vishnu, Nandi (White Bull) as the Vahana of God Shiva, Lion as the vahana of Goddess Durga, Elephant as the Vahana of God Indra, Peacock as the vahana of God Kartekey, Rat as the vahana of God Ganesha, Swan as the vahana of Goddess Saraswati, and many other animals are given divine attribute, in the same way, many Avatars of God Vishnu like Kurmaavatar, Varahaavatar, Matsyaavatar, Nershinghavatar are considered as deities.

No other country in the world possesses such a enriched nature based culture. The following measures have to be taken to preserve the rapid decline of bio-diversity.

(i) Artificial Stocking

Under the artificial stocking, the protection of those species are included, which are at the high risk of extinction.Such species can be easily protected in the areas where they are on the verge of extinction.

(ii) Improvement in Dwelling Place

The human has either destroyed or demolished the natural habitats of living creatures for the sake of their own advancement and prosperity.These destroyed habitats need improvement so that it may provide food and other essential requirements to the species that are living there. So far 18 Biosphere reserves have been established in India. They are Nilgiri, Nandadevi, Sunderban, Nokrek, Great Nicobar, Gulf of Mannar, Manas, Similipal, Panchmani,Kanchenjunga,Agasthyamalgal, Panna, Achanakamar- Amarkantak, Seshachalam Lamdapha, Uttrakhand, Thar desert, Rann of Kutch, Kanha, North Andaman etc. 9 of these 18 bio reserves - Nilgiri, Sundarban, Gulf of Mannar, Nandadevi, Great Nicobar, Similipal, Panchmani and Achanakamar- Amarkantak have been recognised by UNESCO.

(iii) Restricted Hunting

Restricted hunting may be practiced, in the regions where high fertility rate is found among the large number of wild animals, otherwise the areas which are sensitive should be restricted.

(iv) Wildlife Conservation Act

International Union of Conservation of Nature and Natural Resources (IUCN) and United Nations Environment Programme (UNEP) have asked all the nations of the world to develop such an effective system of rules for the protection of environment, that can secure the human rights, and at the same time, the interest of the future generations may not undergo any sort of atrocities.

Our country is one of the few selected countries where forest policy has been implemented since 1894. This forest Policy was amended in 1952 and 1988. The basis of the amended Forest Policy 1988 was the protection, conservation and development of the forests. Not only this, a substantial plan was prepared under the National Forest Programme, for the next 20 years, which is focused on prevention of deforestation and to cover one-third of the country with forests. In the same way, the National Wildlife Workshop, 1983 was revised and a new wildlife plan (2000-2016) has been prepared, in which programmes are being prepared for the conservation of wildlife and conservation of species which are getting extinct.

(v) Establishment of National Parks and Sanctuaries

So far, 89 National parks and 490 Sanctuaries have been established in our country, which occupies about 1,50,000 sq km of the entire area of our country. Their main objective is the conservation and protection of wildlife against

illegal hunting and trade of their products and to develop ecology in the regions which are located near the national parks and wildlife sanctuaries.

4 National parks, 26 Sanctuaries, 35 Prohibited regions and 5 wildlife parks (zoo) have been established in Rajasthan for the conservation of wildlife. National parks included are Rajiv Gandhi National Park, Ranthambore (Sawai Madhopur), Ghna Keoladeo Bird National Park, (Bharatpur) National Desert Park, (Jaisalmer), Sariska National Park, (Alwar). The important wildlife sanctuaries are Darra (Jhalawar), Talchhapar (Churu), Nahargarh (Jaipur), Jaisamand (Udaipur), Kumbhalgarh (Pali), Bandh Baretha (Bharatpur), Van Vihar(Dholpur), Sita Mata (Chittorgarh), Mount Abu (Sirohi), Rawli Tatgarh (Ajmer), Chambal (Kota), Jawahar Sagar (Kota), Jamuva Ramgarh (Jaipur), kailadevi (Karauli), Gajner (Bikaner).

Variations in nature

Variations are the law of nature and they are universally present in almost the organisms of nature.These variations found in the organisms, is the culmination of organic evolution, that took place in millions of years. The entire biosphere is operated and controlled through these variations.These are called biodiversity in scientific language.

Biodiversity is also called as biological diversity, as in simple words it means the totality of genes, species and ecosystem of a region or different organisms and their different species found in the world. Biodiversity varies from place to place.

Biodiversity can be defined as follows-

"The diversity, variations and complexicity of ecosystems of living organisms is termed as biodiversity"

Some other definitions of biodiversity are as follows-

(A) Convention on Biological Diversity- CBD- According to Johnson (1993)- "Biological diversity are found in terrestrial, sea and fresh water ecosystems, this diversity can be within species of population, between species and species of ecosystem"

(B) Biodiversity is the basis of human life on the Earth-like a Ship of Habitat.

The thick growth of forest increases biodiversity. Maximum species of organisms, animals and birds are found in dense equatorial forest of Brazil. In the world, after Brazil, our country India is the most fortunate country where maximum biodiversity is found. Biodiversity is found maximum on both the sides of the equator and minimum at the poles.

In order to balance the ecosystem, biodiversity should be present in the living organisms (living creatures, vegetation, micro-organisms) otherwise the diversity in the population will be low at the gene level, and there will be a strong possibility of its extinction.

Biodiversity is a unique natural source. Its extinction is for forever, for example we cannot regenerate the dinosaur anymore.

Biodiversity was considered variability present in species in a discussion session of earth summit organised in 1992 in Rio de Janerio, the city of Brazil. This variations includes all the terrestrial, marine and aquatic ecosystems which are the habitat of these living creatures. The Earth Summit II, held in Johannesburg , an African city in 2002, expressed a major concern, that the global environmental partnership may not become a new profit-oriented approach to harness the environment.

Most of the Biodiversity in the world is found in Coral Reefs ,wetlands, Mangrove Ecosystem and Tropical Ecosystems. Most of the biodiversity is found in the regions of coral reefs. 1% of ocean floor, which is occupied by coral reefs, provide protection to 25% of aquatic life of the entire ocean.

Concept of Biodiversity

The body of each organism is made of his genes and the activities of the body are also controlled by these genes.

The genes in the biosphere form the fundamental basis of the biodiversity. In the past years, the concept of biodiversity has evolved as a result of decline in the environment. Biological diversity and its affluence is one of the most important characteristics of nature, which is the result of the developmental process on the earth and demands continuous protection. The unimaginable destruction of natural habitats caused the crisis of

biodiversity in the recent years. For example incidents like hunting of blackdear in our province, Rajasthan, hunting of half a dozen of elephants in the world renowned Jim Corbett National Park in Uttarakhand, 13 deaths of Lions in Nandan Kanan Wildlife Sanctuary due to Trypanodomiasis disease, have proved this strongly that even in our country the biodiversity is not untouched by the crisis.

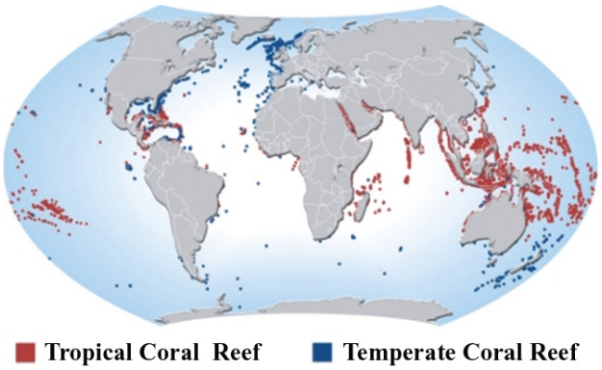

Fig. 21.1 : Distribution of Coral Reefs in the world

The existence of biodiversity is very essential for the sustainability of human life. The origin of pollution is entirely due to human activities. The constant increase in pollution is causing constant decrease in the graph of biodiversity. So far, human beings have caused the extinction of many species, by exploiting nearly one lakh living creatures and about 76% of wild animals for their own benefits.

Presently, the decrease in biodiversity is the most important problem of the world. Its reduction affects the evolutionary capabilities of the creatures and they find themselves helpless to struggle with the changing environment.

The species occupy a crucial position in the concept of biodiversity. The living organisms found in nature, which are able to breed and are capable of reproducing fertile offsprings, are called species.The species in nature by conjointing, give birth to a new offsprings through hybridization. Biodiversity, in this way, is a very important condition to maintain the continuity of life and a sustainable environment.

Value of Biodiversity

The species of flora and fauna found in nature are useful to human beings in many different ways. Since ancient period, the human beings are directly or indirectly dependent on biodiversity, for their food, clothes, habitat and medicines etc. Our mental, religious and cultural diversities are part of biodiversity. The economic system of the state, country and the entire world is dependent on natural resources. The country rich in biodiversity, will also be economically independent. Thus, biodiversity is not only important in terms of its utility but it also has productive importance.

(I) Food Value

According to the famous Ecologist, Norman Mayors, man consumes about 80,000 flora species as a food product. The availability of the entire food for the world is dependent mainly on wheat, rice, maize, jowar, Bajra,millet, soybean, beetroot, and split gram, coconut, potato, coffee, Chikbeans, Fieldbeans, sweet potato, sugarcane etc. Besides these, many types of fruits like banana, mango, custard apple, papaya, grapes, apple, orange, watermelon, muskmelon and many types of vegetables like brinjal lady finger cauliflower, tomato and many types of fishes play a significant role in the food supply. Some types of vegetations like Ginger, Turmeric, Saffron, Coriander, Asafoetida, Fennel seeds, Cumin, Celery, Cinnamon, Black pepper etc are used for domestic and commercial purposes.

(II) Medicinal value

Many different types of medicines are obtained from animals and plants. Their description is as follows :-

Anti- Cancerous drugs are derived from Madagascar Periwinkle, Catharanthus roseus or evergreen Vinblastine and Vincristine herb. The lukemia that occurs in childhood is controlled successfully upto 99% by the use of these drugs. Antibiotics are prepared from fungi like Penicillin, koinin is prepared from the peel of Cinchona tree, Anthromycin, Tetracycline medicins are prepared from the bacteria.

(III) Social Value

The social value of biodiversity has been a part of human life since the ancient times. Man is a social beings and the diversity of life reflects the social values in various forms for example basil, Banana, Peepal etc. are plants that are an integral part of

every religious ceremony organized in our homes. The leaves of Ashoka and Mango trees are essentially placed during religious rituals as 'Vandanvara' on many sacred religious ceremonies, Yagya and marriages. Indeed, this kind of perspective of man keeps the vegetative resources of nature, safe.

(IV) Ethical Value

Indian society has always been a pioneer in protecting trees by worshiping them. According to the general assembly of United Nations Organization, each ethnic group has a moral right to live independently.Our society, religion and civilization have moralized us, which has helped us to preserve biodiversity. For example, in our country, Kadamb tree in Rajasthan, Mango and Tamarind tree in Orrisa, Dhak tree in Madhya Pradesh and Mahua tree in Bihar are worshipped. In this sequence, another unique and exemplary example of ethics is presented before us.

The citizens of the United States of America have decided not to buy a fish Tuyna because these fishes were hunted with the help of a small aquatic animal named Porpoises.

(V) Aesthetic Value

Diversity also encompasses beauty in it. The more the diversity in nature, more it will be beautiful. Biodiversity plays an important role in imparting beauty to the nature. Visitors to the zoo find it more entertaining with more of biodiversity in it. It is utmost important to guid in realizing the importance of biodiversity to this generation so that they can preserve it for the future generations. Beauty of nature plays an important role in the extension of tourism that strengthens the economy. The existence and growth of wild animals in their natural habitats without any fear is called as ecotourism. This is an inseparable part of modern tourism industry. In addition, doordarshan, cinema, literary books, novels, entertaining books reveal the aspect of beauty of biodiversity. Some plants are planted on both sides of road for beautification which includes Bauhinia, The Golden Shower Tree, bougainvillea tree, North Indian Rosewood tree, yellow oleander, and erythrina tree.

(IV) Genetic Value:

There are many traits in living beings which are yet to be researched on. Traits play important role in survival of species. Every species is a representative in a gene pool. The meaning of Gene pool is joining of genes of any system. Preservation of these are necessary to reap benefits in the future. Gene pool is important in agriculture for resolving future food supply needs which can be successfully met with these.

Conclusion

It can be concluded from above details and analysis that natural biodiversity is boon for mankind. Biodiversity supplies many important components to human being in direct or indirect ways without asking anything in return. The nature expects human beings to preserve biodiversity for the coming generations. Endangered species can be preserved by creating sperm bank and seed bank.

Important Points

1. Variations is legal aspect of nature and are present universally in all the organisms of the world. Biodiversity is also called as biological diversity. Biodiversity in simple word means; The number of all the genes species, and ecosystems found in a region or various living organisms and their species in the world. The variations, inequalities and ecological complexities present in organisms is called biodiversity. The rich forests adds value to the biodiversity.
2. Biodiversity is a natural source and it can get extinct forever. The Earth summit organized in Brazilian City of Rio de Janero in 1992 had discussions and mutually agreed to define biodiversity as variability found in various species. Second earth summit was organized in Johannsberg city of South Africa in 2002. The members expressed worry that world environment partnership should not turn into another opportunity of profit earning. Maximum biodiversity is found in coral reefs, damp region, mangrove ecological systems, and hot temperate ecological systems. All living organisms are formed of genes. The functions of human body are also controlled by these genes. Genes are at the root of all biodiversity in biosphere. The diminution of

environment in recent times led to the concept of biodiversity.

3. The ever increasing pollution in environment has decreased the graph of biodiversity. The reducing biodiversity impacts the evolutionary abilities of nature. Hence the organisms's ability to face the changes in the environment reduces. The species play very decisive role in the concept of biodiversity. The organisms that are suitable for recreating productivity, and similar kind of organisms are called species. The species in nature reproduce new species by meeting mutually in the process of hybridization.
4. Our intellectual, religious and cultural diversity is also part of biodiversity. Quinine drug is derived from cinchona tree. Garlands and wall hangings are made from leaves of Mango and Ashoka trees that are used during religions occasions. People worship burflower tree in Rajasthan, mango in Orissa, flame of the forest of Palash tree in Madhya Pradesh, butter tree in Bihar has been worshipped since ages.To observe wild animals in their natural habitats in free and borderless settings is called as ecotourism. Some plants are planted on both sides of road for beautification which includes Bauhinia, the Golden Shower Tree, bougainvillea tree, North Indian Rosewood tree, and erythrina tree. Traits play significant role in survival of organisms. Every species is a representative in a gene pool. The meaning of Gene pool is joining of genes of any system. Preservation of this is important so that upcoming generations can get benefit from this. The gene pool is also significant in areas of agriculture, as future needs in food supplies which can be met successfully with the help of this.

Questions

Multiple choice Questions

1. Which country has the highest biodiversity in the world?
   a. Brazil b. India
   c. South Africa d. Germany
2. The leaves of which trees are commonly used for vandanwar?
   a. Ashok and Peepal
   b. Mango and Jamun
   c. Ashok and Mango
   d. Banyan tree and Peepal
3. In which maximum biodiversity is found?
   a. Damp region
   b. Coral reefs
   c. Mangrove ecosystems
   d. Tropical ecosystems
4. Ranthambor National Park is situated in-
   a. Bharatpur b. Alwar
   c. Jaipur d. Sawai Madhopur
5. State tree of Rajasthan state is –
   a. Palash b. Khejri
   c. Tamarind d. Burflower tree

Very short type questions

6. Define biodiversity
7. The dense concentration of what causes increase in biodiversity?
8. What is the basis for the development of the concept of biodiversity?
9. Quinine is derived from which plant?
10. What is the meaning of ecotourism?

Short type Questions

11. Comment on the food value of biodiversity.
12. Explain with examples, the social value of flora.
13. What is the significance of gene pool in the areas of agriculture?
14. Write the definition of biodiversity in the words of Johnson (1993)
15. Write a short note on the medicinal value of biodiversity.

Essay type questions

16. Define biodiversity. Give a brief description of its concept.
17. Write a brief article elaborating the value of biodiversity.
18. Explain "Biodiversity is a boon for man."

Answer Key

1.A 2.C 3.B 4.D 5.B