AR-7818
B.Sc. (Hon's) Botany, VI Semester :
LBC-602: Major elective: Biodiversity and its Conservation

Section A: Answer all the questions (1 X 10 = 10 marks)

1.
(i) c
(ii) c
(iii) a
(iv) c
(v) d
(vi) d
(vii) d
(viii) a
(ix) c
(x) b

2. Biodiversity is essential for human survival and economic well being, as it play important role in modulating ecosystem function and stability. It refers to the totality of genes, speices and ecosystem of a region. Biodiversity represents the potential source of wealth in form of

New crops
Pharmaceuticals
Petroleum substitutes
Biocides and other products

Uses of Biodiversity

Source of food and improved varities
Drugs and medicines
Industry: timber, lubricant, oil, food, flavours, enymes, cosmatics, perfumes, dye, paper, wax, latex, resin, poison, cork, wool, silk, leather, fur, polysaccharides, feed foe livestock and bulding materials, biomass and energy etc.
Tourism and recreation
Aesthetic and cultural
Scientific role
Ecosystem services.

3. **(a)** Biogeography is the study of the distribution of species (biology), organisms, and ecosystems in geographic space and through geological time. The biogeographic zones of India are as follows:

1. Himalayan zone.
2. Desert zone.
3. Semiarid zone.
4. Western ghat zone.
5. Deccan plateau zone.
6. Gangetic plain zone.
7. North east zone.
8. Coastal zone.
9. Islands present near the shore line.
10. Trans Himalyan zone

(b) The Country has 9 floristic regions

1. Western Himalayas – It extends from central region of Kumaon to north west region of Kashmir. It is dominated by timber trees, Acacia, Pine, Poplar, Rhododendrons and Junipers are found.

2. Eastern Himalayas – It consists of regions of Sikkim and extends to the extreme east. These have more tropical elements. Higher rainfall and warmer conditions are the chief characteristics. Acacia, Bamboo, juniper and Shrubs are found.

3. Western Indian Desert – It consists of parts of Rajasthan, Kutch, Delhi & Parts of Gujarat. Climate is hot and dry in summer and cold in winter. Plants are mostly Xerophytic.

4. Gangetic Plains– It consists of U.P, Bihar & Bengal. Temperature and rainfall are equally responsible for distinct type of vegetation. Vegetation is typically tropical, moist & dry deciduous type.

5. Assam– this region receives the heaviest rainfall. The temperature and wetness are very high which are . Responsible for dense tropical evergreen forests.

6. Central India– It comprises Madhya Pradesh parts of Orissa & Gujarat. Depending upon the amount of rainfall forests have developed into thorny mixed deciduous type.

7. Malabar– the region comprises the western coast of India extending from Gujarat in the north to Cape Camorin in south. Rainfall is heavy vegetation is tropical moist evergreen, mixed deciduous , subtropical and mangrove type.

8. Deccan– This region is drier and includes, Andhra Pradesh, Tamil Nadu and Karnataka. It has mixed forests.

9. Andaman's– It has a wide range of spreading coastal vegetation like mangroves, beech forests and in the interior evergreen forests of tall trees. There are some pockets of dry areas also.

4. A **biodiversity hotspot** is a biogeographic region with a significant reservoir of biodiversity that is under threat from humans.

The concept of biodiversity hotspots was originated by Norman Myers in two articles in "The Environmentalist" (1988) & 1990 revised after thorough analysis by Myers and others in "Hotspots: Earth's Biologically Richest and Most Endangered Terrestrial Ecoregions".

To qualify as a biodiversity hotspot on Myers 2000 edition of the hotspot-map, a region must meet two strict criteria: it must contain at least 0.5% or 1,500 species of vascular plants as endemics, and it has to have lost at least 70% of its primary vegetation.http://en.wikipedia.org/wiki/Biodiversity_hotspot - cite_note-4 Around the world, 25 areas qualify under this definition, with nine other possible candidates. These sites support nearly 60% of the world's plant, bird, mammal, reptile, and amphibian species, with a very high share of endemic species.

Indian subcontinent has three hotspots

- Eastern Himalaya

  Eastern Himalaya is situated between Central Nepal in the west to Myanmar in the east, occupying southeast Tibet in China, Sikkim, North Bengal, Bhutan and North-East India.

  Indo-Burma, India and Myanmar

  Indo-Burma: The hotspot includes portions of eastern India (including the Andaman and Nicobar Islands), southernmost China, most of Myanmar (excluding the northern tip), most of Thailand (excluding the southern tip), and all of Cambodia, Laos, and Vietnam.

  The hotspot encompasses 33 terrestrial eco-regions, which include tropical and subtropical moist broadleaf forests, tropical and subtropical dry broadleaf forests, tropical and subtropical coniferous forests, temperate broadleaf and mixed forests, and mangroves.
- Western Ghats

  The **Western Ghats** or the **Sahyādri** constitute a mountain range along the western side of India. It is a UNESCO World Heritage Site and is one of the eight "hottest hotspots" of biological diversity in the world.http://en.wikipedia.org/wiki/Western_Ghats - cite_note-1 It is sometimes called the Great Escarpment of India. The range runs north to south along the western edge of the Deccan Plateau, and separates the plateau from a narrow coastal plain along the Arabian Sea. A total of thirty nine properties including national parks, wildlife sanctuaries and reserve forests were designated as world heritage sites - twenty in Kerala, ten in Karnataka, five in Tamil Nadu and four in Maharashtra.

5. Ecosystem has two major componants

Abiotic: the quantity and distribution of nonliving materials
The climate; temperature, light, rainfall etc

Biotic: autotrophs, hetrotrophs, producers, consumers; herbivores, carnivores, decomposers, detrivores

Ecosystem has structure due to interaction of biotic and abiotic components.

6. Extinct
Extinct in wild
Critically Endangered
Endangered
Vulnerable
Near threatened
Least concerned
Data deficient
Not evaluated

7. Habitat loss and fragmentation
Introduction of alien invasive species
Disturbance
Pollution
Harvesting and over exploitation
Human induced climate change
Anthropogenic factors

8. The four complementary strategies for biodiversity conservation are
i) *in situ* strategy
ii) *ex situ* strategy
iii) reduction of biotic pressure (anthropogenic)
iv) rehabilitation of endangered species