

For Four Year Undergraduate Programme (FYUGP)

Semester: II

Subject: Multi Disciplinary Course (MDC)

Course Title: Bioresources and Traditional Knowledge

Credits: 03, Classes: 45

Full Marks: 100

(End Semester (Theory): 70, In-Semester: 30)

Course objectives:

This paper will provide a comprehensive understanding of biodiversity conservation practices, bioresourses and traditional knowledge emphasizing their significance and applications in various fields.

Course Learning Out comes:

Upon successful completion of the paper, student will:

1. Understand the concept , scope and laws of biodiversity, identify biodiversity hotspots, and understand the classification of species based on their conservation status.
2. Recognize the direct and indirect uses of biodiversity.
3. Understand the role of Remote Sensing and GIS in biodiversity studies, the wildlife Protection Act. And the significance of biosphere reserves, national parks, wildlife sanctuaries, wetlands, Ramsar sites and mangroves; identify international initiatives for biodiversity conservation, including the IUCN and CoP.
4. Recognize the role of biotechnology in biodiversity conservation, including global environmental facilities, biosafety levels and cryopreservation.
5. Understand nutritional value of food supplements from plants, endemic fishes, crustaceans, molluscs reptiles and social insects, the role of fermented food and beverages in traditional knowledge.
6. Recognize traditional conservation practices related to plants and pet animals the role of traditional knowledge in bioprospection and the issues of biopiracy.

Course Content:

25 MARKS

UNIT I : Biodiversity

Concept and scope, Laws of biodiversity, biodiversity hotspots, biodiversity classification (rare, threatened, vulnerable, endangered, critically endangered, flagship and keystone species), Levels of biodiversity- Organizational (genetic, species and ecosystem), spatial (alpha, beta and gamma); Biodiversity of Northeast India; Role of remote sensing and Geographical Information system in biodiversity studies.

UNIT II: Conservation Practices

15 MARKS

International initiatives for biodiversity conservation (including IUCN, Cop), In-site and Exist conservation, biological diversity Act, National Biodiversity Action Plan (a brief summary), wildlife protection act, biosphere reserves, national parks wildlife sanctuaries, wetlands and Ramsar sites.

UNIT III: Bioresources

20 MARKS

Distribution, parts used and method of use, nutritive Value- Food supplements (Plants: Bora rice, Bamboo shoot, Houttuynia cordata (Masundari), Endemic fishes (carps, minnows, shads, barbs, murels, eels, catfishes, perches, trouts), crustaceans, molluscs, reptiles (snakes and lizards), social insects (bees, wasps, Ants) , Timbers (Holong-Dipterocarpus rotusus, Bombax ceiba), non timber forest products (bamboos, canes rattan, wild medicinal plants, wild fruits lesser known fruits ferns leaves roots cones seeds wild honey mushrooms) sacred groves, large ponds and lakes.

UNIT IV: Traditional Knowledge

10 MARKS

Cuisine diversity, food ethno zoology, ethno botany, ethno medicine, food procession and preservation techniques, fermented food and beverages, conventional animal husbandary milk and milk products, goods produced from animals; Role of traditional knowledge in bioprospecting; Biopiracy; Traditional knowledge digital library (TKDL) concept and importance. ITK in biodiversity conservation ITK & harvesting of Aquatic Resources.

Reference Books:

1. Acharya D. Shrivastava A (2008) Indigenouous Harbal Medicines: Tribal Formulations and Traditional Herbal Practices. Aavishkar Publishers Distributors, Jaipur, India
2. Krishna M (2008) Plants That Heal Rupa Publication New Delhi India
3. Gaston K J Spicer II (2014) Biodiversity: An Introduction, Wiley Blackwell Chichester UK
4. Babu NS Manickan S. Kumar SS (2019) Biodiversity Conservation and Legal Perspectives Springer Singapore.