3. Estimation of plantphenolics
4. Tests to measure glycosuria, proteinuria etc
5. Calculations in Bioenergetics: standard free energy change, redox potential, mitochondrial respiration etc

OPEN ELECTIVE COURSES
BSE 461 BIODIVERSITY AND CONSERVATION

Course Outcomes:

After successful completion of the course, students will be able to :

CO 1. Understand the relevance of biodiversity andconservation.
CO 2. Describe the levels of biodiversityorganizations.
CO 3. Understand Indian ecological/geographical diversity, including Himalayan region, Desert, Western Ghats, Coastal region and Hotspots of biodiversity.
CO 4. Understandmicrobial diversity and itsimportance.

Unit I (13 hours)

Basic concepts and definitions, scope, biosphere, habitats, food chain, food web. Levels of biodiversity organizations – Genetic diversity, Species diversity and Ecosystem diversity. Indian ecological/geographical diversity: Himalayan Region, Deserts, Semiarid region, Gangetic plains, Western Ghats, Coastal region; Hotspots of biodiversity,
Microbial diversity: Bacteria, Cyanobacteria, Fungi and Lichens, Algae, Protozoa and viruses, habitat. Mushrooms – edible and nonedible. Plant and animal association with microbes. Beneficial and harmful microbes, Culture, Cultivation of bacteria. Microbial products.

Unit II (13 hours)

Plant diversity: Lower and higher group of plants, plant ecosystem and its classification. Major ecosystem types, tropical forests, temperate forests. Arid and Semiarid ecosystems, boreal forests, Arctic and Alpine systems, grasslands, wetland ecosystem. Marine ecosystems, Epiphytes, parasites and orchids. Values and uses of plantdiversity.Animal diversity: Lower and higher group of animals, their ecological niches.Zoogeographical regions of the world and India. Animals in temperate, tropical and boreal forests, cave and mountains, Coastal ecosystems, mangrove and estuaries, coral reefs.

Unit III (13 hours)

Biodiversity Conservation: Causes and prevention of Plant and Animal biodiversity loss; IUCN Red List Categories and Criteria. Conservation strategies – *Ex-situ* and *In-situ* conservation, Protected ecosystems – Biosphere reserves, National parks, Sanctuaries, Botanical gardens, Sacred groves; Wildlife conservation and wildlife conservation act; Centers of diversitystudy.

References:

1. Daniel, J.C. (1986). A century of natural history. Bombay Natural History Society, Bombay, 697 pp.
2. Dwivedi, A.P. (1993). Forests. International book Distributors, Dehra Dun. 352 pp.
3. Odum E. P. (1983). Basic Ecology. Saunders College, London.
4. Gugjisberg, C.A.W. (1970). Man and Wildlife, Arco Publishing Company Inc., NewYork.
5. Haywood, V.H. and Watson, R.T. (1995). Global biodiversity assessment. United Nations Environmental Programme, New York.
6. Korringa, P. (1976). Farming of marine organisms law in the food chain. Elsevier,