Vijayanagara Sri Krishnadevaraya University, Bellary
B.Sc. Botany – IV Semester

Code: BOT-401 **Univ Code:**
Contact Hours: 50 Hours **Workload: 4 hours per week**
Credit Points:Evaluation: Continuous Internal Assessment - 30 marks
Semester End Examination- 70 marks

Paper-IV – Ecology and Environmental Biology

Theory:

Unit 1: ECOLOGY

1. Aim and Scope, Factors affecting plant growth and their distribution edaphic, climate and biotic factors, study of water cycle. **04 Hrs**
2. Response of plants to stress conditions- Mesophytes, Hydrophytes, Xerophytes, epiphytes and halophytes. **02 Hrs**
3. Ecosystems – Concept and structure and functions of ecosystem. Pond and Forest ecosystem. Ecological Pyramids, Ecological niche, food chain, trophic level, food web & food chain, energy flow and Bio-geo-chemical cycles of Nitrogen, Carbon and Phosphorous. **08 Hrs**
4. Ecological succession: Process of plant succession, hydrosere, Xerosere, concepts of climax. **04 Hrs**
5. Community Ecology: Methods of studying natural vegetation by quadrates & transects **02 Hrs**

Unit 2: ENVIRONMENTAL BIOLOGY

1. Introduction, Renewable and Non renewable resources. **06 Hrs**
2. Forestry – Deforestation, Reforestation and Aforestation. Importance of Forestry **04 Hrs**
3. Conservation Ecology – Soil erosion, control of soil erosion, conservation and Management of wild life, National Parks and sanctuaries **06 Hrs**
4. Phytogeography – Phytogeographical regions of India, vegetation types of India with special reference to Karnataka. **04 Hrs**

B. Sc. Botany – IV Semester Practical -IV – Scheme of Evaluation.
(Ecology and Environmental Biology)

1. Identification of Hydrophytes, Xerophytes, Epiphytes (Any Two) – (5+5 Marks) — 10
   - Preparation : 03 Marks
   - Identification : 01
   - Sketch & Label : 01
2. Comment on the given materials C and D — 08
   - Identification : 01 Mark
   - Comments : 03 Marks
   - (Hydrophytes, Xerophytes, Epiphytes, Halophytes)
3. Comment on ecological Instrument 'E' — 04
   - Identification : 01 Mark
   - Comments : 02 Marks
   - Uses : 01
4. Estimation of Chloride, Sulphate and Phosphate of given samples. — 08
   - Procedure : 06 (3+3)
   - Results : 02
5. Mapping the vegetation / phytogeographical types of Karnataka/India Marking and labeling — 05
6. Record and Submission — 05

Total 40

B. Sc. IV Semester Practical – IV Model Question Paper
(Ecology and Environmental Biology)

Time: 03 Hrs **Max Marks: 40**

1. Prepare temporary stained material A and B. Sketch, label, identify and leave the preparation for observation (Hydrophyte, Xerophyte, and Epiphyte) — 10
2. Comment on the given materials C and D (Epiphyte, Halophyte, and Parasites) — 08
3. Comment on ecological instrument E — 04
4. Estimate chloride/ phosphate / sulphate of different soil samples. — 08
5. Mark and label given Vegetation types of Karnataka/India in the supplied map — 05
6. Record submission — 05

Total 40

Reference Books :-

1. Singh, Pandey & Jai, A Text book of Botany (Angiosperm Anatomy, Economic Botany, Taxonomy & Embryology, Rastogi Publication, Meerut.
2. B. P. Pandey, Embryology of Angiosperm, Rastogi Publication, Meerut.
3. B. P. Pandey, Plant Anatomy, S. Chand & Co. Ltd ., New Delhi.
4. Odum, E.P. 1983. Basic Ecology, Saunders, Philadelphia.
5. Kormondy, E.J. 1996. Concepts of Ecology. Prentice-Hall of India Pvt. Ltd. Delhi.
6. Mackenzie, A et al. 1999. Instant Notes in Ecology. Viva Books Pvt. New Delhi.
7. Sharma, P.D. 1993, Ecology and Environment. Rastogi Publications, New Delhi.