

3. E, F, G, H and I (Permanent slides or museum specimens of Algae, Fungi, Bryophytes, Pteridophytes and Gymnosperms). J & K – Applied Botany ( for each one Identification = 1, Diagram = 2 and Description = 2)
4. L & M – Xerophytes or Hydrophytes or a Mangrove plant or plant part (Identification = 1, Diagram = 2 and Description = 2)
5. Observation Note Book – 20 Marks

<b>B.Sc., Zoology Major</b>	<b>Part -III</b>	<b>Semester-V</b>
<b>Core Paper - VII</b>	<b>Ecology (SZY8C51)</b>	<b>(4 Credits)</b>
Contact hours per week		- 4 hours
<b>Contact hours per semester</b>		<b>-60 hours</b>
<b>Objectives</b>		
To enable the students to		
<ol style="list-style-type: none"> <li>1) Understand the importance of environmental factors</li> <li>2) Realize the characteristics of populations and community</li> <li>3) Know the concepts and dynamics of ecosystem</li> <li>4) Study the types of habits and animals inhabiting and</li> <li>5) Learn the values of biodiversity and their conservation.</li> </ol>		
<b>Unit-I</b>		(12 hours)
<b>Physico –Chemical factors</b>		
Light: Spectra, light on Land, Light in water, Biological effects of Light – (effect on metabolism, reproduction, development and pigmentation only).		
Temperature: Range, Diurnal variation, thermal stratification and Biological effects. (Effects on temperature on metabolism, Reproduction, development and morphology only)		

**Medium & Substratum:**

Air as a medium for the living organisms. Soil profile, soil fauna and adaptation of soil animals.

Role of salt content, Temperature & O<sub>2</sub> in fresh water, estuarine and marine water.

**Unit-II:**

(12 hours)

**Habitat**

Terrestrial habitat: Characteristics, ecological classification of Land, their fauna, and their adaptation.

Fresh water: Thermal stratification, types of ponds and pond fauna.

Marine habitat: Characteristics, stratification, planktonic, muddy shore and deep sea adaptations.

Estuarine habitat: Estuarine fauna and their adaptations.

**Unit-III**

(12 hours)

**Population Ecology:**

Types, density and estimation, natality, mortality, age distribution, growth pattern, fluctuation and equilibrium. Dispersal and distribution. Regulation of population.

Animal Relationship: Intra specific Inter specific relationship-neutralism, mutualism, commensalism, parasitism, predation and competition.

**Unit-IV:**

(12 hours)

**Community Ecology**

Definition, characteristics, diversity - dominance, stratification, periodicity, ecotone and edge effect. Ecological niche, equivalence and ecological succession.

Ecosystem: Definition-components-food chain and its types. Food web-ecological pyramids – Biogeochemical cycles - carbon, phosphorous and nitrogen cycles.

**Unit-V:**

(12 hours)

**Pollution and Pollution and Social issues**

Pollution: - Causes, effects and control measures of air pollution, Water pollution, nuclear and thermal pollution. Climate change, Green house effect and global warming, acid rain, ozone layer depletion, Bhopal episode, stone leprosy in Taj mahal and minimata disease.

Solid waste management, rain water harvesting disaster management. Wild life conservation-Biological clocks and rhythms and application of remote sensing.

**Text Books:**

Environmental Biology - P.D.Sharma (2006) Published by Rastogi publications, GanapathiShivaji road, Meerut – 250002.

Concepts of Ecology - N.Arumugam (2007) Published by Saras publications, Kottar, Nagercoil.

**Reference Books:**

1. Fundamentals of Ecology, Odum.E.P. (1985 Edition) Published by W.B.Saunders Publishers, Philadelphia.

2. Fundamentals of Ecology (1996 Reprint) by M.C.Dash, Published by Tata Mc Craw Hill Publishing Co., Ltd, New Delhi 110 002. ISBN: O – 07 – 460103 – 2.

**B.Sc., Zoology Major**

**Part -III**

**Semester-V**

**Core Paper - VII**

**Ecology (SZY8C51)**

**(4 Credits)**

*Contact hours per week*

*- 4 hours*

**Contact hours per semester**

**-60 hours**

**Objectives**

*To enable the students to*

- 1) Understand the importance of environmental factors*
- 2) Realize the characteristics of populations and community*
- 3) Know the concepts and dynamics of ecosystem*
- 4) Study the types of habits and animals inhabiting and*
- 5) Learn the values of biodiversity and their conservation.*

**Unit-I**

*(12 hours)*

**Physico –Chemical factors**

*Light: Spectra, light on Land, Light in water, Biological effects of Light – (effect on metabolism, reproduction, development and pigmentation only).*

*Temperature: Range, Diurnal variation, thermal stratification and Biological effects. (Effects on temperature on metabolism, Reproduction, development and morphology only)*

*Medium & Substratum;*