



## **B.Sc. PLANT BIOLOGY & PLANT BIOTECHNOLOGY**

**Paper 15a Combined Practical - ECOLOGY, CONSERVATION BIOLOGY,  
REMOTE SENSING, PLANT PHYSIOLOGY & BIOCHEMISTRY**

B.Sc. va (Candidates admitted from the academic year 2008-2009)

**Core Practical**

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**Core Practical**

**Ecology, Conservation Biology and Remote Sensing**

**Ecology**

**1. Abiotic Factors**

Measurement of air/ soil temperatures at periodic intervals.

Measurement of Relative humidity by wet and dry bulb thermometer  
– learning the principle involved.

Estimation of Free CO<sub>2</sub> and dissolved oxygen in water samples. To  
learn biological significance of these variables.

Effect of air pollutant (Ozone, SO<sub>2</sub> etc.) and acid rain on plants /  
vegetation through photographs. Lichen as sensitive indicators of  
pollution.

**2. Biotic factors**

Study of phytoplanktons and food web.

Diagrammatic representation of food chain. (One each from aquatic/  
terrestrial ecosystems).

Plant - herbivore interaction (selected examples as case study).

Study of mutualistic relationships in mycorrhizae, Lichen and root  
nodules.

**3. Phenology**

Observation and identification of phenophases in the life cycles of  
local plants.

Construction of phenological spectrum of selected plants.

**4. Life-forms and biological spectrum**

Construction of Raunkier's frequency diagram using sample vegetation data.

5. Adaptations of hydrophytes, xerophytes and halophytes. Identification and study of local selected species as examples.

**Remote Sensing and Tropical Forests**

**6. Forest types and Bioclimates**

Construction of Ombrothermic diagrams and identification of bioclimates using meteorological data.

Pictures/ Photographs of forest trees/ shrubs as sources of wood and non-wood forest products.

7. Drawing and study of important rare, endangered and threatened species of plants and animals through photographs.

8. Seeding Patterns in the ecosystem.

Fruit/ seed dispersal. Study of examples of dispersal by frugivores. Wind dispersal as example. Adaptations and seasonal rhythm.

9. Seedling Types

Epigeal / hypogeal. Seedling types their ecological significance. Live specimens/ photographs of local native forest plants.

10. Mapping of forest types/ biosphere reserves/ important National parks of India.

11. Display of False Colour Composites of crops, vegetation, soil and Aquatic resources  
And their interpretation.

12. Student project submission of images or photographs related to various earth features  
With particular reference to forests, agriculture and biodiversity.

## Plant Physiology and Biochemistry

1. Simple tests for carbohydrates and proteins.
2. Determination of water potential by Plasmolytic method.
3. Cell membrane Permeability.
4. Effect of environmental factors on the rate of transpiration by Ganong's Potometer / Simple Potometer.
5. Qualitative measurement of transpiration by cobalt chloride method.
6. Separation of photosynthetic leaf pigment by paper and thin layer chromatography.
7. Effect of quality and intensity of light on photosynthesis.
8. Determination of rate of photosynthesis by oxygen evolution method (*Hydrilla* experiment).
9. Effect of temperature on the rate of aerobic respiration (titration method).
10. Separation of amino acids using Paper chromatography.
11. Determination of the activity of enzyme amylase on starch.
12. Determination of the activity of the enzyme peroxidase from plant sources.
13. Effect of light and temperature on seed germination.
14. Spotters on the physiological effects of plant growth regulators
15. Demonstration of respiration by simple respiroscope.
16. Demonstration of Evolution of heat during respiration.
17. Demonstration of Fermentation of sugar by yeast.
18. Demonstration of Geotropism and Phototropism.