

**BHARATHIAR UNIVERSITY:: COIMBATORE- 641 046**

**B.Sc. BOTANY Degree Course(CBCS Pattern)**

**(revised practical for the students those who are admitted from the academic year 2015-16 & onwards)**

**Note: The revised practical for the following papers furnished below be followed and there is no change in the existing scheme of examination and syllabi of remaining papers.**

**SEMESTER VI: PAPER - XI 5Hrs / Week**

**BIOPHYSICS, BIOCHEMISTRY AND PLANT PHYSIOLOGY**

**Unit - I :**

Biophysics : Electromagnetic radiation, Absorption and action spectra. Spectrophotometer (Basics) and Laws of thermodynamics (Basics)

**Unit - II**

Biochemistry : Acids, basis and solutions.  $p^H$  and buffer systems. Structure and Basic functions of protein, lipids and carbohydrates.

**Unit - III**

Plant Physiology : Water relations - osmosis, absorption of water, water potential and its components, active and passive absorption of water. Transpiration - its kind, significance and factors. Physiology of stomatal movement, ascent of sap.

**Unit - IV**

Photosynthesis - Pigments system, light and dark reactions. C4 and CAM Pathways. Respiration - aerobic and anaerobic - Glycolysis, Krebs cycle - electron transport system.

**Unit - V**

Growth regulators - auxins, gibberellins, Kinetins, ethylene and ABA. Physiology of flowering (Photoperiodism).

**Practicals :**

1. Rate of respiration in flower buds/germinated seeds using simple respiroscope (Demonstration Only)
2. Separation of leaf pigments by paper chromatography
3. Measurement of the rate of Photosynthesis under varying concentration CO<sub>2</sub> concentration

4. Effect of Light intensity on O<sub>2</sub> evolution during photosynthesis.
5. Effect of light intensity on transpiration. Determining the rate of transpiration using Ganong's potometer (Demonstration Only)

**6. Qualitative analysis of Carbohydrate, lipid and Protein.**

**References :**

- Plant Physiology-Salisbury and Ross.,Prantices Hall.,New Delhi
- Biophysics &Plant Physiology-A.Ragland.,Saras Publication.,Nagercoil., Tamil Nadu
  
- Plant Physiology-Devlin.,Affilliated East West .,New Delhi.,
- Introductory Plant Physiology-Noggle and Fritz., Prantices Hall.,New Delhi
- Fundamentals of Plant Physiology-V.K. Jain., S. Chand and Co.New Delhi.
- Biochemistry- J.L. Jain., S. Chand and Co.New Delhi.
- Biostatistics-P.Ramakrishnan., Saras Publication.,Nagercoil., Tamil Nadu
- Basics Biophysics for Biologist.,Danial M., Agrobios.Jodhpur
- Plant Physiology, A.Ragland *et al*, Saras Publication.,Nagercoil., Tamil Nadu
- Laboratory Manual of Biochemistry -J. Jayaram Wiley Eastern Ltd.,NewDelhi.
- Plant Physiology, S.Sundararajan.,Anmol Publications.,New Delhi.2
- Principles of Plant Physiology,R.S.Singh.,Oxford & IBH Publications.,New Delhi.
- Plant Physiology research methods.,S S Narwal *et al*.,Scintific Pub.,Jodhpur.
- Plant Physiology,Kumar&Purohit.,Agrobios, Jodhpur.

**SEMESTER VI:**

**SKILL BASED SUBJECT : BIODEGRADABLE WASTE MANAGEMENT**

**PAPER – IV - PRACTICAL (4 Hours / Week)**  
**(Covering theory papers I, II & III)**

1. Determination of  $p^H$  (Soil & Effluent)
2. Analysis of effluents of any one industry – Dissolved oxygen, free carbon dioxide, carbonate and bicarbonate, turbidity, total solids, dissolved solids, hardness, chloride & Calcium.
3. Sterilization technique. Autoclave & Hor air oven.
4. External Morphology and Identification of earthworms.  
(*Eudrilus eugeniae*, *Eisenia foetida* and *Lampito mauritii*).
5. Microbial analysis of effluent – bacteria, fungi and actinomycetes.
6. Carbon cycle, Nitrogen cycle & Water cycle)
7. Demonstration of Laminar Air Flow Chamber & Inoculation needle
8. Culture techniques – Agar Streak, Sland & Deep.

References :

1. Lal Singh, 1998. Practical Agricultural, Chemistry and Soil Science, Bishen Singh Mahendra Palsingh, Dehradum.
2. Gupta. P.K. 2002. Methods in Environmental Analysis : Water, Soil and Air, First edition, Agrobios (India.)
3. Lois Beishir, 1983. Microbiology in Practice. Harper and Row Publishers, New York.
4. Rao, K.S. 1993. Practical Ecology. Anmol Publications, New Delhi.
5. APHA, 1995. Standard methods for the examination of water and waste water, APHA, AWWA, Publications, New York.
6. Kannan, N. 1996. Laboratory Manual in General Microbiology, First edition, Palani Paramount Publication.
7. Bhatia, A;L. and Kohil K.S. 2005. Environmental Biology, Publishers – Ramesh Book Deport, New Delhi.

**BIODEGRADABLE WASTE MANGEMENT**

Time: 3Hrs

Max.Marks:45

- 1. Write the procedure and Requirements for estimating  
The chemical parameter of the given sample A. 10 Marks
- 2. Write the procedure and Requirements to calculate the parameter  
For the given sample B 10 Marks
- 3. Write the method of isolating the micro organism from the sample C 5 Marks
- 4. Write notes on D,E,F,G&H 5x3=15 Marks

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40 Marks

Record 5 Marks

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Total 45 Marks

**BIODEGRADABLE WASTE MANGEMENT**

Time: 3Hrs

Key

Max.Marks:45

- 1. A- Major Experiment  
(Requirement-5,Procedure-5, Data Presentaion-5 Result-5) 10 Marks
- 2. B-Minor Experiment  
(Requirement-2, Procedue-2,Data Presentaion-3 Result-3) 10 Marks
- 3. C- Culture Technique (Diagram-1 Notes-4) 05 Marks
- 4. D - Sterilization technique  
E – Morphology of Earthworm  
F – Biogeochemical cycles  
G - Instruments used in Culture Technique  
H – Culture methods (Sketch&Notes-3) 5x3=15 Marks

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40 Marks

Record 5 Marks

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Total 45 Marks