

B.Sc. Forensic Science: Semester V

PS1807: Botany - V

Teaching Scheme	Examination Scheme
Lectures - 110/Week	Class Test - 12 Marks
Tutorials - 110/Week	Teacher's Assessment - 6 Marks
Credits: 4	Absentee - 12 Marks
	End Semester Exam - 74 marks

**Course outcomes:**

After the completion of the course the students will be able to

- Understand the role of Physiological and metabolic processes for plant growth and development.
- Learn the symptoms of Mineral Deficiency in crops and their management.
- Assimilate Knowledge about Biochemical constitution of plant diversity.
- Know the role of plants in development of natural products, nutraceuticals, dietary supplements, antioxidants

**Unit I – Plant water relation, Mineral Nutrition, Transpiration and translocation in phloem**

- Importance of water, water potential and its components; Transpiration and its significance; Factors affecting transpiration; Root pressure and guttation. Criteria of essentiality of elements; Role of essential elements; Symptoms of mineral deficiency in major crops, Transport of ions across cell membrane, active and passive transport, Composition of phloem sap, girdling experiment; Pressure flow model.

**Unit II – Carbon Oxidation**

- Krebs cycle, Glycolysis, fate of pyruvate- aerobic and anaerobic respiration and fermentation, regulation of glycolysis, oxidative pentose phosphate pathway, oxidative decarboxylation of pyruvate, regulation of Kerbs cycle, mitochondrial electron transport, oxidative phosphorylation, ATP-Synthetase, Chemiosmotic mechanism, P/O ratio, cyanide-resistant respiration, factors affecting respiration.

**Unit III – Nitrogen Metabolism**

- Nitrate assimilation, biological nitrogen fixation (examples of legumes and non-legumes), Physiology and biochemistry of nitrogen fixation, Ammonia assimilation (GS-GOGAT), reductive amination and transamination, amino acid synthesis.

**Unit IV – Lipid Metabolism & Photosynthesis**

- Lipid Metabolism: Synthesis and breakdown of triglycerides, -oxidation, glyoxylate cycle, gluconeogenesis and its role in mobilization of lipids during seed germination, -oxidation.; Photosynthesis: Pigments, Action spectra and Enhancement effect, Electron transport system and Photophosphorylation, C3 & C4 photosynthesis, CAM- Reaction and Significance

**Unit V – Plant Development, Movements, Dormancy & Responses**

- Developmental roles of Phytohormones (auxins, gibberellins, cytokinins, ABA, ethylene.) autonomic & paratonic movements, Control and Coordination in plants, Photoperiodism (SDP, LDP, Day neutral plants); Phytochrome (discovery and structure), red and far red-light responses on photomorphogenesis, Seed physiology & Dormancy, Vernalization & Senescence

Head

Dean

Faculty of Science

Invertis University, Bareilly

Registrar  
Invertis University  
Bareilly