

Botany

14

**SCHEME OF EXAMINATION OF B. Sc. (MEDICAL)**

**BOTANY**

<b>Semester – I</b>	
Paper –I	Diversity of Microbes
Paper-II	Cell Biology
<b>Semester – II</b>	
Paper –I	Diversity of Archegoniates
Paper-II	Genetics
Paper-III	Practicals(Annually)Semester-I&II
<b>Semester-III</b>	
Paper-I	Biology and Diversity of Seed plants -I
Paper-II	Plant Anatomy
<b>Semester-IV</b>	
Paper-I	Biology and Diversity of Seed Plants II
Paper-II	Plant Embryology
Paper-III	Practicals (Annually) Semester-III & IV
<b>Semester-V</b>	
Paper-I	Plant Physiology
Paper-II	Ecology
<b>Semester-VI</b>	
Paper-I	Biochemistry & Plant Biotechnology
Paper-II	Economic Botany
Paper-III	Practicals (Annually) Semester-V & VI

*Sharma*  
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*Dr. Rajeev Singh*  
(Dr. Rajeev Singh)

## Programme: B. Sc., BOTANY

### Programme Outcomes (POs):

**PO1. Critical Thinking:** Apply the knowledge of biology to make scientific queries and enhance the comprehension potential.

**PO2. Environment and Sustainability:** Insist the significance of conserving a clean environment for perpetuation and sustainable development.

**PO3. Effective Citizenship:** Responsible for learning, develop honesty in work and respect for self and others.

**PO4. Self-directed and Life-long Learning:** study incessantly by self to cope with growing competition for higher studies and employment

**PO5. Effective Communication:** Successful transfer of scientific knowledge both orally and in writing.

**PO6. Ethics:** Convey and practice social, environmental and biological ethics.




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# Programme Specific Outcomes (PSOs):

## PSOs of B.Sc Botany

- PSO1.** To understand the biodiversity, cell biology, ecology, physiology, biochemistry and plant pathology.
- PSO2.** Analyze the relationship among plants, animals and environment.
- PSO3.** Study relationship between among plants, animals and microorganisms.
- PSO4.** Perform experiment as per laboratory standards in field of taxonomy, plant ecology, plant physiology, biochemistry and economic botany.
- PSO5.** Understand the applications of biological sciences in agriculture, medicine, apiculture and environmental pollution.
- PSO6.** Build life skills in Edible mushroom cultivation, Biofertilizer production, Greenhouse maintenance and Seed technology through value-added courses.
- PSO7.** Facilitate students to take-up successful career in Botany.

  
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# COURSE OUTCOMES


## B.SC. I

- CO1. Describe taxonomic rules of plant kingdom classification.
- CO2. Classify different individual as prokaryotes and eukaryotes.
- CO3. Identify the characteristics of algae, fungi, bryophytes and pteridophytes.
- CO4. Study and impart knowledge about the general Characteristics, structure, reproduction, life history and economic importance of fungi. Understand the features of Lichens.
- CO5. Study the life cycles and economic importance of different members of plant kingdom.
- CO6. Describe the different aspects under cell biology and its importance.
- CO7. Understand the structure and chemical composition of chromatin and concept of cell division.
- CO8. Interpret the Mendel's principles, acquire knowledge on cytoplasmic inheritance and sex linked inheritance.
- CO9. Understand the concept of 'one gene one enzyme hypothesis' along with molecular mechanism of mutation.

## Laboratory Course

- CO1. Narrate the basic concept and applications of genetics in human welfare.
- CO2. Learn the microscopic technique, familiarize with the external and internal structure of lower and higher group organisms.
- CO3. Study of plant diseases causal organisms, and control measures.
- CO4. A cell is the locus of behaviour and that this behaviour has structural basis. Students will be able to observe different cell organelles through electron micrographs from standard articles.
- CO6. Student will able be to observe mitosis cell division through the cytological preparation from onion root tips.
- CO7. Working out problems related to genetics will be helpful to students, to solve the problems in plant biology.



  
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## B.SC. II

CO1. Study and impart knowledge about the Structure, reproduction, life cycle, fossil, fossilization and geological time scale.

CO2. Students get knowledge in fossil and fossilization.

CO3. Students are capable to acquit practical knowledgeable in histo-chemical tests in starch, sugars and proteins.

CO4. Students will be able to understand the internal structures, determination of age of fossil through prefixed fossil slides.

CO5. Plant anatomy and embryology are much awaited subject to study the internal structures and structure & function of reproductive organs in plants.

CO6. The students can understand basic aspects of anatomy of plant tissues such as meristems, epidermis, permanent tissues, complex tissue systems and structure of plant organs; reproductive developmental aspects of male reproductive system - Pollen grains, female reproductive system - embryo sac.

CO7. Students will be able to utilize embryological studies in various aspects like analysis of evolutionary trends, circumscription and delimitation of taxa and making a decision on systematics.

CO8. Understand external and internal structure of plants.

CO9. Aware various plant families and its economic importance.

CO10. Students able to explain about structure, classification, reproduction, life cycle and economic importance of Gymnosperms.

### Laboratory Course

CO1. Students able to understand the internal structure of monocot and dicot (stem, leaf and root), secondary thickening, anomalous secondary thickening (Dicot and Monocot) and nodal anatomy.


CO2. To gain knowledge on various types of inflorescence and fruits, taxonomic families and their useful parts of plants. To understand the economic importance of plants and acquire knowledge in the preparation of herbarium techniques.

CO3. Students get knowledge in internal structure of anther and isolation of endosperm.

CO4. Acquire knowledge on anatomy and developmental biology of the plants and get knowledge on structure and development plant embryo.



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## B.SC. III

- CO1. Acquire knowledge on the physiological functions of plants.
- CO2. To become knowledgeable in plant and its water relations.
- CO3. Students will be able to gain knowledge on role of micronutrients in plant growth, their development and understand the mechanism of nitrogen metabolism.
- CO4. To understand the energy releasing steps in Glycolysis. Students will be familiar about the mechanism of respiration.
- CO5. To gain knowledge about chloroplast structure, photosynthetic pigments, the path of energy from the light reactions through Calvin cycle. Students are able to understand the process of translocation of organic solutes in plants.
- CO6. To acquire knowledge in plant growth regulator and its uses, understand the physiology of flowering and photoperiodism.
- CO7. Distinguishing the fundamentals of enzyme nomenclature, classification and various applications of enzymes that can benefit to human life and student will learn kinetics of enzyme catalysed reactions.
- CO8. Understand the basic principles of plant tissue culture and acquire knowledge on sources of biomass and bioenergy. 3. Get to know the genetic transformation methods and metabolic engineering.

### Laboratory Course

- CO1. Students are capable to become practical knowledgeable in estimation of sugars, proteins, lipids and separation of plant pigments by paper chromatography methods
- CO2. Students will experience in plasmolysis, light intensities were influenced on transpiration, stomata size and number are responsible for transpiration rate, different coloured light are important for oxygen evolution, respiration rates are measured by using germinating seeds with Respiroscope.
- CO3. Get knowledge on pharmacological importance of medicinal plants and its bioactive compounds.

  
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(Dr. Ranjeet-Singh)