

Dr B R Ambedkar Open University
Faculty of science
M.Sc. Botany Assignments I Year-Semester - II (2025-2026)
Course -01(M.Sc-BOT-22201): Plant Development and Reproductive Biology

Instructions

- Include on first page: Name, Admission number, Programme (e.g., MSc Botany), Course title, Assignment number (1 or 2), Study center name, Mobile number, Signature.
- Each course has two separate assignments (Assignment I and Assignment II), each carrying 15 marks with a minimum passing mark of 06; do not submit a single combined assignment.
- Answer all the questions and draw diagram where ever necessary.
- Each question carries 5 marks
- Do not copy-paste from others; write in your own words to avoid disqualification.
- For references use academic books, Google, research articles
- Formatting Standards: Handwrite on A4 sheets, legible; page numbers
- Submission Process: Staple and submit it to the PG coordinator, Dr Braou, STML building. Obtain an acknowledged receipt and keep a copy for you record.

ASSIGNMENT - I

Max.Marks -15

Min.Marks – 06

1. A botanist observes active cell division only at the tips of roots and shoots in a young plant. Explain which type of meristem is involved and how its activity contributes to plant growth.
2. Explain the ABC model of flower development in Arabidopsis and its significance in understanding floral organ identity.
3. A stem of Bougainvillea exhibits an unusual pattern of secondary growth. Explain how you would identify abnormal secondary growth and discuss its adaptive significance.

ASSIGNMENT - II

Max.Marks -15

Min.Marks – 06

1. A breeder finds that a crop produces abundant pollen but very few seeds. Explain the possible causes by relating your answer to pollen development, pollination, or fertilization.
2. Describe the development of Male Gametophyte in Angiosperms.
3. A farmer reports poor germination of freshly harvested seeds. Explain the possible cause of seed dormancy and recommend suitable methods to overcome it.

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M.Sc. Botany Assignments I Year-Semester - II (2025-2026)
Course -02(M.Sc-BOT-22202): Taxonomy of Angiosperms

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ASSIGNMENT - 1

Max.Marks -15

Min.Marks – 06

1. A botanist discovers an unknown flowering plant in Telangana. Explain how the Angiosperm Phylogeny Group (APG) classification system can be used to identify and classify the plant.
2. A university plans to establish a modern digital herbarium. Explain the advanced herbarium techniques and digital tools that would improve specimen preservation, documentation, and online accessibility.
3. Explain the major rules and recommendations of the ICN, Madrid Code 2024

ASSIGNMENT – II

Max.Marks -15

Min.Marks – 06

1. A plant specimen collected during a biodiversity survey is unidentified. Explain how you would identify the specimen using a dichotomous taxonomic key.
2. Compare Fabids and Malvids with respect to their major orders, families, and diagnostic features according to the APG classification.
3. Describe the characters of Lamids.

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M.Sc. Botany Assignments I Year-Semester - II (2025-2026)

Course -03(M.Sc-BOT-22203): Biostatistics, Plant breeding and Techniques in Plant Science

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ASSIGNMENT - 1

Max.Marks -15

Min.Marks – 06

1. A plant breeder wants to predict the probability of obtaining a desired trait in a breeding population. Explain which probability distribution (Binomial, Poisson, or Normal) would be most appropriate and justify your choice.
2. A breeder develops a hybrid crop with significantly higher yield than its parents. Explain the genetic basis of heterosis and describe how backcross breeding can be used to transfer this trait into an elite variety.
3. Explain the principles of mutation breeding and discuss its advantages in crop improvement.

ASSIGNMENT - II

Max.Marks -15

Min.Marks – 06

1. Differentiate between Scanning Electron Microscopy (SEM) and Transmission Electron Microscopy
2. Describe RT-PCR applications.
3. DNA microarray technology applications in plant research.

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M.Sc. Botany Assignments I Year-Semester - II (2025-2026)
COURSE -04(M.Sc-BOT-22204): PLANT PHYSIOLOGY

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ASSIGNMENT - 1

Max.Marks -15

Min.Marks – 06

1. Explain the criteria for the essentiality of mineral nutrients and discuss their significance in plant nutrition.
2. Explain the role of chlorophylls and accessory pigments in light harvesting during photosynthesis.
3. Compare Carbon Assimilation Cycles of C3, C4 and CAM.

ASSIGNMENT - II

Max.Marks -15

Min.Marks – 06

1. Differentiate between aerobic and anaerobic respiration
2. A plant cell shows reduced ATP production despite active electron transport. Explain the role of oxidative phosphorylation in ATP synthesis and discuss the possible reasons for decreased ATP generation.
3. Recommend appropriate plant growth regulators to promote rooting in stem cuttings, enhance fruit size, and delay leaf senescence. Justify your choices.