

**D-2525**

**Sub. Code**

**34611**

**DISTANCE EDUCATION**

**M.Sc. (Botany) DEGREE EXAMINATION, MAY 2026.**

**First Semester**

**PLANT DIVERSITY**

**(CBCS 2018 – 2019 Academic Year Onwards)**

**Time : Three hours**

**Maximum : 75 marks**

**PART A — (10 × 2 = 20 marks)**

**Answer ALL the questions.**

1. What is a thallus?
2. Define isogamy and anisogamy.
3. What type of life cycle is commonly found in Cyanophyceae?
4. What is the significance of the triphasic life cycle in Rhodophyceae?
5. Name any two major fungal classes.
6. Define septate hyphae.
7. What is budding?
8. Who proposed a widely accepted classification of Pteridophytes?
9. What type of xylem elements are present in Gnetales but absent in Coniferales?
10. Which group shows double fertilization — Coniferales or Gnetales?

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) Write a short note on different thallus organizations in algae.

Or

- (b) Write a note on the classification of algae by Smith.

12. (a) Outline the classification of fungi by Alexopoulos and Mims (1979).

Or

- (b) Describe different types of asexual spores in fungi.

13. (a) Write a note on the classification of lichens.

Or

- (b) Elaborate the reproduction of lichens.

14. (a) Write a note on the classification of Bryophytes.

Or

- (b) Write a note on the economic or ecological importance of *Sphagnum*.

15. (a) Give a brief account of general characters of *Psilotum*.

Or

- (b) Elucidate the general characters of Gnetales.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Compare the characteristics of Phycomycetes, Ascomycetes, and Basidiomycetes.
  17. Explain the structure and reproduction in lichens in detail.
  18. Describe the structural variations in gametophytes and sporophytes of Marchantiaceae and Anthocerotaceae.
  19. Explain the classification of Pteridophytes with suitable examples.
  20. Discuss the general characters and life cycle patterns of Pteropsida.
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**D-2526**

**Sub. Code**

**34612**

**DISTANCE EDUCATION**

**M.Sc. (Botany) DEGREE EXAMINATION, MAY 2026.**

**First Semester**

**PLANT TAXONOMY**

**(CBCS 2018 – 2019 Academic Year Onwards)**

**Time : Three hours**

**Maximum : 75 marks**

**PART A — (10 × 2 = 20 marks)**

**Answer ALL questions.**

1. What is species?
2. Define ecotype.
3. What are the features including natural classification?
4. Differentiate perianth and tepal.
5. Define isotype.
6. What is basionym?
7. Write the floral formula of Areaceae.
8. List out the special type of inflorescences.
9. Can you recall any two parasitic plants you studied?
10. List the medicinally important plants in Rubiaceae.

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) Draw the outline classification of Bentham and Hooker system.

Or

- (b) Analyze the five-kingdom system of biological classification.

12. (a) Briefly explain the significance of numerical taxonomy.

Or

- (b) Enumerate the principles of ICBN.

13. (a) Discuss the salient features of the family Hydrocharitaceae.

Or

- (b) Analyze the vegetative characters of Dioscoreaceae.

14. (a) Summarize vegetative and floral characters of Sapotaceae.

Or

- (b) List out the economic importance of Apocynaceae.

15. (a) Explain the floral characters of Tiliaceae.

Or

- (b) Give an account on floral characters of Sapindaceae.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Explain in detail about molecular systematics.
  17. Discuss about the nomenclature types.
  18. Describe the vegetative and floral characters of Cyperaceae.
  19. Elaborate the vegetative and reproductive characters of Amaranthaceae.
  20. Analyze the salient features and economic importance of Asteraceae.
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**D-2527**

**Sub. Code**

**34613**

**DISTANCE EDUCATION**

**M.Sc. (Botany) DEGREE EXAMINATION, MAY 2026.**

**First Semester**

**BIOLOGICAL TECHNIQUES IN BOTANY**

**(CBCS 2018 – 2019 Academic Year Onwards)**

**Time : Three hours**

**Maximum : 75 marks**

**PART A — (10 × 2 = 20 marks)**

**Answer ALL questions.**

1. Define magnification.
2. What is hemocytometer?
3. Write about microtomy.
4. Define staining.
5. Can you recall the gram staining?
6. How to dewaxing the specimens?
7. What is electrophoresis?
8. Write the main application of TLC.
9. Define spectrometry.
10. What is maceration?

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) Draw the legible diagram of compound light microscope with parts.

Or

- (b) Summarize the applications of micrometry.

12. (a) Briefly explain the dehydrating agents.

Or

- (b) List out the common stains and their uses in plant anatomy.

13. (a) Elaborate the common staining procedure for carbohydrate.

Or

- (b) Give an account on killing and fixing in material preparation.

14. (a) How would you dewaxing and staining of tissue sections?

Or

- (b) Enumerate the applications of RAPD.

15. (a) Analyze the principles of TLC.

Or

- (b) Explain the applications of PCR.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Elaborate the steps involved in DNA finger printing.
  17. Describe the principle and applications of Liquid scintillation spectrometry.
  18. Justify the principle, instrumentation, types of HPTLC.
  19. Demonstrate the SDS-PAGE experiment.
  20. Analyze the principle and applications of transmission electron microscope.
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**D-2528**

**Sub. Code**

**34631**

DISTANCE EDUCATION

M.Sc. (Botany) DEGREE EXAMINATION, MAY 2026.

Third Semester

MICROBIOLOGY AND PLANT PATHOLOGY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. What is meant by microbes?
2. Define viral replication.
3. State any two economic uses of bacteria.
4. Define Virions.
5. Who is the father of plant pathology?
6. What are biotic diseases?
7. Recall mycoplasmas.
8. Interpret the term etiology in plant pathology.
9. Outline the concept of biological control.
10. Which microbe causes citrus canker?

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) Assess the key features used in the characterization of microorganisms.

Or

- (b) Analyze the morphological features of bacterial cells.

12. (a) Explain the methods used to culture bacteria and identify their growth characteristics.

Or

- (b) Compare the ultra structural organization of plant and animal viruses.

13. (a) Explain any two bacterial diseases affecting humans.

Or

- (b) Discuss the nature and characteristics of prions.

14. (a) Outline the historical milestones in plant pathology and highlight their importance.

Or

- (b) Interpret the components and significance of the disease triangle.

15. (a) Describe the biological methods of plant disease control.

Or

- (b) Explain the symptoms and control strategies for late blight of potato.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Classify the classification of microorganisms with suitable examples.
  17. Elaborate the replication process of viruses and the role of virions in disease transmission.
  18. Illustrate the characteristics and significance of phytoplasma.
  19. Critically analyze the host-pathogen interaction defense mechanisms in plants.
  20. Describe the symptoms, causal agents, and control measures for Blast of paddy.
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**D-2529**

**Sub. Code**

**34632**

**DISTANCE EDUCATION**

**M.Sc. (Botany) DEGREE EXAMINATION, MAY 2026.**

**Third Semester**

**ECOLOGY, BIODIVERSITY CONSERVATION AND  
ECONOMIC BOTANY**

**(CBCS 2018 – 2019 Academic Year Onwards)**

**Time : Three hours**

**Maximum : 75 marks**

**PART A — (10 × 2 = 20 marks)**

**Answer ALL the questions.**

1. Define predation
2. What do you mean by ecotone?
3. State two causes of biodiversity loss.
4. Infer endemism.
5. What is conservation?
6. Expand GATT
7. How do you define intellectual property?
8. What is a trade secret?
9. Give one example of a trademark in plants.
10. List out the two oil-yielding plants.

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) Explain abiotic and biotic components of an ecosystem.

Or

- (b) Illustrate the importance of ecological succession in habitat restoration.

12. (a) Apply the concept of agro-biodiversity in modern agriculture.

Or

- (b) Analyze the major causes for the loss of biodiversity globally.

13. (a) Illustrate the importance of the Red Data Book in plant conservation.

Or

- (b) Compare the role of *in situ* and *ex situ* methods in plant conservation.

14. (a) Distinguish between physical property and intellectual property with suitable examples.

Or

- (b) Examine the role of WTO in promoting equitable trade practices in biotechnology.

15. (a) Explain the method of cultivation and post-harvest processing of Turmeric.

Or

- (b) Assess the environmental concerns associated with large-scale oil crop cultivation.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Explain the concept and structure of food chains and food webs with suitable examples.
  17. Describe the major vegetation types of India and their geographical distribution.
  18. Explain the methods and significance of biodiversity conservation.
  19. Differentiate among patents, trademarks, copyrights, and trade secrets with examples.
  20. Discuss the origin, botanical features, and economic importance of major oil-yielding plants.
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**D-2530**

**Sub. Code**

**34633**

**DISTANCE EDUCATION**

**M.Sc. (Botany) DEGREE EXAMINATION, MAY 2026.**

**Third Semester**

**ALGAL TECHNOLOGY AND MUSHROOM TECHNOLOGY**

**(CBCS 2018 – 2019 Academic Year Onwards)**

**Time : Three hours**

**Maximum : 75 marks**

**PART A — (10 × 2 = 20 marks)**

**Answer ALL the questions.**

1. Define downstream processing in algal cultivation.
2. Name one bioactive compound derived from algae.
3. Define symbiotic nitrogen fixation.
4. What is rope cultivation in macroalgae farming?
5. Define protoplast fusion in macroalgae.
6. What is genetic transformation in algae?
7. Why paddy straw used as substrate?
8. What is the ideal temperature for white button mushroom cultivation?
9. List two packaging methods for mushrooms.
10. Define the cost-benefit ratio in mushroom farming.

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) Expound the upstream and downstream processing in algal cultivation.

Or

- (b) Explain how algae are used in biofuel production.

12. (a) Explain the role of nitrogen-fixing microalgae in sustainable agriculture.

Or

- (b) Describe the methods of seaweed liquid fertilizer (SLF) preparation.

13. (a) Explain the role of *nif*-genes in nitrogen fixation in algae.

Or

- (b) Explain the significance of protoplast fusion techniques in macroalgae.

14. (a) Outline the steps involved in preparing compost for white button mushroom cultivation.

Or

- (b) Elucidate a simple low-cost design for a mushroom farm.

15. (a) Explain the nutritional value of mushrooms with a focus on amino acids and mineral elements.

Or

- (b) Explain how drying and salt solution storage help in preserving mushrooms.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Provide a comprehensive study on the cultivation, processing, and applications of *Spirulina*, *Dunaliella*, and *Haematococcus*.
  17. Provide a detailed account of microalgae used as biofertilizers.
  18. Provide a detailed account of mushroom cultivation in India, covering its history, scope, and economic importance.
  19. Discuss the cultivation practices of paddy straw mushroom (*Volvariella volvaceae*) and its significance.
  20. Evaluate the marketing strategies for mushrooms in India and abroad. What are the key factors influencing the export value of mushrooms?
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