

**S-3175**

**Sub. Code**

**23MBO2C1**

**M.Sc. DEGREE EXAMINATION, APRIL 2026**

**Second Semester**

**Botany**

**PLANT TAXONOMY OF ANGIOSPERMS AND  
ECONOMIC BOTANY**

**(CBCS – 2023 onwards)**

Time : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. What is an artificial system of classification?
2. Mention two major botanical gardens in the world.
3. What is chemotaxonomy?
4. What is the importance of typification in taxonomy?
5. What is the inflorescence type in Combretaceae?
6. What type of tendril is found in Vitaceae?
7. What type of corolla is found in Boraginaceae?
8. Name the type of inflorescence in Verbenaceae.
9. Cardamom.
10. Uses of jute.

**Part B**

(5 × 5 = 25)

Answer **all** questions choosing either (a) or (b).

11. (a) Explain the principles and significance of the Natural System of classification.

Or

- (b) Briefly discuss the role and organization of the Botanical Survey of India (BSI).

12. (a) What are the important principles of ICBN?

Or

- (b) Explain the principles of priority and author citation with suitable examples.

13. (a) Describe the characteristic features of the Vitaceae family with reference to tendril structure and flower type.

Or

- (b) Describe the habit, habitat, and major characteristics of Rhamnaceae.

14. (a) Discuss the floral structure and economic importance of Sapotaceae.

Or

- (b) Discuss the vegetative and reproductive features of Amaryllidaceae.

15. (a) Write a short note on economic importance of lemon grass oil.

Or

- (b) Explain the role of plants in pollution control and aesthetics.

**Part C**

(3 × 10 = 30)

Answer any **three** questions.

16. Explain in detail the preparation, labeling, and long-term maintenance of herbarium specimens.
17. Discuss in detail the modern trends in taxonomy, highlighting chemotaxonomy, numerical taxonomy, and biosystematics.
18. Explain the distinguishing features of Polypetalae with special reference to the families studied.
19. Discuss the distinguishing features, floral structure, and ecological significance of Nyctaginaceae.
20. Describe the commercial significance of *Casuarina*.

**S-3176**

**Sub. Code**

**23MBO2C2**

**M.Sc. DEGREE EXAMINATION, APRIL 2026**

**Second Semester**

**Botany**

**PLANT ANATOMY AND EMBRYOLOGY OF  
ANGIOSPERMS**

**(CBCS – 2023 onwards)**

Time : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. Define plasmodesmata.
2. What is reaction wood?
3. What is periderm?
4. Define anomalous secondary growth.
5. Name the four layers of a mature anther wall.
6. What is palynology?
7. What is triple fusion?
8. Define ruminant endosperm with an example.
9. What is embryogeny?
10. What is parthenocarpy?

**Part B**

(5 × 5 = 25)

Answer **all** questions choosing either (a) or (b).

11. (a) Discuss the concept of dendrochronology and its applications.

Or

- (b) Compare ring porous and diffuse porous wood with examples.

12. (a) Describe the structure and activity of the phellogen in periderm formation.

Or

- (b) Explain the special features of secondary growth in arborescent monocots.

13. (a) Write a note on the ultrastructure and function of the tapetum.

Or

- (b) What is pollen analysis and how is it useful in ecological studies?

14. (a) Describe the structure and development of a typical megasporangium (ovule).

Or

- (b) Explain the structure and significance of rumininate endosperm.

15. (a) Describe the main stages in the development of a dicot embryo (e.g., Crucifer).

Or

- (b) Write a brief account of the physiological basis and importance of parthenocarpy.

**Part C**

(3 × 10 = 30)

Answer any **three** questions.

16. Describe in detail the organization and activity of vascular cambium.
17. Compare and contrast the anomalous secondary thickening seen in Amaranthaceae Aristolochiaceae.
18. Describe the development of male gametophyte in angiosperms with suitable diagrams.
19. Explain the process of fertilization in angiosperms with reference to double fertilization and triple fusion.
20. Explain the types, mechanisms, and evolutionary significance of apomixis in plants.
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**S-3177**

**Sub. Code**

**23MBO2C3**

**M.Sc. DEGREE EXAMINATION, APRIL 2026**

**Second Semester**

**Botany**

**ECOLOGY, PHYTOGEOGRAPHY AND CONSERVATION  
BIOLOGY**

**(CBCS – 2023 onwards)**

Time : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. Mention two characteristics of a population.
2. What is species diversity?
3. What is meant by primary productivity?
4. What is meant by a food web?
5. What is endemism?
6. What is remote sensing?
7. What are endemic species?
8. What is ex-situ conservation?
9. Define solid waste.
10. What is meant by eco-labelling?

**Part B**

(5 × 5 = 25)

Answer **all** questions choosing either (a) or (b).

11. (a) Describe the basic characteristics of population.

Or

- (b) Write a short note on the concept of ecological succession.

12. (a) Describe primary and secondary productivity in ecosystems.

Or

- (b) Explain energy flow through an ecosystem.

13. (a) Write a short note on the vegetation types of Tamil Nadu.

Or

- (b) Explain the Age and Area Hypothesis of plant distribution.

14. (a) What are biodiversity hotspots? Mention any three in India.

Or

- (b) Describe the role of biotechnology in plant conservation

15. (a) Explain the causes and effects of ozone layer depletion.

Or

- (b) Briefly describe the process of ecological restoration.

**Part C**

(3 × 10 = 30)

Answer any **three** questions.

16. Describe in detail the diversity of plant life with reference to growth forms and life forms.
  17. Give a detailed account of energy resources, differentiating between renewable and non-renewable types, with examples.
  18. Elaborate on the role and applications of GIS in plant ecology and biodiversity conservation.
  19. Explain the threats to biodiversity such as habitat loss, poaching, exotic species invasion, and man-wildlife conflict.
  20. Explain climate change in detail. Discuss the greenhouse effect, global warming, and their consequences.
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**S-3178**

**Sub. Code**

**23MBO2E1**

**M.Sc. DEGREE EXAMINATION, APRIL 2026**

**Second Semester**

**Botany**

**Elective – MEDICINAL BOTANY**

**(CBCS – 2023 onwards)**

Time : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. What are the Panchamahabhutas?
2. What are the Saptadhatus?
3. Define phytochemistry.
4. What is adulteration in crude drugs?
5. Mention any one medicinal use of turmeric.
6. Mention any one medicinal plant used in diabetes treatment.
7. What is a botanic garden?
8. What is the role of ethnomedicinal plant gardens?
9. What is ethnomedicine?
10. What is the role of folklore in ethnobotanical knowledge?

**Part B**

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) What is the Tridosha concept? Explain briefly.

Or

- (b) Explain the classical health traditions: Naturopathy and Homeopathy.

12. (a) How are raw drugs authenticated using physical and analytical methods?

Or

- (b) Describe any two plant sources of medicinally important phytoconstituents.

13. (a) Mention any one medicinal use of turmeric (*Curcuma longa*).

Or

- (b) What is the therapeutic use of Belladonna?

14. (a) Describe the IUCN Red List categories used to assess threatened medicinal plants.

Or

- (b) Explain the role of national parks in insitu conservation of plant biodiversity.

15. (a) Write a note on the plants associated with social and religious customs in India.

Or

- (b) Discuss the contribution of archaeology and folklore in documenting ethnobotanical data.

**Part C**

(3 × 10 = 30)

Answer any **three** questions.

16. Explain the origin and fundamental principles of Siddha medicine, and list important medicinal plants used.
  17. Discuss the adulteration and admixtures of herbal drugs.
  18. Discuss the anticancer potential of *Podophyllum* — active principles, pharmacology, and clinical use.
  19. Describe how botanic gardens and ethnomedicinal gardens contribute to exsitu conservation and education.
  20. Explain the terms ethnomedicine, ethnoecology, and folk medicine with suitable examples.
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**S-3179**

**Sub. Code**

**23MBO2E4**

**M.Sc. DEGREE EXAMINATION, APRIL 2026**

**Second Semester**

**Botany**

**Elective — BIOSTATISTICS**

**(CBCS – 2023 onwards)**

Time : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. Define sample and population.
2. List two types of variables used in biostatistics.
3. Define standard deviation in statistics.
4. Write the formula for coefficient of variation.
5. Define a random variable.
6. Write any two characteristics of the binomial distribution.
7. Define ANOVA.
8. What does a p-value represent in hypothesis testing?
9. What is regression?
10. Mention one method used to study correlation.

**Part B**

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) What are the different methods for data collection?

Or

- (b) Explain the difference between discrete and continuous variables.

12. (a) Calculate mean and mode for the following data:  
Class : 10 – 20, 20 – 30, 30 – 40, 40 – 50;  
Frequency : 5, 8, 12, 10.

Or

- (b) Write a note on the applications of dispersion measures in biostatistics.

13. (a) Explain the basic principles of probability.

Or

- (b) Write short notes on binomial distribution and its applications.

14. (a) Describe the use of Chi-square test for testing goodness of fit with an example.

Or

- (b) Give an outline of MANOVA and mention its advantages.

15. (a) How do you test the significance of a correlation coefficient?

Or

- (b) Compare and contrast correlation and regression.

**Part C**

(3 × 10 = 30)

Answer any **three** questions.

16. Illustrate various types of diagrams and graphs used in biostatistics for representing data with suitable examples.
  17. Define and describe the importance of measures of dispersion. Discuss in detail how to calculate standard deviation, standard error and coefficient of variation.
  18. With suitable examples, explain the use of normal distribution in hypothesis testing and sampling.
  19. Explain Student's t-test for paired and unpaired samples. Provide formulas and suitable examples.
  20. Discuss the concept of correlation in detail. What are the methods used to study correlation and how are results interpreted?
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**S-3180**

**Sub. Code**

**23MBO2S1**

**M.Sc. DEGREE EXAMINATION, APRIL 2026**

**Second Semester**

**Botany**

**AGRICULTURE AND FOOD MICROBIOLOGY**

**(CBCS – 2023 onwards)**

Time : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. What is the role of *Rhizobium* in agriculture.
2. What are mycorrhizae?
3. Define biofertilizer.
4. Give an example of a weed that can be controlled biologically.
5. What is Single Cell Protein (SCP)?
6. Mention one use of mushrooms in human diet.
7. Name one microorganism that spoils dairy products.
8. Give an example of a fermented dairy product.
9. What is downstream processing?
10. What is the main purpose of food preservation?

**Part B**

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Discuss the importance and mechanism of Phosphate Solubilizing Microorganisms (PSM) in plant nutrition.

Or

- (b) How do PGPMs help in improving plant health and stress tolerance?

12. (a) Discuss any two methods used for the restoration of waste or degraded lands.

Or

- (b) Describe different types of biofertilizers based on microorganisms used.

13. (a) Describe any three extrinsic factors that influence microbial activity in food.

Or

- (b) Explain the concept of Single Cell Protein (SCP) and list the organisms used in its production.

14. (a) Differentiate between food poisoning and food intoxication with suitable examples.

Or

- (b) Write a short note on spoilage of fish and seafood due to microbial activity.

15. (a) Discuss the significance of upstream and downstream processing in bioprocess technology.

Or

- (b) Describe the microbial production of any one industrially important drug.

**Part C**

(3 × 10 = 30)

Answer any **three** questions.

16. Explain the types, structure, and functional role of mycorrhizae in plant growth, nutrient absorption, and soil health.
  17. Explain the process, organisms involved, benefits, and limitations of vermicomposting.
  18. Describe the production, nutritional composition, and significance of mushrooms as microbial food.
  19. Describe the principles, methods, and importance of food preservation techniques such as thermal, chemical, and biological methods.
  20. Write a comprehensive account of food preservation techniques – physical, chemical, and biological methods.
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**S-3181**

**Sub. Code**

**23MBO2S2**

**M.Sc. DEGREE EXAMINATION, APRIL 2026**

**Second Semester**

**Botany**

**BIOPESTICIDE TECHNOLOGY**

**(CBCS – 2023 onwards)**

Time : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. What is the role of *Bacillus thuringiensis* in biopesticide formulation?
2. Mention any two types of biopesticides.
3. What are biorational pesticides?
4. Define bionanopesticides.
5. What is NPV?
6. Give one example each of a biofungicide.
7. Name any two pests controlled by *Bacillus thuringiensis*.
8. What is CFU in biopesticide quality assessment?

9. Name any two carrier materials used in biopesticide formulations.
10. Name any two commercially available biopesticide products.

**Part B**

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Write a short note on the history and evolution of biopesticides.

Or

- (b) Differentiate between biopesticides and chemical pesticides.

12. (a) Distinguish between botanical pesticides and microbial biopesticides.

Or

- (b) Elucidate the brief account of bioherbicides.

13. (a) Explain the significance of *Trichoderma* and *Gliocladium* as biofungicides.

Or

- (b) Discuss the use of *Paecilomyces* as a bioinsecticide in crop protection.

14. (a) Explain how NPV works against lepidopteran pests in field crops.

Or

- (b) How is standardization of biopesticides carried out in India?

15. (a) Explain briefly the process of mass multiplication of fungal biopesticides.

Or

- (b) What are the prospects of biopesticides in organic farming and integrated pest management (IPM)?

**Part C**

(3 × 10 = 30)

Answer any **three** questions.

16. Discuss the concept of biological control and its relevance to sustainable agriculture.
17. Write a comprehensive account of the role and significance of neem (*Azadirachta indica*) in organic agriculture.
18. Discuss the important bioinsecticides (Bt, NPV, *Beauveria*, *Metarhizium*, *Verticillium*)-their characteristics, targets, and modes of action.
19. Evaluate the advantages of understanding pest-host specificity and mechanism of action in developing effective biopesticide strategies.
20. Prepare a report on the formulation, target use, and efficacy of any five commercially available biopesticide products in India.
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**S-3182**

**Sub. Code**

**23MBO3E4**

**M.Sc. DEGREE EXAMINATION, APRIL 2026**

**Third Semester**

**Botany**

**Elective — INDUSTRIAL BOTANY**

**(CBCS – 2023 onwards)**

Time : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** the questions.

1. Diatomite
2. Agar
3. Blue cheeses
4. Extracellular enzymes
5. Flax
6. Tannins
7. Clostridium
8. Biomining
9. Calcium alginate
10. DMEM

**Part B**

(5 × 5 = 25)

Answer **all** the questions, choosing either (a) or (b).

11. (a) Examine the algae is used as fertilizer.

Or

- (b) Justify the role of algae in pharmaceutical industry.

12. (a) Explain the role of fungi in cheese production.

Or

- (b) Enlist the beneficial uses of yeast.

13. (a) Write concise notes on Tannins and Dyes.

Or

- (b) Write about the wood and cork.

14. (a) Explain the role of bacteria in dairy products.

Or

- (b) Discuss about the bioleaching.

15. (a) Bring out the importance of transgenic plants.

Or

- (b) Describe about the somatic seeds.

**Part C**

(3 × 10 = 30)

Answer any **three** questions.

16. Write about the role of algae in mineral and fodder industry.

17. Discuss about the role of fungi in manufacture of proteins and vitamins.

18. Define fibre. List out the fibre-yielding plants.
  19. Give the importance of bacteria in biogas production.
  20. Give a detailed account on micropropagation.
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**S-3183**

**Sub. Code**

**23MBO4C1**

**M.Sc. DEGREE EXAMINATION, APRIL 2026**

**Fourth Semester**

**Botany**

**PLANT PHYSIOLOGY AND PLANT METABOLISM**

**(CBCS – 2023 onwards)**

Time : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. Symplast pathway.
2. What is evapotranspiration?
3. Define photophosphorylation?
4. State about photolysis.
5. What is chemiosmotic theory?
6. Glycolysis.
7. Brassinosteroids.
8. Biological rhythms.
9. Salinity-stress responsive proteins.
10. Biotic stress.

**Part B**

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain the process of transpiration and its significance.

Or

- (b) Describe the components of water potential and its importance.

12. (a) Summarize the electron transport chain and its role in photosynthesis.

Or

- (b) A brief account of the photorespiration and its significance.

13. (a) Elucidate the process of oxidative phosphorylation and ATP synthesis.

Or

- (b) Enlighten the symbiotic nitrogen fixation with suitable illustration.

14. (a) Explain the role of auxins, gibberellins and cytokinins.

Or

- (b) Brief explain the mechanism of vernalization.

15. (a) Critically comment on the abscission.

Or

- (b) Elaborate the plant responses to environmental stresses.

**Part C**

(3 × 10 = 30)

Answer any **three** questions.

16. Analyze the phloem loading and unloading with special reference to source sink theory.
  17. Compare and contrast the C3, C4 and CAM pathways.
  18. Describe the mechanism of Pentose phosphate pathway and relate with respiration.
  19. Give a detailed overview of photoperiodism and mechanism of flowering.
  20. Critically evaluate the biochemical and morphological changes of fruit ripening.
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**S-3184**

**Sub. Code**

**23MBO4C2**

**M.Sc. DEGREE EXAMINATION, APRIL 2026**

**Fourth Semester**

**Botany**

**BIOCHEMISTRY AND APPLIED BIOTECHNOLOGY**

**(CBCS – 2023 onwards)**

Time : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. What is pH?
2. What is free energy?
3. What are glycoproteins?
4. Difference between saturated and unsaturated fatty acids
5. What is the Michaelis-Menten constant ( $K_m$ )?
6. Define glycosides.
7. Define antisense technology.
8. What is RNA interference (RNAi)?
9. Define enzyme immobilization.
10. Define bioreactor.

**Part B**

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Discuss the concept of pH and its importance in biological systems.

Or

- (b) Explain redox potential and its significance in electron transport chain.

12. (a) Classify carbohydrates and give one example for each class.

Or

- (b) Explain the primary and secondary structures of peptides.

13. (a) Write a short note on the line weaver-Burk plot and its applications.

Or

- (b) Explain the classification and biological functions of alkaloids.

14. (a) Describe the potential of plants as factories for therapeutic proteins.

Or

- (b) Write a short note on terminator seed technology and its controversies.

15. (a) Describe the role of microbes in alcohol fermentation.

Or

- (b) Explain the concept of the “superbug” and its use in biodegradation.

**Part C**

(3 × 10 = 30)

Answer any **three** questions.

16. Describe the first and second laws of thermodynamics. Explain how they govern biochemical processes with suitable examples.
  17. Classify lipids and describe in detail the structure and functions of fatty acids, phospholipids, glycolipids, and lipoproteins.
  18. Explain the mechanism of enzyme action and the role of coenzymes and isoenzymes in catalysis.
  19. Describe in detail the mechanisms of virus-induced gene silencing and complementation. Discuss their applications in functional genomics.
  20. Explain in detail the microbial production of amylase, protease, and lipase.
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**S-3185**

**Sub. Code**

**23MBO4E1**

**M.Sc. DEGREE EXAMINATION,  
APRIL 2026**

**Fourth Semester**

**Botany**

**Elective – ORGANIC FARMING**

**(CBCS – 2023 onwards)**

Time : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. What are organic ecosystems?
2. Define dryland agronomy.
3. What is vermicompost?
4. Define the term ‘organic manure.’
5. What is indigenous technical knowledge (ITK)?
6. Define biocontrol agents.
7. Mention one method used for storage of organic produce.
8. Define value addition in the context of organic produce.
9. Mention one economic benefit of organic farming.
10. Give one objective of organic quality control.

**Part B**

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Write a short note on the concept and significance of organic farming.

Or

- (b) Briefly describe the concept and practices of dryland agronomy.

12. (a) What is green manuring? Explain its role in soil fertility management.

Or

- (b) Describe the characteristics and role of biofertilizers in organic soil management.

13. (a) Write a note on fungal and bacterial biocontrol agents with examples.

Or

- (b) Explain how ITK contributes to sustainable pest and disease management.

14. (a) Write a short note on post-harvest handling and management in organic farming.

Or

- (b) How is the transport of organic produce carried out to prevent contamination?

15. (a) Briefly explain the types of organic certification.

Or

- (b) Write a short note on quality grading and labelling of organic produce.

**Part C**

(3 × 10 = 30)

Answer any **three** questions.

16. Describe the structure and components of the National Programme for Organic Production.
  17. Discuss the organic farming practices used to improve and sustain soil health, with suitable examples.
  18. Elaborate on the various components of organic insect-pest and disease management with suitable examples.
  19. Elaborate on the storage and transportation methods of organic produce.
  20. Evaluate the economic viability of organic farming with respect to production costs, market price, and consumer demand.
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**S-3186**

**Sub. Code**

**23MBO4S1**

**M.Sc. DEGREE EXAMINATION, APRIL 2026**

**Fourth Semester**

**Botany**

**BOTANY FOR ADVANCED RESEARCH**

**(CBCS – 2023 onwards)**

Time : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. What is RNA splicing?
2. What is a gene chip?
3. What is DNA barcoding and which genetic marker is commonly used in plants?
4. Distinguish between cladistics and phenetics in systematics.
5. Name two plant hormones involved in root and shoot development.
6. Define the ABC model of floral development.
7. What is the role of enzymes in biological reactions?
8. What is the function of an enzyme's active site?
9. Name two plantation crops and their economic uses.
10. Name any two sugar-yielding plants.

**Part B**

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain the steps of translation: initiation, elongation, and termination.

Or

- (b) Discuss one factor that influences translation accuracy and its biological significance.

12. (a) Compare cladistics and phenetics, and mention one strength of each method.

Or

- (b) What is molecular systematics, and how does molecular phylogenetics support evolutionary studies?

13. (a) Write about the biochemical control of respiration.

Or

- (b) Describe the ABCD model in Arabidopsis flower.

14. (a) Discuss about the classification of enzymes with examples.

Or

- (b) Explain about the various factors affecting the enzyme activity.

15. (a) Explain the uses of fibre-yielding plants in industry.

Or

- (b) Discuss the economic role of narcotic plants with examples.

**Part C**

(3 × 10 = 30)

Answer any **three** questions.

16. Provide a detailed overview of the Central Dogma of Molecular Biology.
  17. Describe the types and cytogenetic basis of apomixis in angiosperms.
  18. Discuss the regulation of plant growth and development by hormones.
  19. Compare the 'lock-and-key' and 'induced-fit' models of enzyme — substrate interaction.
  20. Explain the classification, examples, and uses of narcotic and beverage-yielding plants.
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**S-3187**

**Sub. Code**

**23MBO4S2**

M.Sc. DEGREE EXAMINATION, APRIL 2026

**Fourth Semester**

**Botany**

**FARM SCIENCES – GREEN WEALTH**

**(CBCS – 2023 onwards)**

Time : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. Define agronomy.
2. Mention any two manures used in crop production.
3. Define weed competition.
4. Mention any two types of herbicides.
5. Name two common tillage implements used in farming.
6. Mention any two pesticides used in agriculture.
7. Define seed viability.
8. What is a reversible plough?
9. What is physiological disorder?
10. What are bulb crops? Give one example.

**Part B**

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain the importance of seed and sowing techniques in agronomy.

Or

- (b) Discuss the importance of water-use efficiency in agriculture.

12. (a) Describe herbicide selectivity with examples.

Or

- (b) Discuss crop rotation, crop ideotypes, and their importance in sustainable agriculture.

13. (a) Write a short note on the identification of fertilizers and their usage in crops.

Or

- (b) Discuss the methods of herbicide application in crop management.

14. (a) Differentiate between field capacity and infiltration rate.

Or

- (b) Describe the method to measure irrigation water.

15. (a) Describe the post-harvest handling of onion and garlic.

Or

- (b) Explain briefly the storage methods for turmeric and ginger.

**Part C**

(3 × 10 = 30)

Answer any **three** questions.

16. Discuss various crop management practices for better utilization of water through soil and water conservation strategies.
  17. Explain the importance, classification, and control methods of weeds in agriculture.
  18. Discuss the various tillage implements used in farming and explain their function with suitable examples.
  19. Explain in detail the seed germination and viability tests. How are they performed and interpreted?
  20. Describe in detail the harvesting, storage, and physiological disorders of important solanaceous vegetables like tomato and chilli.
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