S–3045

Sub. Code
23MBO1C1

M.Sc. DEGREE EXAMINATION, APRIL 2024

First Semester

Botany

PLANT DIVERSITY – I : ALGAE, FUNGI, LICHENS AND BRYOPHYTES

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define Akinetes.
2. Define Diatomaceous earth.
3. What is Mycelium?
4. What are imperfect fungi?
5. What is Paraphyses?
6. Define Carpogonium.
7. What is Gametophyte?
8. What is fragmentation?
9. Define carrageenan.
10. Define SCP

Part B (5 × 5 = 25)

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

11. (a) Trace the different types of asexual spores of algae.

Or

(b) Narrate the method of reproduction in *Ulva*.

12. (a) Differentiate between Mastigomycotina and Zygomycotina.

Or

(b) Write short note on heterothallism in fungi.

13. (a) Explain the structure of Deuterolichens.

Or

(b) Write the reproduction methods in Ascolichens.

14. (a) Discuss about origin and evolution of Bryophytes.

Or

(b) Bring out the structural morphology of *Polytrichum*.

15. (a) List out the economic importance of algae.

Or

(b) Analyze the economical and ecological importance of Bryophytes.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Elucidate the structure and life cycle of Chlorophyceae.

17. Discuss in detail the classification of fungi proposed by Alexopoulos and Mims.

18. Describe the occurrence and inter-relationship of phycobionts and mycobionts.

19. Give an account on life-history of Porella.

20. Describe the reproduction methods in *Targionia*.

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S–3046	Sub. Code
	23MBO1C2

M.Sc. DEGREE EXAMINATION, APRIL 2024

First Semester

Botany

PLANT DIVERSITY– II, PTERIDOPHYTES, GYMNOSPERMS AND PALEOBOTANY

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define Apospory.
2. Define Protostele.
3. What is horsetail fern?
4. What is Sporophyll?
5. What is open seeded plant?
6. What is Megasporophyll?
7. Which plant is called Monkey's Puzzle? Why?
8. Write any two economic importance of *Thuja*.
9. What is Carbon dating?
10. Define Geological time scale.

Part B (5 × 5 = 25)

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

11. (a) Write and general characteristic features of Pteridophytes.

Or

(b) Write about the importance of seed habit in Pteridophytes.

12. (a) Explain the morphological structure of Equisetum.

Or

(b) State the reproduction methods in Pteris.

13. (a) Write the general characters of Gymnosperms.

Or

(b) Explain the reproduction methods in Gymnosperms.

14. (a) Explain about anatomy of Araucaria root.

Or

(b) Write the reproduction methods in *Podocarpus*.

15. (a) List out the economic importance of fossil.

Or

(b) Explain the structure of Calamites stem.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Summarize the structure and reproduction of gametophytes in Pteridophytes.

17. Give a detailed account on life cycle of Osmunda.

18. Give an account on Sporne classification of Gymnosperm.

19. Describe the reproduction methods in *Gnetum*.

20. Write an essay on types of fossils.

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S–3047

Sub. Code
23MBO1E1

M.Sc. DEGREE EXAMINATION, APRIL 2024

First Semester

Botany

Elective – MICROBIOLOGY, IMMUNOLOGY AND PLANT PATHOLOGY

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions

1. What are microbes?
2. Define Bergeys manual.
3. Define Mycoplasma
4. What are phycovirus?
5. What is mean by Tempeh?
6. Define Neurotoxin.
7. Define Hematopoiesis.
8. Define Immuno diffusion.
9. What is nematode?
10. Define Pathogenecity.

Part B (5 × 5 = 25)

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

11. (a) Write note on batch culture and continuous culture.

Or

(b) Explain the general characteristic of bacteria.

12. (a) Explain the structure of virus.

Or

(b) Explain the Lytic and Lysogenic cycle.

13. (a) Explain the role of microbes in yogurt and cheese production.

Or

(b) Write the importance of microbial flora of soil.

14. (a) Difference between innate and acquired immunity.

Or

(b) Write note on Enzyme Linked Immunosorbent Assay.

15. (a) Write note on inoculum and inoculum potential.

Or

(b) Write note on little leaf of brinjal.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Describe the reproduction methods of bacteria.

17. Write an essay on replication of DNA and RNA phage.

18. Write an essay on water borne diseases.

19. Describe the structure, types and function of antibody.

20. Write an essay on Integrated Pest Management System.

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S–3048

Sub. Code
23MBO1E2

M.Sc. DEGREE EXAMINATION, APRIL 2024

First Semester

Botany

Elective – CONSERVATION OF NATURAL RESOURCES AND POLICIES

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions

1. Write any two natural resources.
2. Write any two importance of conservation policies.
3. Define forest wealth.
4. Define social forestry.
5. What is complexity of soil?
6. Define soil erosion.
7. Define seasonal waterlogging.
8. What is the reclamation of mine lands?
9. Define national environmental act.
10. What is endangered species act?

Part B (5 × 5 = 25)

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

11. (a) Write the concept of conservation.

Or

(b) Write the equitable resource use for sustainable life system.

12. (a) Write note on Ecotourism.

Or

(b) Write the wild life projects in India.

13. (a) Explain about restoration of soil fertility.

Or

(b) Write the land use planning models and their limitations.

14. (a) How do you restore a mining land? Explain

Or

(b) Explain the changes caused by agriculture and overgrazing.

15. (a) What are the strategies for environmental pollution control? Explain.

Or

(b) Write note on national land use policy.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Give an account on human physiological socioeconomic and cultural development.

17. List out the national parks and sanctuaries in India

18. Describe the ecological importance of wet lands in India

19. Describe the problems of fertilizer and pesticide.

20. Describe the public awareness and participation in environmental management.

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S–3049	Sub. Code
	23MBO1E3

M.Sc. DEGREE EXAMINATION, APRIL 2024.

First Semester

Botany

Elective – PHYTOPHARMACOGNOSY

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define Crude drugs.
2. Define pharmacognosy.
3. What is steroids?
4. Define mevalonate pathway.
5. Define United Stated Pharmacopeia.
6. What are secondary metabolites?
7. Write any two laxative drugs.
8. Define GI regulators.
9. Define toxic plants.
10. What are biopesticides?

Part B (5 × 5 = 25)

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

11. (a) What are the pharmacopeial standards in India? Explain.

Or

(b) Write the history and scope of pharmacognosy.

12. (a) Write note on fatty acid pathway.

Or

(b) Briefly explain about deoxy-xylulose phosphate pathway.

13. (a) Explain the extraction methods of secondary metabolites.

Or

(b) Write note on quality control of pant drugs.

14. (a) Briefly explain about cardiotonic drugs.

Or

(b) Write the herbal drugs used for anti-cancer.

15. (a) Write note on bio-fungicides.

Or

(b) Write the characteristic features of poisonous plant.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Write an essay on classification of drugs.

17. Write an essay on Shikimate pathway.

18. Discuss classical and modern approaches of drugs.

19. Write an essay on drug acting on central nervous system.

20. Write an essay on hallucinogenic plants.

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S–3050

Sub. Code
23MBO1E4

M.Sc. DEGREE EXAMINATION, APRIL 2024

Botany

Elective – ALGAL TECHNOLOGY

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions

1. Define Algology.
2. What are cyanobacteria?
3. Define algal lipids.
4. What is Single cell protein?
5. Define algal growth curve.
6. What is batch culture?
7. Define alginate beads.
8. Define algal immobilization.
9. Which is Saprotic Index?
10. What is phytoremediation? Give example.

Part B (5 × 5 = 25)

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

11. (a) Explain the scope of algal technology

Or

(b) Discuss algae as sources for food, feed and hormones.

12. (a) Write note on industrial application of algae.

Or

(b) Briefly explain about liquid seaweed fertilizers.

13. (a) Write any two-culture media composition for algae.

Or

(b) Write about therapeutic uses of algae.

14. (a) What are the methods of isolation and fusion of protoplast.

Or

(b) Briefly explain about algal immobilization and its application.

15. (a) Explain the importance of algal culture centers in India.

Or

(b) Explain the industrial effluent treatment by algae.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Write an essay on economic importance of algae.

17. Describe the mass cultivation method of Spirulina.

18. Describe the small scale and large-scale cultivation of algae.

19. Give an account on role of algae in nanobiotechnology.

20. Describe the potential use of algae for heavy metal bioremediation.

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S–3051	Sub. Code
	23MBO1E5

M.Sc. DEGREE EXAMINATION, APRIL 2024.

First Semester

Botany

Elective – ETHNOBOTANY, NATUROPATHY AND TRADITIONAL HEALTHCARE

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define Ethnomedicine.

2. Define Ethnocentrism.

3. What is the origin of Thoda tribes?

4. Define Kurumber tribe.

5. What is folklore medicine?

6. What is NTFP?

7. Define naturopathy medicine.

8. Define hydrotherapy.

9. What is database for traditional knowledge?

10. What is traditional bioprospecting?

Part B (5 × 5 = 25)

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

11. (a) Explain the scope and subdisciplines of Ethnobotany.

Or

(b) Briefly explain about culture diffusion and ethnocentrism.

12. (a) Briefly explain about origin and medicinal practices of Irulas and Kanis tribes.

Or

(b) Write note on Paliyars and Badagas tribes.

13. (a) Explain about primary archaeological sources and inventories.

Or

(b) Give an account on folklore medicine.

14. (a) Write about Unani system of medicine.

Or

(b) Briefly explain about Ayurvedic system of medicine.

15. (a) Write the methods for bioprospecting of natural resources.

Or

(b) Briefly explain about advantage of ethnobotanical databases.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Write an essay on ethnobotanical studies in India and the World.

17. Describe the distribution of varies tribes in India.

18. Write an essay on prior informed consent and PRA techniques.

19. Write an essay on Siddha system of medicine.

20. Describe the bioprospecting of drug molecules derived from Indian traditional plants.

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S–3052	Sub. Code
	23MBO1E6

M.Sc. DEGREE EXAMINATION, APRIL 2024

First Semester

Botany

Elective — HORTICULTURE

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define Horticulture.
2. What is Pomology?
3. Define Bioinoculants
4. What are abiotic factors?
5. Define Grafting.
6. Define Suckers.
7. Define Artificial seed.
8. What is embryo rescue?
9. Which is xeriscaping?
10. Define Bonsai.

Part B (5 × 5 = 25)

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

11. (a) Write note on classification of horticultural plants.

Or

(b) Explain the various stages of plant growth.

12. (a) Write note on pruning and thinning.

Or

(b) Explain about application of fertilizers.

13. (a) Explain the advantages of seed viability.

Or

(b) Explain the methods of direct and indirect seedling product in nursery.

14. (a) Give an account on hydroponics.

Or

(b) Write note on somatic embryogenesis.

15. (a) Briefly explain about robotics in horticulture.

Or

(b) Write note on Terrarium culture.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Write an essay on cell and tissue system.

17. Give an account on organic and inorganic media.

18. Describe the methods of vegetative propagation.

19. Write an essay on nodal culture and callus culture.

20. Give an account on Bonsai.

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S–3053

Sub. Code
23MBO1S1

M.Sc. DEGREE EXAMINATION, APRIL 2024

First Semester

Botany

NURSERY AND GARDENING

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define Landscape Nursery.
2. What is Floriculture?
3. Define Genetic erosion.
4. What is seed labelling?
5. What is moist chamber?
6. Define Green house.
7. Define Informal Garden.
8. What is wild garden?
9. Define manure.
10. Define disease management.

Part B (5 × 5 = 25)

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

11. (a) List out the infrastructure for nursery.

Or

(b) Explain abut seasonal plants with suitable examples.

12. (a) Explain about seed testing methods.

Or

(b) Explain the methods of breaking seed dormancy.

13. (a) Write note on types of cuttings.

Or

(b) Explain about glass house and its uses.

14. (a) Explain the different types of gardening.

Or

(b) Write notes on parks and its components.

15. (a) Explain the cultivation methods of Onion.

Or

(b) Write the sowing methods of seeds.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Write an essay on direct seedling methods in nursery.

17. Write an essay on seed dormancy.

18. Describe the types of Air-layering.

19. Write an essay on landscape and home gardening.

20. Describe the cultivation practices of tomato and brinjal.

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S–3054	Sub. Code 23MBO1S2

M.Sc. DEGREE EXAMINATION, APRIL 2024

First Semester

Botany

HERBAL TECHNOLOGY

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is taxonomical classification?
2. Define pharmacognosy.
3. What is alkaloids?
4. Define Biotransformation.
5. What are adulterants?
6. Define drug evaluation.
7. What are drug Glycosides?
8. Define Tannins.
9. What are Biopesticides?
10. Define Flavonoids.

Part B (5 × 5 = 25)

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

11. (a) Explain the processing method of crude drugs.

Or

(b) Write the scope and importance of pharmacognosy.

12. (a) Write about biogenesis of phytopharmaceuticals.

Or

(b) Explain the factors affecting secondary metabolites products.

13. (a) Explain the physical and chemical method of drug evaluation.

Or

(b) Give an account on deduction method of adulterants.

14. (a) Explain the preparation method of drug cosmetics.

Or

(b) Write the extraction methods of volatile oil from clove.

15. (a) Write note on extraction method of resins.

Or

(b) Explain the alkaloid extraction method of Taxus.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Outline the classification of crude drugs.

17. Write an essay on application of plant tissue culture.

18. Describe the standardization and quality control of herbal drugs.

19. Write an essay on carbohydrates and derived products.

20. Describe the application of phytochemicals in phytopharmaceuticals.

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S–3055

Sub. Code
23MBO2C1

M.Sc. DEGREE EXAMINATION, APRIL 2024

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. Phanerogams.
2. Phylogenetic system of classification.
3. Author citation.
4. Glossaries.
5. White mangrove family.
6. Soapberry family.
7. Pneumatophore.
8. Sedge family.
9. Wheat.
10. Spices.

Part B (5 × 5 = 25)

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

11. (a) Give an elaborate account on Artificial system of classification.

Or

(b) Briefly explain about the Botanical survey of India and it's organization.

12. (a) Discuss –Numerical taxonomy.

Or

(b) Write about the ICBN and Typification.

13. (a) Explain the floral characters of Sterculiaceae with diagram.

Or

(b) Describe the general characters of Sapindaceae.

14. (a) List out the characteristic features of Verbenaceae.

Or

(b) Bring out the economic importance of Sapotaceae.

15. (a) Write about the Essential oils.

Or

(b) Describe briefly about the Sugar yielding plants.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Outline the Bentham and Hooker's classification and give merits and demerits.

17. Define binomial nomenclature? Bring out the importance and principles of nomenclature.

18. Explain the flower character of Rhamnaceae and it's ecomic importance.

19. Describe the family Aristolochiaceae with technical terms.

20. Give an detailed about the Cereals, Pulses and Oil yielding plants.

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S–3056

Sub. Code
23MBO2C2

M.Sc. DEGREE EXAMINATION, APRIL 2024

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. Protoxylem and Metaxylem
2. Reaction wood
3. Dehydration
4. Polyderm and Rhytiderm
5. Endothecium
6. Palynology
7. Endothelium
8. Double fertilization
9. Apomixis
10. Growth hormones

Part B (5 × 5 = 25)

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

11. (a) Write short notes on Vascular cambium.

Or

(b) Draw and describe the primary and secondary xylem.

12. (a) Define: Periderm and it's activity.

Or

(b) Outline the principles of Double staining.

13. (a) Explain the ultra structure of Pollen wall.

Or

(b) Describe the structure and development of Anther.

14. (a) Discuss – Megasporogenesis.

Or

(b) Write your idea about the haustorial behaviour in Embryosac.

15. (a) Define Polyembryony. Add note on its causes.

Or

(b) Compare the Dicot and monocot embryo development.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Briefly explain about the Phloem and its types.

17. Explain in detailed about anomalous secondary growth in Aristolochiaceae.

18. Define male gametophyte. Explain its development.

19. List out types of Ovule with diagram.

20. What is Parthenocarpy? Give the importance of parthenocarpy.

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S–3057

Sub. Code
23MBO2C3

M.Sc. DEGREE EXAMINATION, APRIL 2024

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. Define plant succession.
2. What is population dynamics?
3. State bout food chain.
4. Brief about GPP.
5. Endemism.
6. Age and area hypothesis.
7. Habitat loss.
8. IUCN.
9. Ozone depletion.
10. Carbon foot print.

Part B (5 × 5 = 25)

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

11. (a) Can you explain the concept of ecological succession and discuss different types of succession.

Or

(b) Explain the characteristics of ecological communities.

12. (a) Demonstrate the laws of thermodynamics in ecology.

Or

(b) Highlights the significance of water resources, conservation and management.

13. (a) Evaluate the continental drift in the discontinuous distribution.

Or

(b) List out the applications of remote sensing with principles.

14. (a) Examine the values of biodiversity and its types.

Or

(b) Make the case that protecting biodiversity requires an ex-situ approach.

15. (a) Describe the sources and formation mechanisms of acid rain. How does acid rain impact soil, water bodies, and vegetation?

Or

(b) Discuss the principles and objectives of ecological restoration.

Part C $(3 \times 10 = 30)$

Answer any **three** questions.

16. Analyze the characteristics, composition and structure of ecological communities. How do these factors influence community dynamics and stability?

17. Give an elaborate account of energy flow in the ecosystem.

18. Provide the detailed account of vegetation types of India and Tamilnadu.

19. Critically comment on threats to biodiversity.

20. How do greenhouse gases contribute to climate change, and what are some mitigation strategies to reduce their emissions?

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S–3058

Sub. Code
23MBO2E1

M.Sc. DEGREE EXAMINATION, APRIL 2024

Second Semester

Botany

Elective – MEDICINAL BOTANY

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Explain Homeopathy.
2. Brief about Tridosha concepts.
3. Define phytochemistry.
4. How can you authenticate the drugs?
5. Name any two active ingredients *of Belladona arjona for* anticholinergic.
6. Provide any two therapeutic uses of *Cummiphora.*
7. Explain the Botanic gardens as a conservation area for medicinal plants.
8. Can you give any two valid policies for the conservation of medicinal plants?
9. Highlight the ethnobotany.
10. Brief about ethnic communities of India.

Part B (5 × 5 = 25)

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

11. (a) Explain the scope and importance of medicinal plants.

Or

(b) Elaborate the type of siddha medicines and their uses.

12. (a) Write about the significance of drug adulteration.

Or

(b) Establish the various types of formulations in herbal drugs.

13. (a) Examine the active principles and medicinal uses of *Podophyllum*.

Or

(b) Determine the cardio therapeutic applications of *Digitalis*.

14. (a) Assess, how medicinal plants are grown and maintained.

Or

(b) Highlights the significance of Ethno medicinal plant gardens.

15. (a) Provide the details of medicinal plants associated with cultural practices.

Or

(b) Justify, Tripes are essential for the conservation of medicinal plants.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Describe the principles and therapeutic modalities of the Ayurvedic system.

17. Provide the methods for physical and chemical authentication of raw drugs.

18. Examine the active constituents and medicinal uses of *Curcuma* longa with special reference to wound healing, antioxidant and anticancer properties.

19. Determine the ex-situ conservation strategies for endangered medicinal plants.

20. Analyze the concept, methods and applications of ethnobotany and folk medicine.

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S–3059	Sub. Code
	23MBO2E2

M.Sc. DEGREE EXAMINATION, APRIL 2024

Second Semester

Botany

Elective : PHYTOCHEMISTRY

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Section A (10 × 2 = 20)

Answer **all** the questions

1. Define the term Phytochemistry.
2. Mention the role of Terpenoids in plants.
3. Write the principle of soxlet extraction technique.
4. Define Polar solvent.
5. What is *Vinca*alkaloids?
6. Write the enzymes and role of Shikimic acid pathway.
7. Define herb.
8. Define Ethnomedicine.
9. Explain panchabootha in Ayurveda.
10. Define-Pharmacology.

Section B (5 × 5 = 25)

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

11. (a) Explain the functions of Steroids in plants.

Or

(b) Discuss the principles of Phytochemistry.

12. (a) Briefly explain the principle and applications of TLC.

Or

(b) Explain the principle and types of Spectroscopy.

13. (a) Write a brief note on *vinca* alkaloids.

Or

(b) Discuss the application of Phytochemicals in food.

14. (a) Discuss about Ethnobotany.

Or

(b) Explain the herbal cultures in China.

15. (a) Give an account on Panchabootha theory and Mala theory.

Or

(b) Write a short note on *Vrikshayurveda.*

Section C (3 × 10 = 30)

Answer any **three** questions.

16. Discuss about the classification of Secondary metabolites in plants.

17. Explain the various techniques used for the characterization of Phytocompounds.

18. Give an account on Biosynthetic pathways of secondary metabolites.

19. Write a detailed note on Ethnobotany and ethnomedicine.

20. Describe the fundamental principles of Ayurveda.

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S–3060

Sub. Code
23MBO2E3

M.Sc. DEGREE EXAMINATION, APRIL 2024

Second Semester

Botany

Elective – RESEARCH METHODOLOGY, COMPUTER APPLICATIONS AND BIOINFORMATICS

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions

1. Plagiarism
2. Monograph
3. SEM
4. Separation
5. Genomics
6. RAM
7. NCBI
8. Genbank
9. EMBL
10. FASTA

Part B (5 × 5 = 25)

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

11. (a) Write about the Literature collection and citation.

Or

(b) Discuss about the E-learning tools.

12. (a) Bring out the basic principles and applications of pH meter.

Or

(b) Briefly explain the Chromatography technique.

13. (a) Analyze the fundamentals of networking.

Or

(b) Write short on:

(i) Telnet

(ii) ftp

(iii) www

14. (a) How do you search biological databases?

Or

(b) Bring out the Public biological databases.

15. (a) Give a detailed account on SWISSPORT.

Or

(b) Define – BLAST.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Bring your idea about the Project proposal writing.

17. Describe the Polymerase chain reaction.

18. Distinguish the Hardware and software.

19. Explain about the uses of nucleic acid and protein data banks.

20. Give a detailed account on Multiple sequence analysis.

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S–3061

Sub. Code
23MBO2E4

M.Sc. DEGREE EXAMINATION, APRIL 2024

Second Semester

Botany

Elective – BIOSTATISTICS

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. State about variables.
2. Give any two importances of diagram representation.
3. Define mode.
4. Standard deviation.
5. Brief about probability.
6. Find the median of the data set: 6,3,8,2,9,1?
7. Degrees of freedom.
8. Null hypothesis
9. Pearsion correlation
10. Weak positive correlation

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Enumerate the variations between pie charts and bar charts.

Or

(b) What are the components of tables?

12. (a) Find the median marks for the following distribution:

classes	0-10	10-20	20-30	30-40	40-50
frequency	2	12	22	8	6

Or

(b) Describe the relevance of the standard error calculation.

13. (a) Explain the probability distributions of binomial and Poisson.

Or

(b) Provide a detailed note on normal distribution pattern.

14. (a) Justify the chi-square test is important for statistics analysis.

Or

(b) Summarize the various methods of student 't' test.

15. (a) List out the different types of correlation.

Or

(b) Bring out the methods of testing the significance of the coefficients of correlation.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. What do you mean by sample? What are the different sampling methods?

17. Calculate the mean, median mode for the following data.

Classes	20-24	25-29	30-34	35-39
frequency	3	5	10	20

Classes	40-44	45-49	50-54	55-59
frequency	12	6	3	1

18. Write the rules of probability with appropriate examples.

19. Comment on ANOVA and its types.

20. Give an elaborate account of different types of regression.

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S–3062	Sub. Code 23MBO2E5

M.Sc. DEGREE EXAMINATION, APRIL 2024.

Second Semester

Botany

Elective – INTELLECTUAL PROPERTY RIGHTS

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. What are the basic requisites of Patentability?

2. What are the objectives of copyrights?

3. Name the objectives of WIPO.

4. Mention the laws that govern the trade secrets.

5. Define WTO.

6. Non – Registrable Trademarks – Explain.

7. What are IPC and CPC in patent?

8. Advantages of Patent search.

9. How does NBA help in protecting Agriculture?

10. What are examples of Geographical indication in India?

Part B (5 × 5 = 25)

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

11. (a) List out the criteria for obtaining patentability.

Or

(b) Describe the subject matters patentable in India.

12. (a) Enumerate the rights in Industrial Design.

Or

(b) Elaborate the details of TRIPS agreement.

13. (a) Explain the difference between Non-Registrable and Registrable trademarks.

Or

(b) Describe in detail about patent Amendment act 2005.

14. (a) Enumerate about Open Source and Pai databases for Patent Search.

Or

(b) How to draft patent Claims?

15. (a) Elaborate the Role of Access and Benefit Sharing in protecting farmers.

Or

(b) Describe the role of NBA in Patent filing.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Describe about IPR- its development and importance.

17. WIPO – its function, membership and GATT agreement.

18. Comment on the Patent Act 1970 and its amendment, Explain in brief the Patent filing procedure. What are the differences between Product Patents and Process Patents?

19. Explain the various types of Patent drafting specifications.

20. Write detailed notes on Patenting Plant variety protection: its Procedure, effect and term of Protection.

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S–3063

Sub. Code
23MBO2E6

M.Sc. DEGREE EXAMINATION, APRIL 2024

Second Semester

Botany

Elective – NANOBIOTECHNOLOGY

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Section A (10 × 2 = 20)

Answer **all** the questions.

1. Nanotechnology
2. Nanoscience
3. Buckyballs
4. Nanosensors
5. Optical tools
6. Mass spectrometry
7. Tissue Engineering
8. Biological labeling
9. Biochip
10. Nanoparticles

Section B (5 × 5 = 25)

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

11. (a) Write notes on history of Nanotechnology.

Or

(b) Explain Green Nanotechnology.

12. (a) Write notes on Fullerness.

Or

(b) Discuss about Nanotubes.

13. (a) Explain the Nanoforce and Imaging.

Or

(b) Discuss the term Electrical Characterization in detail.

14. (a) Give an account on Nanodevices.

Or

(b) Write notes on Nanoarrays.

15. (a) Comment on DNA Microarrays.

Or

(b) Describe Polyelectrolyte multilayers.

Section C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain Bottom up and Top down approaches

17. Discuss about Metal based Nanomaterials.

18. Give an account on Micro fluidics and its applications in Life sciences..

19. Discuss about the Luminescent Quantum Dots for Biological labeling.

20. Comment on the Pharmaceutical applications of Nanoparticles.

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S–3064

Sub. Code
23MBO2S1

M.Sc. DEGREE EXAMINATION, APRIL 2024

Second Semester

Botany

AGRICULTURE AND FOOD MICROBIOLOGY

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. Mycorrhiza
2. Plant growth promoting microorganisms
3. Predators
4. Vermicompost
5. Spirulina
6. *Agaricus biosporus*
7. Food poisoning
8. Canning
9. Food Preservation
10. Bio-processing

Part B (5 × 5 = 25)

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

11. (a) Describe the role of symbiotic and free living bacteria in agriculture.

Or

(b) Write about the Phosphate solublizing microorganisms.

12. (a) Explain the mass cultivation of BGA.

Or

(b) Describe the mass production of phosphate solubilizers.

13. (a) Explain the mass production of Bacterial single cell protein.

Or

(b) Write about the spawn making process of mushroom cultivation.

14. (a) Give an account on Food intoxication.

Or

(b) Explain the microbial spoilage of fish and dairy products.

15. (a) Briefly Explain the techniques in food Processing.

Or

(b) Write about the Canning methods of food preservation.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Briefly explain about the Mycorrhiza.

17. Summarize Biocontrol of pests.

18. Describe the Button mushroom cultivation.

19. Give an detailed account on Fermented food products.

20. Explain about Food preservation methods.

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S–3065

Sub. Code
23MBO2S2

M.Sc. DEGREE EXAMINATION, APRIL 2024

Second Semester

Botany

BIOPESTICIDE TECHNOLOGY

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions

1. Define Biocontrol agent.
2. Role of Biopesticide.
3. Bionematicides.
4. Organic Farming.
5. *Phytophthora.*
6. NPV as Biopesticide.
7. Target pests and their crops.
8. Quality control.
9. Name two commercial microbial biopesticides.
10. IPM.

Part B (5 × 5 = 25)

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

11. (a) Notes on Biopesticides and its importance in biological control.

Or

(b) Advantages of use of Biopesticide over chemical pesticides.

12. (a) Elaborate importance of neem in organic agriculture.

Or

(b) Explain in short about Bionematicides and Bioherbicides.

13. (a) Describe the mode of action of *Bacillus thuriengiensis*.

Or

(b) Enumerate the significance of *Agrobacterium radiobacter* as biocontrol agent.

14. (a) Explain the Quality parameters required for testing Biopesticides.

Or

(b) Factors involved in standardization of Biopesticides.

15. (a) Enumerate few commercial biopesticides available in India.

Or

(b) Describe the problems faced in commercialization of Biopesticides.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain in detail classification of Biopesticides.

17. Elaborate about major classes of biopesticides used in Agriculture.

18. Describe the mechanism of action of Biopesticides on Target pests and crops.

19. Write an essay on Biofungicides and its significance as biocontrol agent.

20. Write in detail about Mass multiplication and formulation technology of Biopesticides.

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