**D–6550**

| Sub. Code |
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| 34611 |

DISTANCE EDUCATION

M.Sc.(Botany) DEGREE EXAMINATION, DECEMBER 2024.

First Semester

PLANT DIVERSITY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

SECTION A — ($10 \times 2 = 20$ marks)

Answer ALL the questions.

1. Explain about Heterocysts.

2. Define Akinetes.

3. Cryptoblasts.

4. Ascomycota.

5. Define gymnomycota.

6. Fruticose lichens.

7. Define protonema.

8. Define cone (or) strobilus.

9. Mycorrhizae.

10. Fossil gymbosperm caytonia.

SECTION B — ($5 \times 5 = 25$ marks)

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

11. (a) Give an account on thallus organization in Algae.

Or

(b) Briefly explain about reproduction of algae chlorophyaceae.

12. (a) Write short notes on reproductive pattern in Fungi.

Or

(b) Briefly explain about classification of fungi by mims.

13. (a) Write short notes on general account of lichens.

Or

(b) Give an account reproduction of algae phaeophyceae.

14. (a) Give a brief account on characteristic feature of marchantiales.

Or

(b) Write short notes on general feature of sphenopsida.

15. (a) Write briefly explain about general characters of coniferales.

Or

(b) Briefly explain about fossil gymnosperm medullosa.

SECTION C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Describe the general feature reproduction of cyanophyceae.

17. Give a comparative account of the structure of fungi phycomycetes and duetromycetes.

18. Briefly explain about gametophytes and sporophytes of Bryophytes jungermanniales.

19. Describe the general characteristic and life cycle patterns in lycopsida.

20. Give a comparative account of the structure gametophytes of gnetales and gionkgoales.

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**D–6551**

| Sub. Code |
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| 34612 |

DISTANCE EDUCATION

M.Sc.(Botany) DEGREE EXAMINATION, DECEMBER 2024.

First Semester

PLANT TAXONOMY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL the questions.

1. Define species concept.

2. Binomial nomenclature.

3. Define phylogenetic system.

4. Explain about ecotype.

5. Principles of ICBN.

6. Numerical taxonomy.

7. Draft biocode.

8. Mention the economic importance of Arecaceae.

9. Define inflorescence of Loranthaceae.

10. Explain about fruits of family Aristolochiaceae.

SECTION B — ($5 \times 5 = 25$ marks)

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

11. (a) Write short notes on biotype and Ecad.

Or

(b) Write critical notes on main concepts in Takhtajan and Hutchinson.

12. (a) Briefly explain about Engler and Prantl systems of classification of angiosperm.

Or

(b) Write short notes on type methods and author citation.

13. (a) Explain about principles of priority and limitations.

Or

(b) Write short notes on chemotaxonomy.

14. (a) Give floral formula and floral diagram of monocotyledons family Hydrocharitaceae.

Or

(b) Give an account on vegetative characters of monochylamydeae family Amaranthaceae.

15. (a) Compare the flower and inflorescence characters of Bignoniaceae and verbenaceae.

Or

(b) Write short notes on floral features of following families Myrtaceae and Geraniaceae.

SECTION C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Write an essay on biological and molecular systematics.

17. Give the outline of Bentham and Hooker classification and add note on its merits and demerits.

18. Write an short essay on modern inter disciplinary approaches to taxonomy.

19. Enumerate the vegetative characters and floral feature of gamopetale families Rubiaceae and convolulaceae.

20. Give an account on floral features of polypetalae families Magnoliaceae and Meliaceae and add notes on economic importance.

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**D–6552**

| Sub. Code |
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| 34613 |

DISTANCE EDUCATION

M.Sc. (Botany) DEGREE EXAMINATION, DECEMBER 2024.

First Semester

BIOLOGICAL TECHNIQUES IN BOTANY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL the questions.

1. Resolving power.

2. Birefringent materials.

3. Honing.

4. Clearing.

5. Nile blue.

6. Smears.

7. Whole mounts.

8. RFLP.

9. Hybridization.

10. HPTLC.

SECTION B — ($5 \times 5 = 25$ marks)

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

11. (a) Prove that digital microscopy – new opportunities for microscopy.

Or

(b) Write notes on confocal microscopy.

12. (a) Write notes on preparation of samples for microtome sectioning.

Or

(b) Write notes on stains used to stain plant tissues.

13. (a) Write notes on localization of starch in plant tissue samples.

Or

(b) Write notes on localization of total lipids in plant tissue samples.

14. (a) Write notes on embedding methods for sectioning of biological specimens.

Or

(b) Illustrate Western blotting technique.

15. (a) Write notes on GC-MS.

Or

(b) Write notes on agarose electrophoresis.

SECTION C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Write an essay on microscopic measurement techniques.

17. Illustrate parts, function and applications of transmission electron microscope.

18. Write an essay on various methods involving in sectioning of biological specimens.

19. Write an essay on principles and applications of PCR.

20. Write an essay on MALDI Tof.

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**D–6553**

| Sub. Code |
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| 34621 |

DISTANCE EDUCATION

M.Sc.(Botany) DEGREE EXAMINATION, DECEMBER 2024.

Second Semester

CELL BIOLOGY, GENETICS AND PLANT BREEDING

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL the questions.

1. Define a cell.

2. What are microtubules?

3. Define active transport.

4. What is incomplete dominance?

5. What is meant by epistasis?

6. Define Hardy Weinberg law.

7. What is transition in mutation?

8. Define linkage gene.

9. Write a short note on plant breeding.

10. Define pedigree method.

SECTION B — ($5 \times 5 = 25$ marks)

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

11. (a) Discuss briefly about the structure and functions of endoplasmic reticulum.

Or

(b) Explain about the polymorphism in lysosomes.

12. (a) Discuss about the fluid mosaic model of plasma membrane.

Or

(b) Explain about the various stages of cell cycle.

13. (a) Discuss about mendelian laws of inheritance.

Or

(b) Explain the example about supplementary gene.

14. (a) Give an account on cytoplasmic inheritance.

Or

(b) Differentiae complete and incompleted linkage.

15. (a) Discuss about genetic variability and its role in plant breeding.

Or

(b) Write a detailed note on the breeding methods required for self-pollinated crops.

SECTION C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Explain in detail about the structure and functions of chloroplast.

17. Discuss the difference between prokaryotic and eukaryotic cells.

18. Explain in detail about the protein processing and trafficking from ER to Golgi complex.

19. Explain in detail about dihybrid cross with example.

20. Briefly discuss about the plant breeding techniques for disease resistance and stress tolerance.

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**D–6554**

| Sub. Code |
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| 34622 |

DISTANCE EDUCATION

M.Sc. (Botany) DEGREE EXAMINATION, DECEMBER 2024.

Second Semester

PLANT ANATOMY AND EMBRYOLOGY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

SECTION A — ($10 \times 2 = 20$ marks)

Answer ALL the questions.

1. Pits.

2. Fascicular cambium.

3. Plasmodesmata.

4. Bicollateeral vascular bundle.

5. Polyarch.

6. Tyloses.

7. Knots.

8. Tension wood.

9. Functional megaspore.

10. Ruminate endosperm.

SECTION B — ($5 \times 5 = 25$ marks)

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

11. (a) Explain the Tunica-Corpous theory.

Or

(b) Write about the chemistry of plant cell wall.

12. (a) Discuss about the transfer cells.

Or

(b) Write short notes on (i) Ray initial (ii) Fusiform initial.

13. (a) Explain the abnormal behavior of cambium in dicot plants.

Or

(b) Describe the root-stem transition in plants.

14. (a) Enumerate the uses of wood.

Or

(b) Compare the compression, reaction and tension wood.

15. (a) Draw a neat labeled diagram for embryo sac structure.

Or

(b) Explain the structure of pollen.

SECTION C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. What is meristem? Explain its classification.

17. Give an account of ultra structure of plant cell wall.

18. Discuss about the floral vasculature.

19. List out the physical, chemical and mechanical properties of woods.

20. Describe the pollen stigma compatibility.

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| D–6555 | Sub. Code |
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| | 34623 |

DISTANCE EDUCATION

M.Sc. (Botany) DEGREE EXAMINATION, DECEMBER 2024.

Second Semester

PLANT PHYSIOLOGY AND BIOCHEMISTRY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL the questions.

1. Describe osmosis with an example.

2. Define the absorption of water.

3. Write the mechanism of stomatal movement.

4. Briefly describe the turgor pressure.

5. Where does photosynthesis occur?

6. Clarify the glycolysis.

7. Comprehend the biological nitrogen fixation.

8. Write a short note on amino acids.

9. What is enzymes?

10. Understand the nucleic acids.

SECTION B — ($5 \times 5 = 25$ marks)

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

11. (a) Describe how the tracheids and xylem absorb water.

Or

(b) Describe the impact of water stress on crop production.

12. (a) Comprehend the ultrastructure of the photosynthetic apparatus.

Or

(b) Give an account of electron transport in the mitochondria.

13. (a) Explain the significance of oxidative phosphorylation.

Or

(b) Write notes on the nutrient uptake and transport mechanism.

14. (a) Describe the structure and characteristics of carbohydrates.

Or

(b) Describe the synthesis of amino acids in detail.

15. (a) Explain the Michaelis – Menton equation and its significance.

Or

(b) Give an elaborate note on nucleic acids and nucleotide synthesis.

SECTION C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Explain the mechanism of stomatal movement and analyze the factors affecting transpiration.

17. Discuss in detail about crassulacean acid metabolism.

18. Describe the pentose phosphate pathway.

19. Summarize the structure, classification and biosynthesis of amino-acids.

20. Write a critical account on the structure, classification and biosynthesis of proteins.

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**D–6556**

| Sub. Code |
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| 34631 |

DISTANCE EDUCATION

M.Sc. (Botany) DEGREE EXAMINATION, DECEMBER 2024.

Third Semester

MICROBIOLOGY AND PLANT PATHOLOGY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

SECTION A — ($10 \times 2 = 20$ marks)

Answer ALL the questions.

1. Differentiate the archaea and bacteria.

2. Provide any three characters of bacteria.

3. Give a suitable medium for bacterial culture.

4. Define prions.

5. Describe the Koch's postulates.

6. Plant disease epidemics.

7. State about the host-pathogen interactions.

8. List out any two cultural practices for disease control.

9. Name of causal agents of Downey mildew of grapes.

10. Preventive measures of rust of wheat.

SECTION B — ($5 \times 5 = 25$ marks)

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

11. (a) Illustrate the ultrastructure of bacteria.

Or

(b) Comment on bacterial culture and its characters.

12. (a) Provide the salient features of viruses.

Or

(b) Explain the enzyme production through microbes.

13. (a) Describe the types of plant diseases.

Or

(b) Clarify the plant disease forecasting and its significance.

14. (a) State about the host-pathogen interactions.

Or

(b) Enlighten the integrated plant disease management.

15. (a) Elucidate the disease cycle of bunchy top of banana.

Or

(b) Describe the causes, symptoms and preventive measures of red rot of sugarcane.

SECTION C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Explore the nutrition, growth and reproduction of bacteria.

17. Describe the structure, replication and transmission of virus.

18. Give an elaborate account on production of antibiotics via microbes.

19. Explain the control measures of plant diseases through cultural practices and biocontrol methods.

20. Investigate the symptoms, causal agents, control measures and disease cycle of Tikka disease.

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| D–6557 | Sub. Code |
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| | 34632 |

DISTANCE EDUCATION

M.Sc. (Botany) DEGREE EXAMINATION, DECEMBER 2024.

Third Semester

ECOLOGY, BIODIVERSITY CONSERVATION AND ECONOMIC BOTANY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

SECTION A — ($10 \times 2 = 20$ marks)

Answer ALL the questions.

1. Define edge effect.

2. What is a secondary production?

3. Define biomass.

4. Briefly explain the beta diversity.

5. What are endemics?

6. Write a short note on sacred groove.

7. Define germplasm.

8. Write short notes on Flavr Savr tomato.

9. List any two uses of nutmeg.

10. Briefly discuss the description of Sataveri.

SECTION B — ($5 \times 5 = 25$ marks)

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

11. (a) Write in detail on survivorship curves.

Or

(b) Briefly discuss about food chain and food web.

12. (a) Write a synoptic account on positive interaction.

Or

(b) Write a short essay on vegetation types of India.

13. (a) Briefly discuss about endemism.

Or

(b) Write a brief account on red listed plants.

14. (a) Write an essay on biosphere reserves.

Or

(b) Briefly explain the GATT and WTO.

15. (a) Explain the description, cultivation and uses of Rauvolfia.

Or

(b) Discuss the cultivation and uses of Jatamansi.

SECTION C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Write an elaborate account on ecological succession.

17. Write an essay on values of biodiversity.

18. Discuss in detail about biodiversity hotspots.

19. Write a detailed account on patents.

20. Write an account on the following medicinal plants and wood. (a) pepper (b) turmeric (c) teak.

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| D–6558 | Sub. Code |
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| | 34633 |

DISTANCE EDUCATION

M.Sc. (Botany) DEGREE EXAMINATION, DECEMBER 2024.

Third Semester

ALGAL TECHNOLOGY AND MUSHROOM TECHNOLOGY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL the questions.

1. Write a short note on biofuels.

2. Define diazotrophy.

3. What is mariculture?

4. Briefly discuss about leghemoglobin.

5. What are mushrooms?

6. Write a brief account on toadstools.

7. What is a spawn?

8. What is pure culture?

9. List out any three edible mushrooms.

10. Write down the nutritional value of button mushroom.

SECTION B — ($5 \times 5 = 25$ marks)

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

11. (a) Write an essay on occurrence and distribution of algae.

Or

(b) Give a detailed account on industrial enzymes.

12. (a) Explain the application of seaweeds in biotechnology.

Or

(b) What are some advantage and disadvantage of using algae for biofuel production?

13. (a) How to prepare seaweed liquid fertilizer and their role in agricultural field?

Or

(b) Write an elaborate account on Spirulina cultivation.

14. (a) How do you prepare spawn for mushroom cultivation?

Or

(b) Write an elaborate note on cultivation of oyster mushroom.

15. (a) Write a brief account on packing and preservation techniques for mushroom.

Or

(b) List out the factors affecting mushroom cultivation.

SECTION C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Write an elaborate notes on BGA cultivation.

17. Write an essay on immobilization techniques for macroalgae cultivation.

18. Discuss in detail about the role of *nif* genes in nitrogen fixation.

19. Explain in detail about white button mushroom cultivation.

20. Discuss in detail about the steps involved to mushroom farming.

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