D–7607

Sub. Code
34611

DISTANCE EDUCATION

M.Sc. (Botany) DEGREE EXAMINATION, DECEMBER 2022.

First Semester

PLANT DIVERSITY

(CBCS 2018-2019 Academic Year onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Hormogone formation in Cynophyceae.

2. Aplanospores in Chlorophyceae.

3. List out the commonly used edible algae.

4. Chlamydospore formation in Phycomycetes.

5. Define Carpogonium.

6. Explain about Spermatogenesis in Marchantiales.

7. Define Apophysis.

8. Tubercles in Lycopsida.

9. Mention about Ovuliferous scale.

10. Define Calcification

PART B — (5 × 5 = 25 marks)

Answer ALL questions. Choosing either (a) or (b).

11. (a) Write short notes on thallus organization in Algae.

Or

(b) Describe the thallus structure and types of chloroplast in Chlorophyceae.

12. (a) Give the distinguishing features of the class Rhodophyceae.

Or

(b) Describe the characteric feature and classification of fungi by Alexopoulos.

13. (a) Explain the types of fruiting bodies in Phycomycetes.

Or

(b) Give an account on reproductive pattern in fungi.

14. (a) Give a brief account of Characteric feature of Marchantiales.

Or

(b) Write shorts notes on fossil Lepidodendron in Pteridophytes.

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

Or

(b) Describe the general feature and classification of Gymnosperms by K.R.Sporne.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Give a comparative account in reproduction of chlorophyceae and Phaeophyceae.

17. Give an account on Spores and spore dispersal mechanisms exhibited by fungi.

18. Briefly explain about structure and reproduction of Lichen.

19. Describe the General characteristic and life cycle patterns in Sphenopsida.

20. Give a comparative account of the structure gametophytes of Ginkgoales and Gnetales.

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D–7608

Sub. Code
34612

DISTANCE EDUCATION

M.Sc. (Botany) DEGREE EXAMINATION, DECEMBER 2022.

First Semester

PLANT TEXONOMY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Define Nomenclature.

2. Explain about Taxa or Taxon

3. Origin of Monocotyledons.

4. What is a species?

5. Phylogenetic system.

6. Biochemical systematics.

7. Effective and valid publication of new taxa.

8. Define draft Biocode.

9. Explain about inflorescence *of* *Amaranthaceae.*

10. Flower characters of Rubiaceae.

PART B — (5 × 5 = 25 marks)

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

11. (a) Write an short notes on Species concept in taxonomy.

Or

(b) Briefly explain about Theories of biological classification.

12. (a) Explain the Importance of Chemotaxonomy.

Or

(b) Write short notes on Botanical Nomenclature.

13. (a) Write about importance features of Arecaceae.

Or

(b) Briefly explain about floral characters of Aristolochiaceae.

14. (a) Give an account on Vegetative character of Dioscoreaceae.

Or

(b) Explain about floral characters of monochlamydeae family Polygonaceae.

15. (a) Give an account of importance feature of Apocynaceae.

Or

(b) Briefly explain about vegetative characters of polypetalae family Magnoliaceae.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Outline the Bentham and Hooker classification system.

17. Discuss about Structural, Biological and Molecular systematics.

18. Describe the Principles and rules of International Botanical Nomenclature (ICBN).

19. Given account on the importance of Hydrocharitaceae with suitable diagram.

20. Described the Vegetative floral characters of family Meliaceae with floral diagram.

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D–7609

Sub. Code
34613

DISTANCE EDUCATION

M.Sc. (Botany) DEGREE EXAMINATION, DECEMBER 2022.

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 microscopy.

2. Write down the difference between Magnification and Resolution.

3. Explain micrometry.

4. List down the uses of ultramicrotome.

5. What are the dyes used in gram staining?

6. Comment on digital imaging.

7. Write any three uses of DNA fingerprinting.

8. Explain the uses of PCR.

9. Describe simple staining method.

10. Short note on cell measurement.

PART B — (5 × 5 = 25 marks)

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

11. (a) Write short note on Numerical aperture.

Or

(b) Write about principle and application of Compound microscopy.

12. (a) Describe the ocular and stage micrometer.

Or

(b) Describe about rotary microtome sectioning.

13. (a) Comment on Haemocytometer.

Or

(b) Write about acid fast staining.

14. (a) Write short notes on Electrophoresis.

Or

(b) Write about the applications of Autoradiography.

15. (a) Explain about the staining method of Carbohydrates.

Or

(b) Write short note on Electron counting method.

PART C — (3 × 10 = 30 marks)

Answer any THREE of the following.

16. Write about the Principle and procedure of Gram staining.

17. Briefly explain about Transmission Electron Microscope.

18. List out the types and applications of Centrifugation.

19. Elucidate the procedure and uses of MALDI Tof.

20. Describe the types of Microtomes.

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D–7610

Sub. Code
34621

DISTANCE EDUCATION

M.Sc. (Botany) DEGREE EXAMINATION, DECEMBER 2022.

Second Semester

CELL BIOLOGY, GENETICS AND PLANT BREEDING

(CBCS 2018-2019 Academic Year onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Phagocytosis

2. Microtubule

3. Active transport

4. Phospholipids

5. Allele

6. Back cross

7. Inversion

8. Allopolyploidy

9. Mass selection

10. Induced mutagenesis

PART B — (5 × 5 = 25 marks)

Answer ALL questions. Choosing either (a) or (b).

11. (a) Explain the structure of Mitochondria.

Or

(b) Write short notes on

(i) Microfilaments

(ii) Intermediate filaments

12. (a) Write about the Nuclear transport.

Or

(b) Given an account of Membrane proteins.

13. (a) Explain the structure of Lipid bilayer model.

Or

(b) Discuss about the Protein trafficking from Endoplasmic reticulum to Golgi complex.

14. (a) Describe the Cytoplasmic inheritance.

Or

(b) Given an account on significance of polyploids.

15. (a) Write about the Hybrid vigour in plant breeding.

Or

(b) What is Apomixsis? Explain its types.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. List out the difference between the Prokaryotic and Eukaryotic cell.

17. Explain the structure of Chloroplast and its functions.

18. Describe the cell cycle.

19. Write about the Hardey Weinberg's Law.

20. Illustrate the genetic variability and its role in plant breeding.

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D–7611

Sub. Code
34622

DISTANCE EDUCATION

M.Sc. (Botany) DEGREE EXAMINATION, DECEMBER 2022.

Second Semester

PLANT ANATOMY AND EMBRYOLOGY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — ($10 \times 2 = 20$ marks)

Answer ALL questions.

1. Significance of Libriform Fibres.

2. Function of Tracheids and vessels.

3. Role of Ray Parenchyma cells.

4. Importance of Lysigenous cavity.

5. Role of Bulliform cells.

6. Properties of lignin.

7. Main function of filiform apparatus.

8. Define X-Bodies.

9. What is Amphimixis.

10. Environmental Parthenocarpy

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) Briefly explain the formation of Vascular Cambium.

Or

(b) Explain the microscopic structure of cell wall.

12. (a) Give an account on the primary anatomical structure of monocot stem.

Or

(b) Define root-stem transition. Add a note on cucurbita and Lathyrus type with suitable diagram.

13. (a) Write short notes on

(i) Compression wood and

(ii) Tension wood.

Or

(b) Differentiate Heartwood from sapwood with example.

14. (a) Give the wall layers of Anther.

Or

(b) Give an account on the structure of female gametophyte.

15. (a) What is Apospory. Explain their role in plant improvement.

Or

(b) Explain the cellular endosperm formation.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Explain the various theories of organization of meristems.

17. Explain the molecules aspects of developing vegetative organs in plants.

18. Explain the chemical properties of wood. Add a note on the molecular aspects of wood differentiation.

19. Give an account of pollen sigma compatibility. Explain the methods to overcome incompatibility.

20. Describe the various types of polyembryony. Add their role in plant improvement.

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D-7612

Sub. Code
34623

DISTANCE EDUCATION

M.Sc.,(Botany) DEGREE EXAMINATION, DECEMBER 2022.

Second Semester

Botany

PLANT PHYSIOLOGY AND BIOCHEMISTRY

(CBCS 2018 – 19 Academic Year onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. What is the difference between the diffusion and osmosis?

2. Define absorption of water.

3. Describe the active absorption of water.

4. Explain the structure of chloroplast.

5. Where does the process of photosynthesis occurs?

6. What are the products of the Calvin cycle of carbohydrates?

7. Expound the difference between C_3 and C_4 plants.

8. Write a short note on epimers.

9. Describe the primary amino acids.

10. Discuss the lipids and their significance.

PART B — (5 × 5 = 25 marks)

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

11. (a) Give a detailed note on absorption water by the plants through the xylem.

Or

(b) Describe the ascent of sap and theories.

12. (a) Explain the glycolysis and their role in plant respiration.

Or

(b) Discuss about the TCA cycle and list out the enzymes involved.

13. (a) Expound the carbohydrates and their classification.

Or

(b) Explain the enatiomers and epimers.

14. (a) What do the understand the structure and characteristics of amino acids.

Or

(b) Write an elaborate note on various structure of proteins.

15. (a) Summarize the structure and classification of enzymes.

Or

(b) Explain the composition of nucleic acids and nucleotide synthesis.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Write an essay on transpiration, types and mechanisms of stomata movement.

17. Expound the photosynthesis and its significance of plants.

18. Discuss in detail about the biological nitrogen fixation and ammonia assimilation.

19. Explain the structure, classification and types of carbohydrates.

20. Write about the structure and classification of proteins.

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D–7613	Sub. Code
	34631

DISTANCE EDUCATION

M.Sc. (Botany) DEGREE EXAMINATION, DECEMBER 2022.

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. Define log phase.

2. Distinguish between archea and bacteria.

3. Describe the *Streptococcus pneumoniae*.

4. Explain prion.

5. Write short notes on the retrovirus.

6. Explain the plant diseases.

7. Describe the disease forecasting.

8. Explain about chemical control.

9. Write the causal agents of bunchy top of banana.

10. Bordeaux mixture.

PART B — (5 × 5 = 25 marks)

Answer ALL questions. Choosing either (a) or (b).

11. (a) Write short notes on the bacterial reproduction.

Or

(b) Describe the classification of microorganisms.

12. (a) Give an account of reproduction of virus.

Or

(b) Write a brief account on the general characteristics of virus.

13. (a) Write short notes on the causal agents responsible for plant diseases.

Or

(b) Explain about the plant disease cycle.

14. (a) Enumerate the host pathogen interactions.

Or

(b) Give detailed notes on the biological control.

15. (a) Write notes on the Citrus canker.

Or

(b) Explain about the Tikka disease.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Give an elaborate essay on the scope and importance of microbiology.

17. Discuss in detail about the production and their significance of antibiotics.

18. Elaborate on the replication and transmission of virus.

19. Write an essay on the plant pathology.

20. Explain in detail about the Late blight of potato and Downey mildew of grapes.

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D–7614

Sub. Code
34632

DISTANCE EDUCATION

M.Sc. (Botany) DEGREE EXAMINATION, DECEMBER 2022.

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 questions.

1. What is primary production?

2. Briefly explain the food chain.

3. Write a short note on endemics.

4. Write a short account on 'Sholas'.

5. What are national parks?

6. What is trademark?

7. Briefly discuss the Flavr Savr™ tomato.

8. Write a brief account on Texmati.

9. Write any two uses of ginger and clove.

10. Write down the therapeutic values of Nutmeg.

PART B — (5 × 5 = 25 marks)

Answer ALL questions. Choosing either (a) or (b).

11. (a) Briefly discuss the ecological succession.

Or

(b) Write a short essay on Niche.

12. (a) Discuss in detail about positive interaction.

Or

(b) Write an elaborate account on Centres of diversity.

13. (a) Write an essay on Red Data Book.

Or

(b) Discuss in detail about In-situ conservation.

14. (a) Write an elaborate account on plant breeder's rights.

Or

(b) Explain in detail about patents.

15. (a) Briefly discuss the description, cultivation and uses of Cardamom.

Or

(b) Explain the cultivation, processing and uses of Rauvolfia.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Discuss in detail about the various components of ecosystem.

17. What are the values and uses of biodiversity?

18. Write an essay on IUCN Red-listed plants.

19. Write an essay on GATT and WTO.

20. Write a detail account on harvesting, extraction and uses of fatty oils.

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D–7615

Sub. Code
34633

DISTANCE EDUCATION

M.Sc. (Botany) DEGREE EXAMINATION, DECEMBER 2022.

Third Semester

ALGAE TECHNOLOGY & MUSHROOM TECHNOLOGY

(CBCS 2018-2019 Academic Year onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Define nif genes.

2. What is pure culture?

3. What is spawn substrate?

4. Name of the organisms used in the SCP production.

5. State the uses of *Azolla*.

6. List out the usage of seaweeds in food industry.

7. Differentiate upstream and downstream process.

8. Define short term storage.

9. Describe mushroom and uses.

10. Name any two poisonous mushrooms with their effects on human health.

PART B — (5 × 5 = 25 marks)

Answer ALL questions. Choosing either (a) or (b).

11. (a) Write about the preparation of seaweed liquid fertilizers.

Or

(b) Write about the commercial importance of *Spirulina* and *Dunaliella.*

12. (a) Explain the algae as biofuel and their products.

Or

(b) List out the commercial importance of microalgae.

13. (a) Give in detail on the edible mushrooms in India.

Or

(b) Elaborate on cultivation of *Oyster* mushroom.

14. (a) Write in detail about the factors affecting in mushroom cultivation.

Or

(b) Write about the economic importance of mushrooms and their market values.

15. (a) Elaborate on the quality of spawn and its contaminants.

Or

(b) Write about the preservation techniques of mushrooms.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Give a detailed note on single cell proteins and their significance.

17. Explain the upstream and downstream process in mass cultivation of algae.

18. Write about the spawn preparation in detail.

19. Write about the methods of creating nif genes through various techniques.

20. Write about the nutrition value of mushrooms and their benefits.

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D–7616

Sub. Code
34641

DISTANCE EDUCATION

M.Sc. (Botany) DEGREE EXAMINATION, DECEMBER 2022.

Fourth Semester

PLANT MOLECULAR BIOLOGY

(CBCS 2018-2019 Academic Year onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Promiscuous DNA

2. Globulins

3. Auxins

4. pBR322

5. Chromosome walking

6. Golden rice

7. Flavr Savr

8. Biolistic

9. GUS

10. Edible vaccine

PART B — (5 × 5 = 25 marks)

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

11. (a) Write note on plant transposons.

Or

(b) Write an essay on mitochondrial genome and cytoplasmic male sterility.

12. (a) Write notes on general methodology of plant genetic engineering.

Or

(b) Write notes on Selectable markers used in plant genetic engineering.

13. (a) Write notes on developing transgenic plant with herbicide resistance.

Or

(b) How to employ plant genetic engineering tools to achieve delayed fruit ripening.

14. (a) Write notes on molecular markers and their applications.

Or

(b) Illustrate tagging, mapping and cloning of plant genes.

15. (a) Write notes on nuclear genome organization in plants.

Or

(b) Illustrate nitrogen fixation in legumes by Rhizobia.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Write an essay on structure and regulation of gene expression in plant development.

17. Write an essay on indirect method of plant gene transformation technique.

18. Explore the various strategies of plant genetic engineering to achieve virus resistance.

19. Justify- "Bioremediation-a value added service of plants".

20. Write an essay on targeting of nucleus encoded cytoplasmic proteins to chloroplast compartments.

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D–7617	Sub. Code
	34642

DISTANCE EDUCATION

M.Sc. (Botany) DEGREE EXAMINATION,
DECEMBER 2022.

Fourth Semester

BIOSTATISTICS, BIOPHYSICS AND BIOINFORMATICS

(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 significance level?

2. Briefly explain the skewed data.

3. What is a Chi square test?

4. Define: Bioenergetics.

5. Write short notes on Gibb's free energy.

6. What is redox potential?

7. Briefly discuss the closed and open system.

8. Protein data base.

9. Write a short account on 'PlantSat'.

10. Briefly explain the multiple sequence alignment.

PART B — (5 × 5 = 25 marks)

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

11. (a) Find the mean, median and mode of the following data:

Class	0-10	10-20	20-30	30-40	40-50	50-60	60-70
Frequency	4	4	7	10	12	8	5

Or

(b) Find out the Standard Deviation of the following data: 5, 9, 8, 12, 6, 10, 6, 8.

12. (a) 'All the biological reactions move away from the equilibrium'-Justify.

Or

(b) Give a short account on bioluminescence.

13. (a) Write a short essay on efficiency of atoms.

Or

(b) Explain the first order and second order reaction.

14. (a) List out the applications of bioinformatics.

Or

(b) Briefly discuss the PHYLODRAW.

15. (a) Briefly discuss the Clustered-W.

Or

(b) Write a short account on amino acid substitution matrices.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Write an essay on graphical representation of data.

17. Give an elaborate account on T-test and add a note on its significance.

18. Energy transduction in biological systems.

19. Write an essay on nucleotide sequence data bases.

20. Write a detailed account on BLAST and FASTA.

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D–7618	Sub. Code
	34643

DISTANCE EDUCATION

M.Sc. (Botany) DEGREE EXAMINATION,
DECEMBER 2022.

Fourth Semester

HORTICULTURE AND PLANT TISSUE CULTURE

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL the questions.

1. Define Floriculture and Landscaping.

2. Write short notes on Sterile soil mixture.

3. Seed dormancy.

4. What is mean by synthetic hormones?

5. Define Rockeries.

6. Bonsai.

7. Define callus culture.

8. Composition of nutrient medium.

9. Pollen culture.

10. What is Protoplast culture?

PART B — (5 × 5 = 25 marks)

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

11. (a) Write short notes on horticulture relation to agriculture.

Or

(b) Briefly explain about importance of macro and micronutrients.

12. (a) Write briefly about different types organic fertilizers.

Or

(b) Give an account on advanced water irrigation system.

13. (a) Write short notes on Production of seeds and their certification.

Or

(b) What are the sterilization techniques used in tissue culture?

14. (a) What are the different stages of micropropagation?

Or

(b) What commercial crops are propagated through micropropagation?

15. (a) Explain the somatic embryogenesis.

Or

(b) What are the steps involved in protoplast culture?

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Write in detail the various division of Horticulture.

17. Describe in detail of Outdoor and Indoor gardening.

18. Discuss in detail the somoclonal variations significance, mechanism and application.

19. Elaborate in detail on protoplast fusion and application of protoplast culture.

20. Describe the *in vitro* production of secondary plant products.

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