

R6014

Sub. Code

525101

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2021

First Semester

Botany

PLANT DIVERSITY – I

**(PHYCOLOGY, MYCOLOGY, LICHENOLOGY AND
BRYOLOGY)**

(CBCS – 2019 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Flagella.
2. *Nostoc*.
3. Algae as bio-fertilizer.
4. Characters of Chlorophyceae.
5. Basidiospore.
6. Coenocytic mycelium.
7. Perithecium.
8. Mycobionts.
9. Apogamy.
10. Sporophytes.

Part B

(5 × 5 = 25)

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

11. (a) Similarities between Bacteria and Cyanobacteria.

Or

- (b) Indian Pioneer work in Phycology.

12. (a) General characters of Rhodophyceae.

Or

- (b) Use of Brown algae in Agriculture.

13. (a) Characteristics of Ascomycotina.

Or

- (b) What is Heterothallism?

14. (a) Lichen as Ecological indicator.

Or

- (b) General account on Lichens.

15. (a) Life cycle of sphagnales.

Or

- (b) Differentiate Bryophytes and Pteridophytes.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Discuss Ultrastructure of Eukaryotic cell.
 17. Explain reproduction in Bacillariophyceae.
 18. Enumerate phylogenetic trends in Fungi.
 19. Write an account on economic importance of Lichens.
 20. Describe reproduction and life cycle of Anthoceros.
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R6015

Sub. Code

525102

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2021

First Semester

Botany

**PLANT DIVERSITY – II (PTERIDOPHYTES,
GYMNOSPERMS AND PALAEOBOTANY)**

(CBCS – 2019 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Microphyllous and Megaphyllous
2. Fertilization in Psilophytes
3. Protostele
4. Apogamy
5. Resemblances between Gymnosperms and Pteridophytes
6. Microspore germination in Cycas
7. Endosperm is formation in Gymnosperms
8. Divisions of Gymnosperms
9. Two fossil *Sphenophyllum* species
10. Fossil fuels

Part B

(5 × 5 = 25)

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

11. (a) Explain the structure of a mature prothallus of *Psilotum*.

Or

- (b) Write down the anatomical characters of Sphenophytes.

12. (a) Explain the Megasporophyll in Gymnosperm.

Or

- (b) What is homosporous ferns and explain with an example.

13. (a) Discuss endosperm formation in Gymnosperms.

Or

- (b) Describe about Conifers.

14. (a) Write about the reproduction in *Taxus*.

Or

- (b) Write about the reproduction in *Araucaria*.

15. (a) Give short notes on *Sphenophyllum*.

Or

- (b) Give short notes on *Lagenostoma*.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Describe the reproduction takes place in Lycophytes.
17. Discuss economic importance of Pteridophytes.

18. Write about the classification of Gymnosperms.
 19. Explain the life cycle of *Pinus* with the aid of schematic diagram.
 20. Give an account on fossil fuels.
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R6016

Sub. Code

525103

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2021

First Semester

Botany

MICROBIOLOGY AND PLANT PATHOLOGY

(CBCS – 2019 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Common bacterial infections to humans
2. Cocci cells
3. Retrovirus
4. Mycoplasma
5. Mutualism
6. Defense mechanism in plants
7. Plant pathology
8. Signs of plant diseases
9. Leaf spot of groundnut – Causing organisms
10. Three Common Plant Diseases

Part B

(5 × 5 = 25)

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

11. (a) Write about fundamentals of Microbiology.

Or

- (b) What are the three morphological types of Bacteria?

12. (a) Explain the structure of Virus.

Or

- (b) Describe the cycle of basic Virus.

13. (a) What are the signs of plant disease?

Or

- (b) How plant diseases are studied?

14. (a) Discuss natural defense mechanism of plants.

Or

- (b) Describe what kind of information is found on a pesticide label?

15. (a) Detail about the anthracnose of mango and the disease management.

Or

- (b) Write about blast and sheath blight of paddy and causative organism.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Enumerate economic importance of Bacteria in various fields.
17. Explain classification of Viruses.

18. Give account on disease Triangle and Forecasting Mechanisms in Plant Pathology.
 19. Describe about host pathogen interactions.
 20. Explain the disease caused by root knot nematode
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R6017

Sub. Code

525104

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2021

First Semester

Botany

CELL BIOLOGY AND GENETICS

(CBCS – 2019 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Power House of the cell
2. Passive transport
3. Heterochromatin
4. Metamere
5. Non mendelian genetics
6. Polygenetic interaction
7. Sex linked inheritance
8. Gene mapping
9. Finger printing
10. Role of mRNA

Part B

(5 × 5 = 25)

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

11. (a) Write short notes on Nucleolus.

Or

- (b) Explain Peroxisomes.

12. (a) Write about Telomere and Metamere.

Or

- (b) Explain chromosomal aberration.

13. (a) Write short notes on Mutation.

Or

- (b) Explain Hybrid crosses.

14. (a) Write down chromosomal theory of inheritance.

Or

- (b) Define gene mapping.

15. (a) Write about Gene Transcription.

Or

- (b) Explain gene mutation.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Explain structure and function of cytoskeleton and its role in motility.
17. Elaborate karyotype analysis cytology in research to plant taxonomy.

18. Discuss role of mutation in evolution.
 19. Write about male sterility in plants and quantitative inheritance.
 20. DNA and RNA as the genetic materials – Justify.
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R6018

Sub. Code

525301

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2021

Third Semester

Botany

EVOLUTION, ECOLOGY AND PHYTOGEOGRAPHY

(CBCS – 2019 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

All questions carry equal marks.

1. Define Allele Frequency and Gene Pool
2. Is genetic drift better than natural selection? Substantiate your answer.
3. Ecotone and Edge effect
4. Saprophytic Food chain
5. Parasitism
6. Interpret the relation existing in Lichens
7. Groves
8. Boreal forest
9. Abraham Ortelius
10. Phytogeography

Part B

(5 × 5 = 25)

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

All questions carry equal marks.

11. (a) Discuss the types and causes of speciation noticed in living organisms.

Or

- (b) How does evolution produces new and complex features in new progeny?

12. (a) What are the Pyramid of biomass and numbers in the Pond Ecosystem? Explain with relevant diagram.

Or

- (b) How will you calculate Gross, Net and Primary Productivity of a Grassland ecosystem? Explain.

13. (a) How does survivorship curves varies with living organisms? Discuss with relevant example.

Or

- (b) Narrate the food chain and food web of an aquatic ecosystem with a neat sketch.

14. (a) List out the objectives of conducting Forest inventory.

Or

- (b) How does deforestation contribute to destruction of living environment?

15. (a) Elaborate on the Plate Tectonic boundaries existing in nature.

Or

- (b) Discuss about the Floristic regions of India with their significance.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Define Abiogenesis and discuss in detail about the aim and its applications.
17. Bring out the salient features involved in the cycling of Carbon in the environment.
18. Can you bring out the salient features of the relationship that exists between organisms resulting in benefit to either or both the organisms with relevant example?
19. Illustrate the typical Deciduous Forest with the abiotic and biotic factors dominating the ecosystem.
20. What are the major theories put forward with respect to Endemism? Discuss in detail.

R6019

Sub. Code

525302

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2021

Third Semester

Botany

PLANT BIOTECHNOLOGY, BIOETHICS AND IPR

(CBCS – 2019 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Heterochromatin
2. Satellite DNA
3. RNA polymerase
4. Plastome
5. Elicitors
6. *Rhizobium*
7. Ti-plasmid
8. *Agrobacterium tumefaciens*
9. Shuttle Vectors
10. Hybridization

Part B

(5 × 5 = 25)

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

11. (a) Describe the chromatin organization.

Or

- (b) Write a note on C-value paradox.

12. (a) Analyze the evolution and function of mitochondria.

Or

- (b) Explain about the protein synthesis in mitochondria.

13. (a) Enumerate the role of *Rhizobium* gene in nodule development.

Or

- (b) Write a note on plant nodulin gene expression.

14. (a) Explain the process and application of T-DNA.

Or

- (b) Write a note on transformation process.

15. (a) Describe the plant viruses genome databases.

Or

- (b) Explain Ti plasmid vectors with suitable illustration.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Describe about the scope and importance of Biotechnology.
 17. Give a detailed account on chloroplast organization and function.
 18. Critically examine the *Rhizobium* and its significance for crop improvement.
 19. Discuss in detail about the *Agrobacterium* mediated gene transformation.
 20. Write a note on plant virus vectors for genetically engineered crops.
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R6020

Sub. Code

525303

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2021

Third Semester

Botany

**BIOTECHNIQUES, BIOSTATISTICS AND
BIOINFORMATICS**

(CBCS – 2019 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Isoelectric focusing
2. Define blotting
3. What is DATA? Give one example
4. What is sampling?
5. Standard error
6. Null hypothesis
7. GenBank
8. EMBL
9. BLAST
10. FASTA

Part B

(5 × 5 = 25)

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

11. (a) Write short notes on ultra centrifugation.

Or

- (b) Differentiate between AGE and PAGE.

12. (a) Discuss about the primary and secondary data.

Or

- (b) Calculate median for the given data

X	0-10	10-20	20-30	30-40	40-50
Y	3	2	5	3	7

13. (a) Describe in detail about the significance of chi square test.

Or

- (b) How to calculate statistical significance? Explain the steps involved in it.

14. (a) Add note on PDB.

Or

- (b) Comment on the following

(i) DDBJ

(ii) NCBL

15. (a) Give an account on phylogenetic tree.

Or

- (b) Write short notes on clustal W.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Write the principle, procedure and application of HPLC.
 17. Give a detailed account on diagrammatic representation of data.
 18. Describe in detail about the merits and demerits of measures of central tendency.
 19. Discuss in detail about biological database.
 20. Explain in detail about multiple sequence alignment with an example.
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R6021

Sub. Code

525502

M.Sc. DEGREE EXAMINATION, NOVEMBER 2021.

Third Semester

Botany

ECONOMIC BOTANY

(CBCS – 2019 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Origin of Lentil.
2. Give the botanical description of *Sorghum*.
3. State the uses of *Dioscorea*.
4. Differentiate true fruits and false fruits.
5. List out the sources of spices with an example.
6. Chemical composition of Nutmeg.
7. Classification of fibres.
8. Write short note on cork.
9. Describe hydrogenation of oils.
10. *Aconitum*.

Part B

(5 × 5 = 25)

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

11. (a) What are pseudo-cereals? Give an example.

Or

- (b) Write short notes on:

- (i) Chick pea
- (ii) Pigeon pea
- (iii) Broad beans

12. (a) Give a detailed account on stem vegetables.

Or

- (b) Explain the different types of citrus fruits and its uses.

13. (a) Write an essay on origin and composition of spices and condiments.

Or

- (b) What is cane sugar? Write an account of the process of commercial production of cane sugar.

14. (a) Write short notes on:

- (i) Coir
- (ii) Brush fibres
- (iii) Kapok
- (iv) Natural fabrics

Or

- (b) Explain the structure of wood.

15. (a) Elucidate the economic importance of gingelly, coconut and peanut oil.

Or

- (b) Describe the morphology and medicinal uses of Rauwolfia.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Write a brief account of various types of millets grown in India.
17. What are common temperate fruits grown in India? Discuss about their importance.
18. Justify the statement that tea is the most popular non-alcoholic drink of the world.
19. Give a detailed account of morphology, cultivation, characters and production of Jute in India.
20. Explain the harvesting, extraction and uses of fatty oils and vegetable fats.