

A-9792

Sub. Code

4MBO3C1

**M.Sc. DEGREE EXAMINATION, APRIL 2021 &
Supplementary/Improvement/Arrear Examinations**

Third Semester

Botany

PLANT PHYSIOLOGY AND BIOPHYSICAL CHEMISTRY

(CBCS – 2014 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. Symplast.
 2. Osmosis.
 3. *Nif* gene.
 4. GOGAT.
 5. Senescence.
 6. Phosphorescence.
 7. *Van der waals* forces.
 8. Covalent bond.
 9. Florescence.
 10. Circular dichroism.

Part B

($5 \times 5 = 25$)

Answer **all** questions.

11. (a) Explain the role of microelements in plant growth.

Or

- (b) Describe Hydroponics and its significance.

12. (a) Write notes on hexose-monophosphate shunt.

Or

- (b) Describe the Nitrogen cycle and its significance.

13. (a) Write an account on Phytochrome and its role.

Or

- (b) Explain Absorption spectrum with neat diagram.

14. (a) Describe the laws of thermodynamics and its importance.

Or

- (b) Describe in brief the bioenergetics of Chloroplast.

15. (a) Explain the molecular structure determination using X-Ray diffraction method.

Or

- (b) With diagrams explain the principle and uses of ESR spectroscopy.

Part C

($3 \times 10 = 30$)

Answer any **three** questions.

16. Write a detailed account on types of stress on crop plants and its effects.
 17. Give an illustrated account on Kreb's cycle and its significance.
 18. Explain in detail the physiological and mode of action of GA₃ and ABA.
 19. Describe Mitochondrial bioenergetics in detail.
 20. With neat diagrams explain the different types massspectrometry.
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A-9793

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4MBO3C2

**M.Sc. DEGREE EXAMINATION, APRIL 2021 &
Supplementary/Improvement/Arrear Examination**

Third Semester

Botany

PLANT BIOTECHNOLOGY

(CBCS – 2014 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. S1 nuclease
2. RAPD
3. Recombination
4. *Vir* genes
5. Minimal media
6. Synthetic seed
7. Zymase
8. Cry gene
9. Farmers right
10. Environmental impact analysis

Part B

($5 \times 5 = 25$)

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

11. (a) Write a short note on the applications of ligase enzymes.

Or

- (b) Describe the principle and applications of RAPD.

12. (a) Write a short note on nonspecific gene transfer methods.

Or

- (b) Define and explain: macro and microinjection.

13. (a) Write a short note on sterilization methods in plant tissue culture.

Or

- (b) Describe the strategies for pollen culture.

14. (a) Describe the strategies for citric acid production by recombinant microbes.

Or

- (b) Describe the applications of biotechnology for feed stock development.

15. (a) Define and describe the guidelines for obtaining copy right.

Or

- (b) Explain the cause and consequences of biopiracy with example.

Part C

($3 \times 10 = 30$)

Answer any **three** questions.

16. Describe the principle, construction and applications of cDNA libraries.
 17. Explain the organization and plant gene transfer using Ti plasmid.
 18. Describe the principle, methods and applications of protoplast isolation, culture and fusion.
 19. Explain the rationale, production and applications of insect resistant transgenic plants. -
 20. Describe the importance of biosafety guidelines with special reference to transgenic plants.
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A-10367

Sub. Code

4MBO3C3

**M.Sc. DEGREE EXAMINATION, APRIL 2021 &
Supplementary/Improvement/Arrear Examinations**

Third Semester

Botany

RESEARCH METHODOLOGY

(CBCS – 2014 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Resolving power.

2. Chromatic Aberrations.

3. Histo chemistry.

4. Isotope.

5. Plasmid

6. Molecular markers

7. Primary data

8. Hypothesis

9. Monograph

10. Plagiarism

Part B (5 × 5 = 25)

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

11. (a) Give the principle and applications of phase contrast microscope.

Or

- (b) Write notes on freeze-etch method in Electron microscopy.

12. (a) Write a detailed note on the principles and applications of flow cytometry.

Or

- (b) Write a note on Enzyme assisted immune electro blotting.

13. (a) Explain the working principle and applications of SDS-PAGE.

Or

- (b) Describe Edman degradation method of protein sequencing and its significance.

14. (a) Describe the Research design.

Or

- (b) Describe the methods for research presentation in conference.

15. (a) Describe the format used for thesis writing.

Or

- (b) Explain the role of proof correction in research publications.

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

Answer any **three** questions.

16. Describe the working principle and applications of TEM with neat diagram.
 17. Explain the working principles and applications of ELISA.
 18. Discuss sanger chain termination method of DNA sequencing.
 19. Describe the various steps to be followed during scientific Research.
 20. Describe the different sources and methods for scientific data collection.
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