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[Roll No.]

BOT-551

**M.Sc. Botany IInd Year
Examination Dec., 2023**

**CELL BIOLOGY, GENETICS,
BIostatISTICS AND ECOLOGY**

Time : 2 Hours]

[Max. Marks : 70

Note :- This paper is of Seventy (70) marks divided into two (02) Sections 'A' and 'B'. Attempt the questions contained in these Sections according to the detailed instructions given there in. Candidates should limit their answers to the questions on the given answer sheet. No additional (B) answer sheet will be issued.

Section-A

(Long Answer Type Questions) 2×19=38

Note :- Section 'A' contains Five (05) Long-answer type questions of Nineteen (19) marks each. Learners are required to answer any two (02) questions only.

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(1)

P.T.O.

1. What are mutagens ? Describe the detailed explanations of various types of gene mutation.
2. What is water pollution ? Discuss its causes, effects, and control measures.
3. What is Bioinformatics ? Describe its components and applications.
4. Describe the ultra structure and functions of mitochondria and chloroplast with a labeled diagram.
5. What is biodiversity ? Explain the types and techniques of conservation of biodiversity.

Section–B

(Short Answer Type Questions) 4×8=32

Note :- Section ‘B’ contains Eight (08) Short-answer type questions of Eight (08) marks each. Learners are required to answer any *four* (04) questions only.

1. Describe the general features of the genetic code.
2. What is the biogeochemical cycle ? Describe the nitrogen cycle and its importance.
3. Write a brief notes on special types of chromosomes.
4. Write short notes on the law of independent assortment
5. What is apoptosis ? Discuss the mechanism of cell cycle control.

6. Explain the analysis of variance.
7. Draw a labeled diagram and describe the structure of DNA.
8. Describe the principles and application of fluorescence and electron microscopy.
