

2006
BOTANY - II (Optional)

000169

Standard : Degree

Total Marks : 200

Nature : Conventional

Duration : 3 Hours

Note :

- (i) *Answers must be written in English only.*
- (ii) *Question No. 1 is Compulsory. Of the remaining questions, attempt **any four** selecting one question from **each** section.*
- (iii) *Figures to the **RIGHT** indicate marks of the respective question.*
- (iv) *Number of optional questions upto the prescribed number in the order in which they have been solved will only be assessed. Excess answers will not be assessed.*
- (v) *Credit will be given for orderly, concise and effective writing.*
- (vi) *Candidate should not write roll number, any name (including their own), signature, address or any indication of their identity anywhere inside the answer book otherwise he will be penalised.*

1. Answer **any Four** of the following questions :

- (a) Write a short note on Lamp-brush chromosome. 10
- (b) Explain Chromosomal sex determination in plants. 10
- (c) Describe various methods used for plant selection in plant breeding. 10
- (d) Define fruit ripening. Enlist various environmental factors affecting fruit ripening. 10
- (e) Write short note on windows. 10

SECTION - A

2. Answer the following sub-questions :

- (a) Describe structure of chloroplast and write its functions. 20
- (b) Explain ultrastructure of Nucleus. Add a note on its functions. 20

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3. Answer the following sub-questions :
- (a) With the help of suitable diagram, explain detail structure of prokaryotic cell. 20
 - (b) Differentiate between Mitosis and Meiosis. 20

SECTION - B

4. Answer the following sub-questions :
- (a) Discuss Mendel's Laws of Inheritance. 15
 - (b) Elaborate on protein synthesis. 15
 - (c) Enlist various theories of Organic Evolution. 10
5. Answer the following sub-questions :
- (a) Write an essay on Gene Mapping. 15
 - (b) Describe various stages in Gene expression. 15
 - (c) Define Organic Evolution. Explain the same citing different evidences. 10

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SECTION - C

6. Answer the following sub-questions :
- (a) Enlist various applications of plant breeding. 15
 - (b) Describe micropropagation technique of somatic hybridization used in tissue culture. 15
 - (c) Define chi-square and t-test. Explain the formulas and write their uses. 10
7. Answer the following sub-questions :
- (a) Describe the types of male sterility and its utilization in plant breeding. Add a note on chemically induced male sterility. 15
 - (b) What is Gene Cloning ? Enlist various vectors and their uses in gene transfer techniques. 15
 - (c) Explain correlation and Regression analysis. Describe their types and significance. 10

SECTION - D

8. Answer the following sub-questions :
- (a) Give a brief account of the mechanism of Aerobic Respiration. 10
 - (b) Write in details about secondary metaboloids produced in plants. 10
 - (c) Define plant succession and describe various stages observed in Xerosere. 10
 - (d) Define Endemism. Write its causes and enlist the examples. 10
9. Answer the following sub-questions :
- (a) What is the role of nitrogen in plant life ? Elatorate on sources of N_2 and various N_2 fixing micro-organisms. 10
 - (b) Write an essay on photoperiodism. 10
 - (c) Define Pollution. Explain in details pollutants, effects and phytoremedial measures for soil pollution. 10
 - (d) Describe causes and impacts of Acid Rain on plant and human life. 10

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