

AGRICULTURE - PAPER-II

Time Allowed : 3 Hours

Full Marks : 200

If the questions attempted are in excess of the prescribed number, only the questions attempted first up to the prescribed number shall be valued and the remaining ones ignored.

Answers may be Written either in English or in Bengali but all answers must be in one and the same language.

GROUP-AAnswer any three questions.

1. Give full name of the father of genetics. What do you know about him? What was his experimental material and why did he select that material? How many traits did he select for his experiment and What are those? State the laws of inheritance and how could he formulate those laws? Why did his selected traits did not show deviation from normal segregation ratio?
2+5+6+6+5+12+4
2. a) What is allopolyploid? How does it occur in nature and how can you induce allopolyploid? Discuss the role of allopolyploids in plant evolution and limitation of it in crop improvement.
2+3+3+12
- b) What are the common aneuploids for locating genes on the Chromosome? Give a brief description of the techniques using suitable diagrammes.
6+14
3. a) What is hetrosis? What is hybrid maize? What are three way cross, inbred variety cross and multiple cross? What are required for commercial production of hybrid maize? How to exclude detasseling by special method? What are the ways to use these methods (use sketches)? How to predict the yield of double cross? State the method of sowing the material for raising hybrid seeds?
3+3+5+4+10+5
- b) Explain the dominance and over dominance theory of hybrid vigour.
5+5
4. a) What is TPS? What are the advantages of using TPS? How can TPS be grown in plain area?
2+6+12
- b) How do the seeds deteriorate? What are the symbols of deteriorated seeds? How is it possible to maintain genetic purity of seeds? What are the agronomic technique adopted to maintain genetic purity of seeds.
5+5+5+5
5. a) State the method of papaya seed production with respect to type of flowering and technique of seed production and collection and storage?
5+15

5. b) Mention the original place of coconut and type of pollination of it :

What are the types of coconut and how can hybrid be produced in coconut. State the procedure of coconut propagation.

2+4+4+10

GROUP-B

Answer any two questions.

6. a) What was the normal incidence that led scientists to detect the genes for insecticidal property ? How were the genes incorporated into which variety of cotton and by which organisation ?

5+10+5

- b) What is RAPD ? What are the advantages and disadvantages of RAPD. Mention the use of RAPD. State the procedure of marker assisted selection.

3+6+3+8

7. a) Define sporogenesis. State the processes of micro and mega sporogenesis and gametogenesis(micro and mega).

2+9+9

- b) What is sterility ? What is male sterility? What are the various sterility ? Explain all types of male sterility with example.

2+2+3+13

8. Write short notes on any eight :

- Quarantine
- NBPGR
- Incompatibility
- Triple fusion
- Heritability
- Pleiotropy
- Line X tester analysis
- Chimera
- Sickle cell anaemia
- Neurospora

5x8

9. What is pathogenecity ? What are the factors that help develop disease ? How many types of disease resistance are found ? What are the mechanism of disease resistance ? What are the sources of disease resistance ? What are the methods of breeding for disease resistance and state those ? How to transfer the recessive gene of disease resistance to a crop ?

2+5+3+5+3+5+8+9