Total No. of Questions– **21**

Total No. of Printed Pages– **3** **Regd. No.** | | | | | | | | | | |

Part III

BOTANY

Paper II

(English Version)

Time : 3 Hours ***Max. Marks : 60***

Note :— Read the following instructions carefully

(*i*) Answer ALL the questions of Section A. Answer any SIX questions out of eight in Section B and answer any TWO questions out of three in Section C.

(*ii*) In Section A, questions from Sr. Nos. **1** to **10** are of 'Very Short Answer Type'. Each question carries TWO marks. Every answer may be limited to **5** lines. Answer all these questions at one place in the same order.

(*iii*) In Section B, questions from Sr. Nos. **11** to **18** are of 'Short Answer Type'. Each question carries FOUR marks. Every answer may be limited to **20** lines.

(*iv*) In Section C questions from Sr. Nos. **19** to **21** are of 'Long Answer Type'. Each question carries EIGHT marks. Every answer may be limited to **60** lines.

(*v*) Draw labelled diagrams, wherever necessary for questions in Sections B and C.

SECTION A 10×2=20

Note :— Answer ALL the questions. Each answer may be limited to **5** lines.

1. How does ABA bring about the closure of stomata under water stress conditions ?

2. Where does the photolysis of H_2O occur ? What is its significance ?

3. What is transformation ? Who discovered it and in which organism ?

4. What is the genetic nature of wrinkled phenotype of pea seeds ?

5. Distinguish between Heterochromatin and Euchromatin. Which of the two is transcriptionally active ?

6. What is the function of the Codon AUG ?

7. How does one visualize DNA on an agar gel ?

8. Give *one* example for each of transgenic plants which are suitable for food processing and those with improved nutritional quality.

9. Name *two* semi-dwarf varieties of rice developed in India.

10. Why does "Swiss Cheese" have big holes ? Name the bacteria responsible for it.

SECTION B 6×4=24

Note :— Answer any SIX questions. Each answer may be limited to **20** lines.

11. 'Transpiration is a necessary evil'. Explain.

12. Explain the nitrogen cycle giving relevant examples.

13. Explain the mechanism of Enzyme action.

14. What are the physiological processes that are regulated by Ethylene in plants ?

15. Explain the chemical structure of viruses.

16. Differentiate between the following

(*a*) Dominant and Recessive

(*b*) Homozygous and Heterozygous.

17. What are the differences between DNA and RNA ?

18. Give a brief account of Bt. cotton.

SECTION C

2×8=16

Note :— Answer any TWO questions. Each answer may be limited to **60** lines.

19. Give an account of glycolysis. Where does it occur ? What are the end products ? Trace the fate of these products in both aerobic and anaerobic respiration.

20. Give a brief account of the tools of recombinant DNA technology.

21. Describe the tissue culture technique and what are the advantages of tissue culture over conventional method of plant breeding in crop improvement programmes ?