

Total No. of Questions : 21  
Total No. of Printed Pages : 2

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No.

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**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 Sl. 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 Sl. 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 Sl. 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** questions. Each answer may be limited to **5** lines.

1. Explain the role of the pink colour pigment in the root nodule of legume plants. What is it called? *leg. nodule*
2. Define the terms Quiescence and Dormancy. *Ext. Dorm.*
3. Mention the differences between Virulent phages and Temperate phages.
4. What is the genotype of wrinkled phenotype of Pea seeds? *r/r*
5. In a typical DNA molecule, the proportion of thymine is 20% of the N bases. Find out the percentages of other N bases. *A = 20*

6. Define Stop Codon. Write the Codons.
7. How does one visualize DNA on an agar gel?
8. What is GEAC and what are its objectives?
9. Give two examples of fungi used in SCP production.
10. Name a microbe used for Statin production. How do statins lower blood cholesterol level?

### SECTION - B

**6×4=24**

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

11. How does ascent of sap occur in tall trees?
12. Write briefly about enzyme inhibitors.
13. Tabulate any eight differences between C<sub>3</sub> and C<sub>4</sub> plants / cycles.
14. What are the physiological processes that are regulated by Ethylene in plants?
15. What are the nutritional groups of bacteria based on their source of energy and Carbon?
16. Explain the law of Dominance using a monohybrid cross.
17. Draw the schematic / diagrammatic presentation of the lac Operon.
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.