

**2021**

**BOTANY — HONOURS**

**Paper : CC-1**

**Full Marks : 50**

*The figures in the margin indicate full marks.*

*Candidates are required to give their answers in their own words as far as practicable.*

1. Answer the following questions : 2×5
- (a) What is an axoneme?
  - (b) What are phycobilins? State their importance.
  - (c) Give example of one unicellular and one corraline red algae.
  - (d) What is transformasome?
  - (e) Why are Firmicutes important to human health?
2. (a) Describe the different modes of life cycle encountered in members of Chlorophyta. 5
- Or,**
- Describe the frustule structure of Diatom with proper labelled sketches. 5
- (b) How plant viruses are translocated in the non-vascular tissue? Enumerate the role of movement of proteins during translocation. 3+2
- Or,**
- Write a brief note on Bacterial growth curve and Generation time. 5
3. Outline the classification of algae as proposed by Robert Lee (2008) up to orders and briefly mention the criterion behind such proposal. 8+2
- Or,**
- Describe the nanandrous life cycle with proper labelled sketches. Mention the unique character of Chlorophyte (green algae). 10
4. Explain the genetic recombination in Bacteria by conjugation. How does the chromosome replicate and move during the process. 7+3
- Or,**
- (a) Describe the chemical nature of murein. How does it differ from Pseudomurein?
  - (b) Write the salient features of actinobacteria and mention its biotechnological importance. 5+2+3

**Please Turn Over**

5. (a) Compare the cell structures of diatoms and cyanobacteria with special emphasis on cell wall, pigments and reserve food.
- (b) Enumerate the changes that occur during the development of a Heterocyst from a vegetative cell.

6+4

**Or,**

Illustrate the structure of lamda ( $\lambda$ )-phage and enumerate its life cycle inside a *E. coli* host cell. What is lysogenic conversion?

3+5+2

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