

**2023**

**( FYUGP )**

**( 1st Semester )**

**BOTANY**

**( Minor )**

**Paper Code : M1/BCC-01**

**( Microbiology and Phycology )**

**Full Marks : 75**

**Pass Marks : 40%**

**Time : 3 hours**

**( PART : B—DESCRIPTIVE )**

**( Marks : 50 )**

*The figures in the margin indicate full marks  
for the questions*

**UNIT—I**

- 1. (a) Write a note on Darwin's theory of Natural Selection. 10**

**Or**

- (b) Define microbial nutrition. Explain bacterial growth curve. 2+8=10**

UNIT—II

2. (a) Give a general structure of virus and explain the mechanism of replication. 10

Or

- (b) Write the general characteristics of prions and add a note on the diseases caused by prions. 10

UNIT—III

3. (a) Describe the mode of nutrition in bacteria. 10

Or

- (b) What is genetic recombination? Explain the transformation in bacteria. 2+8=10

UNIT—IV

4. (a) What is thallus? Explain the pigment system in algae. 2+8=10

Or

- (b) Write a note on the economic importance of algae. 10

UNIT—V

5. (a) Illustrate the important features of the life cycle of *Nostoc*. 10

Or

- (b) Write short notes on the following : 5+5=10

- (i) Alternation of generation in algae
- (ii) Cell structure of *Ectocarpus*

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( FYUGP )  
( 1st Semester )

**BOTANY**

( Minor )

Paper Code : M1/BCC-01

( **Microbiology and Phycology** )

( PART : A—OBJECTIVE )

( Marks : 25 )

*The figures in the margin indicate full marks for the questions*

**SECTION—I**

( Marks : 15 )

Put a Tick (✓) mark against the correct answer in the  
brackets provided : 1×15=15

1. Theory of origin of species by Natural Selection was  
given by

(a) Charles Darwin ( )

(b) A. Wallace ( )

(c) A. Weismann ( )

(d) H. Spencer ( )

2. Flagella in bacteria enable them to

- (a) reproduce ( )
- (b) locomote ( )
- (c) thrive in nutrient ( )
- (d) adhere to tissue surfaces ( )

3. Exponential growth in bacteria would be expected during \_\_\_\_ phase of growth curve.

- (a) lag ( )
- (b) stationary ( )
- (c) log ( )
- (d) deceleration ( )

4. A virion is a/an

- (a) infectious nucleic acid ( )
- (b) infectious virus particle ( )
- (c) virus parasitic on bacteria ( )
- (d) virus parasitic on algae ( )

5. Which of the following is the genome of the virus?

- (a) DNA ( )
- (b) RNA ( )
- (c) DNA or RNA ( )
- (d) DNA and RNA ( )

6. A virus that may not destroy the host (bacterial cell) is

- (a) virulent phage ( )
- (b) temperate phage ( )
- (c) cyanophage ( )
- (d) lysogenic phage ( )

7. A bacteriophage with single-stranded DNA is

- (a)  $\phi \times 174$  ( )
- (b) smallpox virus ( )
- (c) T-even bacteriophage ( )
- (d) polyomavirus ( )

8. Infectious protein is present in

- (a) geminivirus ( )
- (b) prions ( )
- (c) viroids ( )
- (d) satellite virus ( )

9. Budding bacteria is

- (a) *Hyphomicrobium* ( )
- (b) *Rhodomicrobium* ( )
- (c) *Caulobacter* ( )
- (d) All of the above ( )

10. Which is not true about prokaryotic cell?

- (a) Membrane-bound nucleus ( )
- (b) DNA is not associated with proteins in chromosomes ( )
- (c) No mitotic cell division occurs ( )
- (d) Mitochondria is absent ( )

11. Name the pigment which imparts red colour to algae.

- (a) Phycoerythrin ( )
- (b) Phycocyanin ( )
- (c) Carotene ( )
- (d) Both (a) and (b) ( )

12. Floridean starch is present in

- (a) red algae ( )
- (b) brown algae ( )
- (c) blue-green algae ( )
- (d) green algae ( )

13. Study of algae is known as

- (a) palynology ( )
- (b) phycology ( )
- (c) mycology ( )
- (d) cytology ( )

14. What is the mode of sexual reproduction in Chlorophyceae?

(a) Oogamous ( )

(b) Anisogamous ( )

(c) Isogamous ( )

(d) All of the above ( )

15. The thallus organization of *Nostoc* is

(a) filamentous ( )

(b) parenchymatous ( )

(c) siphonaceous ( )

(d) None of the above ( )

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SECTION—II

( Marks : 10 )

Answer/Write on any *five* of the following in few sentences : 2×5=10

1. What are macronutrients?

2. Give the structure of bacteriophage.

( 9 )

3. What are prions?

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( 10 )

4. Prokaryotic cell and eukaryotic cell

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## 5. General characters of Chlorophyta

6. Systematic classification of *Polysiphonia*

## 7. Pyrenoids

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