

[This question paper contains 4 printed pages.]

Sr. No. of Question Paper : 686 G Your Roll No.....

Unique Paper Code : 216101

Name of the Paper : BTHT - 101 : Biodiversity – I
(Algae and Microbiology)

Name of the Course : **B.Sc. (Hons.) Botany**

Semester : I

Duration : 3 Hours

Maximum Marks : 75

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt **Section A** and **B** on separate sheets.
3. All parts of a question must be attempted together.
4. Illustrate your answers with suitable diagrams wherever necessary.

SECTION A

*Attempt **FOUR** questions in all from this section including
Question No. 1, which is compulsory.*

1. (a) Give the generic names of the algae that are associated with the following
(attempt any eight) : (1×8=8)
 - (i) Heterocyst
 - (ii) Coenobium
 - (iii) Aplanospore
 - (iv) Globule
 - (v) Spermocarp
 - (vi) Multiflagellate zoospore
 - (vii) An edible alga

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- (viii) Eyespot
- (ix) A symbiotic alga
- (x) A source of carrageenin

(b) Match the following : (1×6=6)

- | | |
|-----------------------|-------------------------|
| (i) Floridean starch | a) <i>Chlamydomonas</i> |
| (ii) Cap cells | b) <i>Nostoc</i> |
| (iii) Palmella stage | c) <i>Vaucheria</i> |
| (iv) Heterocyst | d) <i>Polysiphonia</i> |
| (v) Fucosan-vesicles | e) Phaeophyceae |
| (vi) Gongrosira stage | f) <i>Oedogonium</i> |

2. Differentiate between **any three** of the following : (4×3=12)

- (i) Isogamy and oogamy
- (ii) Zoospore and aplanospore
- (iii) Receptacle and conceptacle of *Fucus*
- (iv) Unilocular and plurilocular sporangia of *Ectocarpus*

3. (a) Describe the pigments and food reserves present in different classes of algae. (6)

(b) Describe the life cycle of nannandrous species of *Oedogonium*.

OR

Describe sexual reproduction in *Chara*. (6)

4. Draw well labelled diagrams of **any three** of the following : (4×3=12)

- (i) E.M. of a Cyanophycean cell
- (ii) E.M. of *Chlamydomonas* cell

- (iii) Sex-organs of *Vaucheria*
- (iv) Carposporophyte of *Polysiphonia*
5. (a) Describe asexual reproduction in *Volvox*. (4)
- (b) Discuss the role of algae in industry. (4)
- (c) Write the important contributions of **any two** of the following : (2×2=4)
- (i) F.E. Fritsch
 - (ii) H.D. Kumar
 - (iii) G.M. Smith

SECTION B

Attempt THREE Questions in all from this section, including Question No. 6, which is compulsory.

6. (a) Define **any five** of the following : (1×5=5)
- (i) Endospore
 - (ii) Auxotrophs
 - (iii) Sphaeroplast
 - (iv) Mesosome
 - (v) Episome
 - (vi) Binary fission
 - (vii) Horizontal gene transfer
- (b) Draw well labelled diagrams of **any two** of the following : (2½×2=5)
- (i) E.M. of bacterial cell
 - (ii) E.M. of T2 bacteriophage
 - (iii) Model of TMV

- (c) Fill in the blanks (**attempt any three**) : (1×3=3)
- (i) Citrus canker is caused by
 - (ii) T2-coliphage has type of symmetry
 - (iii) *Agrobacterium tumefaciens* causes
 - (iv) Bacterial type with flagella present all around its surface is called
7. Write short notes on **any two** of the following : (3×2=6)
- (a) Archaeobacteria
 - (b) Transduction
 - (c) Lytic cycle
8. Differentiate between on **any two** of the following : (3×2=6)
- (a) Gram +ve and Gram -ve bacteria
 - (b) Competence factors and permeases
 - (c) Viroids and prions
9. (a) Name the major orders and features of class Mollicutes.
- OR**
- Write a note on the use of bacteria in industry. (3)
- (b) What are the symptoms of viral diseases in plants ? (3)