2025

(NEP—2020)

(1st Semester)

BOTANY (MAJOR)

(Phycology and Mycology)

(Pre-Revised)

Full Marks : 75

Time : 3 hours

The figures in the margin indicate full marks for the questions

(SECTION : A—OBJECTIVE)

(*Marks* : 10)

Tick (✓) the correct answer in the brackets provided : 1×10=10

1. Cells are eukaryotic and chloroplast usually has pyrenoid in

(a) Chlorophyceae ( ) *(b)* Phaeophyceae ( )

(c) Rhodophyceae ( ) *(d)* Xanthophyceae ( )

2. According to Fritsch, what is the main pigment found in Rhodophyta?

(a) Chlorophyll 'a' and 'b' ( )

(b) Chlorophyll 'a' and 'c' ( )

(c) Chlorophyll 'a', 'c' and fucoxanthin ( )

(d) Chlorophyll 'a', 'd' and phycoerythrin ( )

3. What is a heterocyst in the context of algae?

(a) A type of reproductive cell ( )

(b) A cell that stores excess nutrients ( )

(c) A specialized cell for nitrogen fixation ( )

(d) A cell that secretes digestive enzymes ( )

4. Sexual reproduction is of oogamous type in

(a) *Chara* ( ) *(b)* *Spirulina* ( )

(c) *Polysiphonia* ( ) *(d)* *Ectocarpus* ( )

5. Which of the following is the key driver for algal bioprospecting?

(a) The desire to understand algal evolution ( )

(b) The need for sustainable sources of biofuels ( )

(c) The potential algae to produce valuable compounds ( )

(d) All of the above ( )

6. An intercellular network form in root cortex of ectomycorrhiza is called

(a) vesicle ( ) *(b)* haustoria ( )

(c) Hartig net ( ) *(d)* arbuscule ( )

7. The major advantage of a plant with VAM is that there is increase in

(a) nitrogen absorption ( )

(b) potassium absorption ( )

(c) phosphorus absorption ( )

(d) manganese absorption ( )

8. Holocarpic thallus is found in some

(a) Mastigomycotina ( ) *(b)* Zygomycotina ( )

(c) Ascomycotina ( ) *(d)* Basidiomycotina ( )

9. Acervulus is an aggregation of conidiophores or asexual fructification found in

(a) Ascomycetes ( ) *(b)* Deuteromycetes ( )

(c) Zygomycetes ( ) *(d)* Myxomycetes ( )

10. *Cladonia rangiferina* and *Ramalina fraxinea* are used in

(a) production of alcohol ( )

(b) tanning industry ( )

(c) preparation of dye ( )

(d) the treatment of tuberculosis ( )

(SECTION : B—SHORT ANSWERS)

(*Marks* : 15)

Write short notes on *five* of the following, taking at least *one* from each Unit : 3×5=15

UNIT—I

1. Structure and function of heterocyst

2. Cell structure of *Nostoc*

UNIT—II

3. Globule and nucule in *Chara*

4. General characteristics of Phaeophyta

UNIT—III

5. Reproduction in *Alternaria*

6. General characteristics of Mastigomycotina

UNIT—IV

7. Role of fungi in agriculture

8. Fruticose lichen

(SECTION : C—DESCRIPTIVE)

(*Marks* : 50)

Answer *five* questions, taking at least *one* from each Unit : 10×5=50

UNIT—I

1. Describe the reproduction and life cycle of *Spirulina* with suitable diagram. 10

2. Write notes on the following : 5×2=10

(a) Life histories of algae

(b) Range of thallus organization in algae

UNIT—II

3. Describe the reproduction and life history of *Polysiphonia* with suitable diagram. 10

4. Write notes on the following : 5×2=10

(a) Plurilocular gametangium in *Ectocarpus*

(b) Economic importance of algae

UNIT—III

5. Describe the life history of *Alternaria* with the help of suitable diagram. 10

6. Write notes on the following : 5×2=10

(a) General features of fungi

(b) Fruiting bodies in Basidiomycetes

UNIT—IV

7. Discuss the types, distribution and reproduction of lichen. 10

8. Write notes on the following : 5×2=10

(a) General characteristics of mycorrhiza

(b) Economic importance of lichen

★ ★ ★