

B.Sc. 6th Semester (Honours) Examination, 2023 (CBCS)

Subject : Botany

Course : DSE-3

(Plant Evolution and Biodiversity)

Time: 2 Hours

Full Marks: 40

The figures in the margin indicate full marks.

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

Answer all questions.

1. Answer *any five* from the following: 2×5=10
- (a) Mention the gases present in the earliest environment.
 - (b) What is group selection?
 - (c) What is Kranz anatomy? Give an example.
 - (d) Mention the components of a phylogenetic tree.
 - (e) Define endosymbiosis.
 - (f) Write two features of Archaeobacteria.
 - (g) What are sciophytes? Give example.
 - (h) What do you mean by cold desert?
2. Answer *any two* from the following: 5×2=10
- (a) How Pasteur disproves the prevailing theory of 'Spontaneous generation' of cells and organisms?
 - (b) 'The first true plants were derived from a Charophyte'. Explain it.
 - (c) Briefly describe the characteristic features of plants growing on low nutrient conditions.
 - (d) Write short notes on:
 - (i) Core eudicot
 - (ii) Basal flowering plants
3. Answer *any two* from the following: 10×2=20
- (a) What do you mean by epiphytes, hemi-epiphytes and vine? Describe their adaptation with example. 6+4
 - (b) Give a brief idea on evolution of plants using C4 and CAM pathway.
 - (c) Define evolution. What are the Darwin's observation of theory of evolution? 2+8
 - (d) Give an idea on Neutral theory of molecular evolution.

B.Sc. 6th Semester (Honours) Examination, 2023 (CBCS)**Subject : Botany****Course : DSE-3 (OR)****(Phytoremediation and Immunology)****Time: 2 Hours****Full Marks: 40***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 *any five* of the following: 2×5=10
- (a) What is phytovolatilization?
 - (b) Mention the scientific name of two plants which are used for phytoremediation. 1+1
 - (c) Name two metalophytes.
 - (d) What do you mean by ELISA?
 - (e) Differentiate between Adjuvants and Haptens.
 - (f) Write two properties of Cytokines. 1+1
 - (g) What do you mean by immunologic memory?
 - (h) What are vaccines?
2. Answer *any two* of the following: 5×2=10
- (a) Classify the various types of adaptive or acquired specific immunity.
 - (b) What are the advantages and disadvantages of phytoremediation? 2½+2½
 - (c) Mention the functions of MHC molecules.
 - (d) Briefly describe the mechanism of Cell Mediated Immunity.
3. Answer *any two* of the following: 10×2=20
- (a) Explain in brief the different types of phytoremediation.
 - (b) Describe the role of phytochelatinases and metallothioneins in phytoextraction. 5+5
 - (c) Briefly describe the structure and function of different types of Human Immunoglobulins. 5+5
 - (d) What is meant by RIA? Explain liquid phase RIA and solid phase RIA. 2+4+4

B.Sc. 6th Semester (Honours) Examination, 2023 (CBCS)**Subject : Botany****Course : DSE-3 (OR)****(Marine Biology and Phycotechnology)****Time: 2 Hours****Full Marks: 40***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 *any five* of the following: 2×5=10
- What do you mean by Alginate?
 - What is SCP? Give example.
 - Name two algae as the source of biodiesel.
 - Name two traditional foods derived from sea weeds.
 - Name two Marine Diatoms.
 - Write two steps of cultivation practice of *Gelidium*.
 - What do you mean by Race way ponds?
 - Name two algae as the source of Iodine.
2. Answer *any two* of the following: 5×2=10
- Mention different types of photo bioreactor and its uses.
 - Write a brief note on major uses of sea weeds.
 - What is Cocco-lethophorides? Mention its ecological importance in respective habitat. 1+4
 - Write short notes on: 2½+2½
 - Biodiesel
 - Coralline algae
3. Answer *any two* of the following: 10×2=20
- What is phycocolloid? Mention different types of phycocolloid and their uses. 2+8
 - Name two Indian sea weeds. Describe the cultivation process of *Eucheuma*. 2+8
 - Define Plankton. Describe the ecology and major importance of dinoflagellates. 2+8
 - Describe the major uses of micro algae in biodiesel and H₂ production.