647510 **BSc3BotC301x** **Seat No :_____**

B.Sc. Semester - 3 (*CBCS*) Examination
Oct/Nov - 2025 [New Course]
Botany-B301(Core)

Time: 2:30 Hours **Marks:70**

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate marks.

Que.1(A) Answer the following questions very shortly (04)

(1) What is the primary function of chloroplasts in eukaryotic algal cells?
(2) Name and describe one type of thallus structure found in algae.
(3) What are heterocysts, and what role do they play in Nostoc?
(4) List two types of biological disturbances caused by algae.

Que.1(B) Answer the following questions (any one) (03)

(1) Describe the ultra structure of a eukaryotic algal cell, including details on chloroplasts, cell walls, and any other relevant organelles.
(2) Compare and contrast the thallus structures of filamentous and colonial algae. Provide examples for each.

Que.1(C) Answer the following questions in detail (any One) (07)

(1) Explain the life history of Nostoc, highlighting its reproductive strategies and ecological roles.
(2) Discuss the life history of Batrachospermum, focusing on its reproductive stages and habitat.

Que.2(A) Answer the following questions very shortly (04)

(1) What is the primary difference in cell wall composition between fungi and plants?
(2) Name one industrial application of Aspergillus and describe its use.
(3) How does Saccharomyces contribute to the fermentation process in food and beverage industries?
(4) What is the function of hyphae in fungi?

Que.2(B) Answer the following questions (any one) (03)

(1) Describe the ultra structure of a fungal cell, including details on the cell wall, hyphae, and reproductive structures.
(2) Outline the life history of Aspergillus, focusing on its growth phases, reproduction, and significance in agriculture and medicine.

Que.2(C) Answer the following questions in detail (any One) (07)

(1) Discuss the industrial applications of Aspergillus and Saccharomyces, including their roles in biotechnology and food production.
(2) Compare and contrast the reproductive strategies of Ascomycetes and Basidiomycetes, providing examples for each.

Que.3(A) Answer the following questions very shortly (04)

(1) What is the primary method of vegetative reproduction in mosses?
(2) Describe the structure of a sporophyte in liverworts.
(3) Name one economic use of bryophytes.
(4) What is a gemma cup, and in which group of bryophytes is it found?

Que.3(B) Answer the following questions (any one) (03)

(1) Explain the process of vegetative reproduction in bryophytes.
(2) Analyze the economic importance of bryophytes, including their uses in horticulture, medicine, and environmental applications.

Que.3(C) Answer the following questions in detail (any One) (07)

(1) Describe the life history of Marchantia, including details on its reproductive strategies and morphological adaptations.

(2) Discuss the life history of Funaria, focusing on its structure, reproductive cycle, and ecological roles.

Que.4(A) Answer the following questions very shortly (04)

(1) What is the main difference between homosporous and heterosporous pteridophytes?

(2) Define 'stele' and list the different types found in pteridophytes.

(3) What is the telome theory, and how does it relate to the evolution of leaves?

(4) Name a characteristic feature of the genus Selaginella.

Que.4(B) Answer the following questions (any one) (03)

(1) Discuss the concept of heterospory in pteridophytes and its evolutionary significance leading to the development of seed plants.

(2) Compare the different types of stele in pteridophytes, and discuss their evolutionary significance and functional implications.

Que.4(C) Answer the following questions in detail (any One) (07)

(1) Describe the life history of Selaginella, focusing on its reproductive strategies and adaptations to its environment.

(2) Explain the lifecycle of Adiantum, detailing its reproductive structures and ecological roles.

Que.5(A) Answer the following questions very shortly (04)

(1) What is the primary difference between gymnosperm and angiosperm seeds?

(2) Name one plant family in the dicotyledons and provide two examples of plants within that family.

(3) Describe the embryogeny process in Pinus.

(4) What is the role of the endosperm in angiosperm seeds?

Que.5(B) Answer the following questions (any one) (03)

(1) Explain the differences between gymnosperms and angiosperms in terms of seed structure, reproduction, and evolutionary adaptations.

(2) Describe the male reproductive structures of Pinus.

Que.5(C) Answer the following questions in detail (any One) (07)

(1) Compare and contrast the plant families Apiaceae and Combretaceae, including their characteristics, economic importance, and ecological roles.

(2) Analyze the structure and reproductive processes of monocotyledons with a focus on the Commelinaceae and Amaryllidaceae families.

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