

B.Sc. Semester - 5 (NEP-2020) Examination**Oct/Nov - 2025****BOT: Ecology and Plant Systematics (Major-12)****Time: 2:00 Hours****Marks:50****Instructions:**

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

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- Que.1(A) Answer in detail. (Any one) (08)
- 1) Explain the different types of soil structure with suitable diagrams and its significance.
 - 2) Define ecological pyramids and elaborate on the pyramids of numbers and biomass with relevant examples to illustrate their structure.
- Que.1(B) Answer in brief: (Any one) (04)
- 1) What are the different forms of precipitation? Briefly explain each type with suitable examples.
 - 2) How does nitrogen move through the environment? Outline the key processes involved in the nitrogen cycle.
- Que.2(A) Answer in detail. (Any one) (09)
- 1) What do the terms frequency, density, and abundance mean in vegetation analysis? Explain how each is measured and discuss their ecological importance.
 - 2) How did D. Chatterjee classify the phytogeographical regions of India? Illustrate your answer by describing the typical plant life found in any two of these regions.
- Que.2(B) Answer in brief: (Any one) (04)
- 1) How do mutualism and commensalism differ in ecological interactions? Support your answer with one example of each.
 - 2) Mention any four adaptations found in hydrophytes and explain their ecological significance.
- Que.3(A) Answer in detail. (Any one) (08)
- 1) Explain the various species concepts and compare their advantages and limitations with suitable examples.
 - 2) Highlight the key characteristics of Bentham and Hooker's system of classification. Also, list the monocotyledon series they proposed along with their distinguishing features.
- Que.3(B) Answer in brief: (Any one) (04)
- 1) Differentiate between monophyletic and polyphyletic origin of angiosperms.
 - 2) Define a floral diagram. What are the basic steps and conventions involved in drawing a floral diagram accurately?
- Que.4(A) Answer in detail. (Any one) (09)
- 1) What is a capitulum inflorescence? Explain its three main types based on flower arrangement, and distinguish between ray florets and disc florets.
 - 2) Write vegetative and floristic characteristics of family Cucurbitaceae. Draw floral diagram, floral formula and classify with reason.
- Que.4(B) Answer in brief: (Any one) (04)
- 1) What is typification in botanical nomenclature? Explain the different types of typification.
 - 2) Discuss the key similarities and differences between Poaceae and Cyperaceae.
