



Avinashilingam Institute for Home Science and Higher Education for Women

Deemed to be University Estd. u/s 3 of UGC Act 1956, Category 'A' by MHRD (now MoE)

Re-accredited with an 'A++' Grade by NAAC CGPA 3.65/4, Category I by UGC

Coimbatore - 641 043, Tamil Nadu, India

Continuous Internal Assessment II- October 2025

V Semester

Class : III UG
Branch : BOTANY

Time : 2 hrs
Max.Marks : 100

23BBOC10: Plant Systematics

Course Outcomes:

CO 1: Classify Plant systematic and recognize the importance of herbarium and Virtual herbarium

CO 2: Know the rules of ICN in botanical nomenclature and different types of classification

CO 3: Evaluate and classify the organisms using numerical methods

CO 4: Assess terms and concepts related to Phylogenetic Systematics

CO 5: Generalize the characters of the families according to classification

Part A

6x1=6

Choose the correct answer

1. The Natural System of Classification of seed plants was proposed by: CO3K1
a) Linnaeus b) Bentham and Hooker c) Engler and Prantl d) Hutchinson
2. Takhtajan's classification of angiosperms is primarily based on: CO3K1
a) Artificial morphological characters b) Phylogenetic principles and evolutionary trends
c) Economic importance of plants d) Floral symmetry
3. Which method classifies plant species based on overall similarity of characters, not evolutionary history? CO4K2
a) Cladistics b) Numerical taxonomy c) Phylogenetic system d) Evolutionary taxonomy
4. In numerical taxonomy, character weighting is used to CO3K2
a) Eliminate homologous characters b) Assign relative importance to different characters
c) Increase the number of OTUs d) Differentiate cladistics from phenetics
5. Which concept describes the independent evolution of similar traits in unrelated lineages due to similar selective pressures CO4K3
a) Divergence b) Convergence c) Parallelism d) Lineage sorting
6. Which diagrammatic method would you use to best illustrate hypothesized evolutionary relationships among clades CO5K2
a) Taxonomic hierarchy table b) Dichotomous key c) Cladogram d) Flowchart

Part B

3 x 6 = 18

Answer the questions

Each answer should not exceed 400 words or two pages

- 7 a. Give merits of Natural system of Classification CO3K1
(Or)
- b. List out any 6 Principle of Takhtajan classification CO3K1
- 8 a. Define OTUs (Operational Taxonomic Units) with an example. CO4 K2
(Or) CO4 K3
- b. Differentiate between Phenogram and Cladogram.
- 9 a. Illustrate with a simple diagram how a cladogram differs from a phylogenetic tree. CO5K3
(Or) CO5 K3
- b. Compare parallelism and convergence with suitable plant examples.

Part C

3 x 12 = 36

Answer ALL questions

Each answer should not exceed 800 words or four pages

- 10 a. Explain Takhtajan's classification of Angiosperms and highlight how it differs from earlier systems. CO3 K2
(Or)
- b. Evaluate the APG IV system of classification with reference to molecular data and phylogeny. CO3 K3
- 11 a. Explain the concept of character weighting and coding and analyze their Significance in cladistic classification. CO4K3
(Or) CO4 K3
- b. Evaluate the contributions of biometrics in taxonomy and suggest how modern tools can improve numerical taxonomy.
- 12 a. Explain the concepts of *primitive* and *advanced* character states with botanical examples. CO5 K3
(Or) CO5 K3
- b. Discuss the origin and evolution of angiosperms with reference to major hypotheses.