

Total number of printed pages-4

3 (Sem-4/CBCS) BOT HC 3

2025

**BOTANY**

(Honours)

Paper : BOT-HC-4036

*(Plant Systematics)*

Full Marks : 60

Time : Three hours

*The figures in the margin indicate full marks for the questions.*

1. Fill in the blanks/Answer the following :  
*(any seven)* 1×7=7
- (a) Define polytomy.
- (b) \_\_\_\_\_ is a device for easily identifying an unknown plant by a sequence of choices between two or more statements.
- (c) What is heterogamous head inflorescence ?
- (d) A change in the genetic composition of one species or group in response to a genetic change in another is called \_\_\_\_\_.

- (e) What is taxon ?
- (f) The type of fruit of the family Magnoliaceae is \_\_\_\_\_.
- (g) \_\_\_\_\_ is defined as a genetically distinct geographic variety, population, or race within a species, which is genotypically adapted to specific environmental conditions.
- (h) Which plant is the largest number of Poaceae family ?
- (i) What is spathe ?
- (j) Which link provides the information like publication details, basionym(s) and accepted names in virtual herbarium ?

2. Answer **any four** of the following questions :

2×4=8

- (a) Write the inflorescence characters of the family Euphorbiaceae.
- (b) What are paratype and syntype ?
- (c) Write the differences between cladogram and phylogenetic tree.
- (d) What is biosystematics ?
- (e) Write the differences between diffuse coevolution and gene-for-gene coevolution.

- (f) What is velamen ?
- (g) What is didynamous stamens ?
- (h) What is pseudostem ?

3. Answer **any three** of the following questions : 5×3=15

- (a) Write the principles of international code of botanical nomenclature.
- (b) Write the economic importance of Zingiberaceae.
- (c) Write the objective and importance of plant taxonomy.
- (d) Discuss briefly on cluster analysis.
- (e) Write the identifying characters of Lamiaceae
- (f) Write the principle of APG system of classification.
- (g) What is terpenoid compound ? Classify them and give examples.
- (h) State the salient features of Engler and Prantl's system of plant classification.

4. Answer **any three** of the following : 10×3=30

- (a) Describe in detail with the help of examples the systematic value of cytological studies.

- (b) Describe different theories regarding the origin of Angiosperms.
- (c) Discuss the detailed outline of Bentham and Hooker system of plant classification. Why is this classification usually used for classifying herbarium specimens ?
- (d) What is numerical taxonomy or taxometrics ? Describe the principles of numerical taxonomy.
- (e) Discuss the method constructing the phylogenetic tree amongst the angiospermic taxa.
- (f) Why is Orchidaceae considered as the most advanced family amongst the monocotyledons ? Give suitable diagrams wherever necessary.
- (g) What is virtual herbarium ? Discuss the functions and importance of herbarium.
- (h) Discuss on the following :
- (i) Morphology of the spikelet in Poaceae
  - (ii) Unique characters of the family Asteraceae
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