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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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