

[This question paper contains 4 printed pages.]

Sr. No. of Question Paper : 5956

D

Your Roll No.....

Unique Paper Code : 216501

Name of the Course : B.Sc. (H) Botany

Name of the Paper : Plant Systematics and Evolution (BTHT-507)

Semester : V

Duration : 3 Hours

Maximum Marks : 75

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt five questions in all.
3. Question No. 1 is compulsory.
4. Attempt all parts of a question together.

1. (a) Fill in the blanks :

- (i) The taxonomic category indicated by the suffix '-phyta' is _____ .
- (ii) The specimen cited by the author to serve as nomenclatural type is called _____ .
- (iii) A binomial whose specific epithet is retained even after transfer of that type to another genus is called _____ .
- (iv) The starting date for botanical nomenclature is _____ .
- (v) Homonym is a name _____ . (5)

(b) Write an example of a genus

- (i) commemorating a person
- (ii) named after a place (2)

P.T.O.

(c) Name **any three** :

- (i) The most primitive living angiosperm
- (ii) An international Botanical garden of repute in United Kingdom
- (iii) A journal devoted to Taxonomy
- (iv) A regional flora (3)

(d) Name the author(s) of **any two** the following publications :

- (i) *Species Plantarum*
- (ii) *Die Natürlichen Pflanzenfamilien*
- (iii) *Genera Plantarum* (1862-1883) (2)

(e) True or False :

- (i) Potato and sweet potato are analogous structures.
- (ii) Free central placentation is considered advanced as compared to axile placentation.
- (iii) Bentham and Hooker's system of classification is considered to be phylogentic. (3)

2. Write short notes on **any three** of the following :

- (i) Principle of Typification
- (ii) Biological species concept
- (iii) Polyclaves
- (iv) Role of herbaria (3×5)

3. (a) Differentiate between **any three** of the following :

- (i) Holophyletic and Paraphyletic groups
- (ii) Parallelism and Convergence

(iii) Phenogram and Cladogram

(iv) Valid name and Legitimate name (3×4)

(b) Expand **any three** of the following :

(i) Sp. Pl.

(ii) R. Br.

(iii) BSI

(iv) APG

(v) IAPT (3)

4. Answer the following :

(a) Explain the role of cytology in taxonomy with suitable examples (any three).

(b) Describe the herbaceous origin hypothesis of angiosperm.

(c) Give any three merits and demerits of numerical taxonomy. (3×5)

5. Outline the Bentham and Hooker's system of classification (up to series level). Explain why it is still followed? What are its demerits? (7+4+4)

6. (a) Write a note on reasons for rejection of scientific names. (4)

(b) Interpret :

(i) *Pentas lanceolata* (Forsk.) K. Schum. in Engl. & Prantl., 1891.

Ophiorrhiza lanceolata Forsk., 1775.

Pentas cornea Benth., in Bot. Mag, 1844. (4)

(ii) *Gardenia jasminoides* Ellis, 1761.

Gardenia florida Linn, 1762. (2)

(iii) *Toona hexandra* (Wall, ex Roxb.) Roem. 1849.

Cedrela hexandra Wall, ex Roxb. 1824. (3)

(iv) *Delphinium viscosum* Hook.f. et Thomson (2)

7. (a) What are primary and secondary metabolites ? Describe the role of alkaloids in taxonomy. (8)
- (b) What are semantides ? Give two examples to illustrate their role in taxonomy. (3)
- (c) Answer any **four** the following :
- (i) What is *Index Kewensis* ? What is it used for ?
 - (ii) What is the NPC code ?
 - (iii) Why was the family Cruciferae so named ? Give its alternate name.
 - (iv) In which system of classification does the taxon 'Metaclamydeae' occur ?
 - (v) What is heterobathamy ? (4)