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Your Roll No.....,

937

B.Sc. (Hons.)/III

C

BOTANY—Paper VII

(Plant Systematics and Phytogeography)

(Admissions of 2004 and after)

Time : 3 Hours

Maximum Marks : 38

(Write your Roll No. on the top immediately on receipt of this question paper.)

Attempt five questions in all.

Q. No. 1 is compulsory.

All parts of one question should be answered together.

1. (a) Name an important publication of any four of the following : 2.
- (i) J.D. Hooker
 - (ii) A.P. de Candolle
 - (iii) C. Linnaeus
 - (iv) A. Engler
 - (v) Parasara.

P.T.O.

(b) Expand the following abbreviations (any *five*) : 2½

(i) ICBN

(ii) nom.cons.

(iii) NBRI

(iv) APG

(v) Hook. f.

(vi) nom. rejic.

(c) Fill in the blanks (any *five*) : 2½

(i) Syngenesious stamens are characteristic to the family.

(ii) is considered as the father of the modern genus concept.

(iii) is a fossil angiosperm.

(iv) is the alternative name for Labiatae.

- (v) is the author of 'The Flora of Delhi'.
- (vi) was the first person to use binomials for plant names.
- (d) Define the following (any *three*) : 3
- (i) Holotype
- (ii) Vicariance
- (iii) Phylogram
- (iv) Plesiomorphy.
2. (a) Explain the requirements for valid publication of scientific names of plants. 3
- (b) Give a short account of the Biological species concept. Comment on the advantages and disadvantages of applying this concept. 2+2

3. (a) Discuss the system of classification of angiosperms given by Takhtajan with the help of a bubble diagram. 5
- (b) Distinguish between the Ralian and Englerian concepts of primitive angiosperm flowers. 2
4. (a) With the help of suitable examples discuss the role of flavonoids and alkaloids in solving taxonomic problems. 3+1
- (b) Interpret the following (any two) : 3
- (i) *Cerasus cornuta* Wall. ex Royle
- (ii) *Cynodon dactylon* (Linn.) Pers *Panicum dactylon*
Linn
- (iii) X *Agropogon lutosus*
(Agrostis stolonifera × Polypogon monspeliensis)

5. (a) Write short notes on the following (any two) : 5
- (i) Ecotypes
 - (ii) Good's theory of tolerance
 - (iii) Xylem evolution in angiosperms.
- (b) Explain the advantages of multi-access keys over single access keys for identification. 2
6. (a) Differentiate between the following (any two) : 5
- (i) Phyletic and additive speciation
 - (ii) Environmental and genetic variation
 - (iii) Neo-endemics and palaeoendemics.
- (b) Explain the use of amino acid sequencing in taxonomy with the help of a suitable example. 2
7. (a) Give a brief account of application of palynology in systematics. 3

(b) Explain the following terms (any *four*) :

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(i) Taxometrics

(ii) OTU

(iii) Taxonomic character

(iv) Phenon

(v) Phenogram.