

[196] SEAT No. _____

SL

SARDAR PATEL UNIVERSITY
M. Sc. (III Semester) Examination- October 2018
Subject: BOTANY
PS03EBOT21: Systematic Botany

Monday, 29, October 2018.

Time: 2.00 p.m to 5.00 p.m

Total Marks: 70

Q.1 Select the correct options to the following:**(08)**

(1.1) Cronquist has presented in 1981 his system of classification in a publication entitled:

- (a) The evolution and classification of flowering plants
- (b) An integrated system of classification of flowering plants
- (c) The origin and evolution of flowering plants
- (d) An integrated system of evolutionary classification of flowering plants

(1.2) Species that occupies similar or overlapping geographical areas are termed as:

- (a) allopatric species
- (b) ecological species
- (c) sympatric species
- (d) biological species

(1.3) ----- is considered as the smallest angiosperm and belonging to ----- subclass

- (a) Lemna; Aricedae
- (b) Wolffia; Aricedae
- (c) Cydanthia; Orchidaceae
- (d) Victoria; Liliaceae

(1.4) Which of the following pairs come closer, if they are evolved in parallel lines?

- (a) Lamiales and Personales
- (b) Rosales and Asterales
- (c) Ranales and Rosales
- (d) Microspermales and Curvembreales

(1.5) Which of the following groups are distantly placed in Bentham and Hooker's system of classification?

- i. Geraniales and Gentianales
- ii. Rosales and Myrtales
- iii. Polymoniales and Personales
- iv. Microembryales and Micospermales

Ans: (a) i and ii (b) ii and iii (c) i and iv (d) i and iii

(1.6) Which of the following statements are correct?

- i. Trimerous flowers are found both in dicots and monocots.
- ii. Guttiferales represent only tree forms
- iii. Orchidales represent only herbaceous forms
- iv. Parietales do not represent any tree forms

Ans: (a) i and ii (b) i, ii and iii (c) ii, iii and iv (d) ii and iv

(1.7) Which of the following statements are correct?

- i. Names of the taxonomic groups at species rank are always binomial.
- ii. Names of the taxonomic groups above the species rank are always monomial.
- iii. Names of the taxonomic groups below species rank are always trinomial.
- iv. Names of the taxonomic groups below the species rank are trinomial or polynomial.

Ans: (a) i, ii and iii (b) ii, iii and iv (c) i, ii and iv (d) i, iii and iv

(1.8) According to the Botanical Nomenclature code, names of class must end with:

- (a) -ales
- (b) -idea
- (c) -oiedae
- (d) -opsida

Q.2. Write short notes on any seven of the following: (14)

- 2.1. Choosing any one family, list botanical names of any four economically important plants which bear trimerous flowers. Give any two important characteristic features of the family chosen by you.
- 2.2. What is the significance of 'Species plantarum' of Carl Linnaeus in contemporary biology?
- 2.3. How is Systematic Botany influenced by the advancement of Technology?
- 2.4. Names of species in commemoration of non-botanists be accepted or rejected? Justify your answer.
- 2.5. Why are phylogenetic systems of classifications broadly deviated in two distinct lines?
- 2.6. What is molecular systematics? What are its advantages and limitations?
- 2.7. What are homonyms? Should they be accepted or rejected? Give one example.
- 2.8. Differentiate between a taxonomic and biological species.
- 2.9. Why sometimes the author(s) of the botanical names are kept in parenthesis?

Q.3A. "Taxonomy is a synthetic discipline and it banks upon various fields for the data". Justify the statement. (06)

3B. Describe the basic assumptions of different types of systems of classifications studied by you. What are advantages and disadvantages of each type? (06)

OR

3B. What are different subclasses included in Cronquist's Magnoliopsida? Give a brief note on the salient features of each. (06)

Q.4A. Following are combinations of characters of some trees found in your Departmental campus. Based on these characters, find the family name for each combination and write a brief note on its phylogenetic affinities. Give botanical names of any two examples for each family. (06)

- (i) Alternate palmately compound leaves, polyadelphous stamens and hairy seeds.
- (ii) Opposite or whorled simple leaves and follicle fruit with comose seeds.
- (iii) Opposite compound leaves, large flowers with didynamous stamens and etario of follicle.
- (iv) Alternate palmately lobed or pinnately compound leaves with trimerous flowers.
- (v) Alternate tri-nate leaves with spines and flowers with an annular disc.
- (vi) Alternate simple leaves, trimerous flowers in fassicles and spirally arranged stamens and pistils.

4B. Explore various views proposed to explain the concept of speciation. (06)

OR

4B. Define biosystematics. Enlist different biosystematic categories. With brief explanation, compare each such category with its counterpart in Alpha taxonomy. (06)

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Q.5A. What are identification keys? What are different kinds of identification keys which are studied by you? How are they different from each other? What are the points to be considered while making an identification key? (06)

5B. Explain different steps involved in naming a new species. (06)

OR

5B. In the entire plant kingdom only for eight taxonomic groups alternative names, which are not in accordance with the rules, are allowed to use. What are the correct names and alternate names of these groups? Why such consideration is given to these groups? (06)

Q.6A. Describe salient features, morphological diversity and evolutionary status of Rosidae. (06)

6B. With adequate reasoning, justify how Orchidaceae is the most evolved family among the flowering plants. (06)

OR

6B. Give a general account on floristic diversity of Gujarat. (06)



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