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H-6646

M.Sc. (Semester-IV) Examination, July 2022

BOTANY

(Advanced Plant Systematics)

Time Allowed : Three Hours

Maximum Marks : 70

Minimum Passing Marks : 24

Note : This question paper is divided into **four** sections. Attempt questions from all four sections as per given directions. Distribution of marks is given in each section.

SECTION-A

(Objective Type Questions)

Note : Attempt **any ten** questions. Each question carries **1** mark.

[10×1=10]

1. (i) The level of taxonomic study related to biological aspects of taxa, inclusive of intraspecific populations, speciation evolutionary trends and rates is :
 - (a) Theta taxonomy
 - (b) Alfa taxonomy
 - (c) Beta taxonomy
 - (d) Gamma taxonomy
- (ii) The organisation of taxonomic information in logical classification is known as :
 - (a) Phenetics
 - (b) Systematics
 - (c) Dendrogram
 - (d) Phylogenetic
- (iii) A taxonomy pertains to :
 - (a) Chemotaxonomy
 - (b) Phylogeny

- (c) Classical taxonomy
 - (d) Experimental taxonomy
- (iv) To comprehend general plant relationships this is one of the best methods.
- (a) Experimental taxonomy
 - (b) Numerical taxonomy
 - (c) Cytotaxonomy
 - (d) Chemotaxonomy
- (v) The reason why the system of plant classification proposed by Carolus Linnaeus was Artificial is :
- (a) Because it considered the physiological facts along with the morphological traits
 - (b) Because it was based on similarities and differences in floral and other morphological characters only
 - (c) Because it was on the basis of evolutionary relationships of plants
 - (d) None of these

(vi) The substitute for the newly collected specimen when the original type material is missing in a herbarium is entitled as :

- (a) Holotype
- (b) Neotype
- (c) Lectotype
- (d) Isotype

(vii) Phenetic classification is based on :

- (a) Observable characteristics of existing entities
- (b) The ancestral lineage of existing organisms
- (c) Dendrograms based on DNA characteristics.
- (d) Sexual characteristics

(viii) The system of classification used by Linnaeus was :

- (a) Phylogenetic system

- (b) Natural system
 - (c) Artificial system
 - (d) Asexual system
- (ix) Pick the right sequence of taxonomic categories :
- (a) division - class - family - tribe - order - genus - species
 - (b) division - class - family - order - tribe - genus - species
 - (c) division - class - order - family - tribe - genus - species
 - (d) division - order - class - family - genus - tribe - species
- (x) 'New Systematics' term was coined by :
- (a) Linnaeus
 - (b) Bentham and Hooker
 - (c) A.P. de Candolle
 - (d) Julian Huxley

- (xi) In five kingdom classification Archaea and Nitrogen fixing organism is placed in :
- (a) Fungi
 - (b) Plantae
 - (c) Protista
 - (d) Monera

SECTION-B

(Very Short Answer Type Questions)

Note: Attempt **any five** questions. Each question carries **02** marks. (word limit **25-30** words) [5×2=10]

2. (i) Describe Double citation.
- (ii) Mention the use of "Ex".
- (iii) What is Lingua Franca?
- (iv) What is type specimen?
- (v) Define taxonomic key.
- (vi) Define the term 'Phylocode'.
- (vii) Define the term 'Biocode'.

SECTION-C

(Short Answer Type Questions)

Note: Attempt **any five** questions. Each question carries **04** marks. (word limit **250** words) [5×4=20]

3. (i) What is Cluster Analysis?
- (ii) Define Numerical taxonomy.
- (iii) What is virtual herbarium?
- (iv) What are operational taxonomic unit?
- (v) Describe polarizing characters of homology.
- (vi) What is phytochemistry?
- (vii) What do you mean by Palynology?

SECTION-D

(Long Answer Type Questions)

Note: Attempt **any three** questions. Each question carries **10** marks. (word limit more than **500** words) [3×10=30]

4. (i) Describe International Code of Botanical Nomenclature?

- (ii) Describe the importance of mitochondrial and plastid DNA in Molecular taxonomy.
- (iii) Describe the methods of Phylogeny reconstruction.
- (iv) Describe Basal Angiosperms and Magnolids.
- (v) Describe the embryological evidences of Systematics.

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