

MODEL QUESTIONS ON PLANT SYSTEMATICS

Answer the following questions-

1x2=02

1. What do you mean by virtual herbarium?
2. What is valid publication?
3. What is index herbarium?
4. What is effective publication?
5. What is tautonym?
6. What is para-tautonym?
7. What do you mean by holotype and neotype?
8. What are paratype and epitype?
9. What do you mean by rule of priority?
10. Define parallelism and convergence.
11. Define synapomorphy.
12. Define symplesiomorphy.
13. Give the difference between monophyly and paraphyly.
14. What do you mean by polyphyly?
15. Give the full form of ICN.
16. Give the full form of OUT.
17. Define the term "Primitive character".
18. What do you understand by the term- Homology?
19. Enumerate various types of homology.
20. What is cluster analysis?
21. Define agglomerative and diverse clustering.
22. What do you mean by partitional clustering?
23. What is phenogram?
24. Give the full form of SMC.
25. What are clade and cladistics?
26. Define Jacard Coefficient.
27. How can you define numerical taxonomy?
28. Who wrote the book "Principles of Numerical Taxonomy"?
29. What is chemotaxonomy?
30. What is molecular systematics?
31. What is phytochemistry?
32. Tell three different locations within the plant cell from where systematists use molecular data.
33. What is the standard size of herbarium sheet?
34. Define herbarium.
35. Write names of two national herbaria of India.
36. Write full form of CNH.
37. What is Botanical garden?
38. What is the difference between plant press and vasculum?
39. What is an arboretum?
40. Name two herbarium based databases.
41. What do you mean by voucher specimen?
42. Name any two important botanical gardens of India.

43. Name the first botanical garden established in India.
44. What do you mean by monograph?
45. Define taxonomic key.
46. Define indented and parallel keys.
47. Define multi-access keys.
48. Write two advantages of multi-access keys.
49. What are primary and secondary key characters?
50. What type of taxonomic keys is conventional and most acceptable at present?
51. Name two types of dichotomous taxonomic keys.
52. What is the main advantage of an indented key?
53. What are the primary key characters in taxonomic keys?
54. Name the taxonomic key that is most widely used in floras and manuals.
55. Give the full form of CPN.
56. Define the term- Phylocode.
57. Define the term- Biocode.
58. When a lectotype is designated?
59. Name the International code of nomenclature exclusively meant for viruses.
60. Define syntype and topotype.
61. Give the full form APG system.
62. Who is known as “Grand Father of Numerical Taxonomy”?
63. Name one orthographically conserved family name.
64. Explain s.s. and s.l.
65. Give the full form of ICNCP.
66. Name any two important botanical gardens in world.
67. What is autonym?
68. What is basionym?
69. What do you mean by single citation? Give example.
70. Mention the use of “et” and “et-al”.
71. Describe double citation.
72. Mention the use of “ex”.
73. What is “Nomen nudum”?
74. What is later homonym?
75. Give the full form of Non.conc. and Non.alt.
76. What do you mean by Orthographic conservation?
77. What is Lingua franca?
78. Give the full form of (a) C.DC. and (b) R.Br.
79. What is discordant element? What is the fate of this name on such specimen?
80. What is acronym? Give the example of acronym of two International herbaria.
81. What is type specimen?
82. Give the example of polynomial in recent trend of nomenclature.
83. Who is known as Father of Indian Botany?
84. Give the full form of (a) DC. (b) A.DC. (c) Rox b. (d) D.Don. (e) Buch.Ham. (f) Wall. (g) Hook. and (h) Hook.f.
85. Name one arbitrary constructed plant name.

Answer the following questions-

1x10=10

1. What do you mean by artificial, natural and phylogenetic system of plant classification? Give the outline of Bentham and Hooker plant classification. Mention its merit and demerits.

2. **What is chemotaxonomy?** Illustrate the role of different secondary metabolites in solving the systematic disputes of different taxa in angiosperms.
3. **What do you mean by palynology?** How the pollen keys are used to categories plants of a family at various taxonomic levels?
4. **What is phytochemistry?** Discuss some important sources of taxonomic evidence derived from phytochemistry.
5. What is the significance of cytological studies in taxonomy? Give suitable examples.
6. **Give an outline classification of angiosperms as proposed by Engler and Prantl.** State the merits and demerits of the classification. How does Bentham and Hooker plant classification differ from Takhtajan's system of plant classification?
7. **Define numerical taxonomy.** State its principle. Discuss the methods of this study. Justify the need of this study.
8. **Compare** the classifications of Bentham&Hooker, Engler&Prantl and Hutchinson's system of classification in details.
9. **Write short notes** on the contribution of - (a) C.E.Bessey, (b) Carolus Linnaeus as taxonomist, (c) Theophrastus, (d) Bauhin, (e) Adanson and (f) De Candolle.
10. **Write a brief note on-** (a) Isotype, (b) Tautonyms and (c) Topotype.
11. **What are** plant identification keys? Give the rules for the construction of identification keys.
12. **What are** the various steps in the process of identification of plants?
13. **Write short notes** on Yoked Key and Bracket Key.
14. **What is virtual herbarium?** Discuss in details about the goals and data contents of virtual herbarium. What are the herbarium based databases? Mention the importance of virtual herbarium.
15. **What is numerical taxonomy?** Write in brief its various aspects.
16. **What are operational taxonomic units?** Write in brief the procedure of data processing.
17. **What is cluster analysis?** Discuss in brief the various types of clustering.
18. **Write an essay** on Parallelism and Convergence.
19. **Enumerate** various types of homology. Write a brief note on monophyly, paraphyly and polyphyly.
20. **Explain** the following **author citation**:
 - (a) *Ceropegia longifolia* Wallich ex Hook.f.
 - (b) *Castanopsis indica* (Rox b.) D.Don
 - (c) *Gastrochillus sikkimensis* Yamazaki in Hara
 - (d) *Rubia cordifolia* L. (not found in India) 1753
Rubia wallichii D.Don 1825
Galium monjith L.f. 1801
21. **Explain** the following **author citation** considering all species under the genus- *Aster*

Heterochaeta asteroides DC. 1836
Aster heterochaeta Hook.f. 1881
Aster barbellatus Grierson 1964
Heterochaeta diplostephioides DC. 1835
22. **State** the basic principle of ICBN related to principle of priority.

Answer the following questions-

1x5=5

1. Write notes on- (a) Typification and (b) Herbarium techniques.
2. Write short notes on- (a) Role of Botanical Gardens and (b) Role of secondary metabolites in plants.

3. Write short notes on Identifying Keys.
 4. Write notes on- (a) Cytology in relation to taxonomy.
 5. Write notes on- (a) Effective publication and (b) Virtual Herbarium.
 6. Write notes on- (a) Artificial Keys and (b) Type Specimens.
 7. Comment on Rules of priority.
 8. Write notes on APGIII system of classification.
 9. Write notes on APGIV system of classification.
 10. Write importance of phylogenetic systems of classification.
 11. Describe principle of priority.
 12. Explain holotype and lectotype.
 13. What is the difference between “**cv.**”, and using inverted commas?
 14. Why do taxonomists sometimes have to change a plant’s name?
 15. Write the advantages and disadvantages of indented and bracket keys.
 16. What are primary and secondary key characters?
 17. Write short notes on herbarium fumigation.
 18. Write the advantages of numerical taxonomy.
 19. How would you differentiate Hierarchical clustering from that of Partitional clustering?
 20. How a phenogram can be constructed?
 21. How Tautonym differs from Para-tautonym?
 22. What is the importance of Voucher specimen?
 23. What is “Nomen Alternatum”? Why it is established?
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