PG and Research Department of Botany
PLANT SYSTEMATICS 17PBY309
K1 level questions

1. The system of plant classification proposed by Carolus Linnaeus was artificial because
a) It was based on evolutionary relationship of plants
b) It was based on similarities and differences in floral and other morphological characters only
c) It took into account the physiological facts along with the morphological characters
d) None of the above

2. Linnaeus is credited with introducing
a) The concept of inheritance
b) Law of limiting factor
c) Theory of heredity
d) Binomial nomenclature

3. Out of the 4 widely known systems of classification one remains less phylogenetic and more natural and that is of
a) Engler and Prantl
b) Hutchinson
c) Bentham and Hooker
d) Rendle

4. The chief merit of Bentham and Hookers classification is that
a) it is a natural system of classification of all group of plants
b) a system based on evolutionary concept
c) it also considered the phylogenetic aspect
d) The description of taxa are based on actual examination of the specimens

5. 'Systema Naturae' written by Linnaeus contains a list of
a) 4000 species of plants
b) 2000 species of plants
c) 4200 species of plants
d) 4200 species of animals

6. Natural system of classification of plants differs from artificial system of classification in
a) taking into account only one vegetative character
b) taking into account only one floral character
c) taking into account all the similarities between plants
d) all of these

7. One of the best methods for understanding general relationships of plants is
a) Cytotaxonomy
b) Experimental Taxonomy
c) Numerical Taxonomy
d) Chemotaxonomy

8. Systematics deals with
a) Identification of Organism
b) Classification of organisms
c) the kinds and diversity of all organisms and the existing relationships amongst themselves
d) identification, naming and classification of both plants and animals

9. α- taxonomy deals with
a) Classical taxonomy
b) Chemotaxonomy
c) phylogeny
d) experimental taxonomy

10. Classical taxonomy is also termed
a) β taxonomy
b) systematics
c) descriptive taxonomy
d) experimental taxonomy

11. The advantage of Systematics is that it
a) gives an idea of organic diversity, its origin and evolution in the plant and animal kingdom
b) is complementary to other branches of biology
c) provides correct information needed in agriculture, medical, veterinary sciences etc.
d) All of these

12. Syngenesious anthers and epipetalous stamens are found in
a) Liliaceae
b) Malvaceae
c) Solanaceae
d) Compositae

13. Indefinite stamens are characteristic of family
a) Malvaceae b) Gramineae c) Labiatae d) Cruciferae

14. Synandrous condition is common in the family
a) Umbelliferae
b) Rosaceae
c) Malvaceae
d) Cucurbitaceae

15. Polyadelphous condition is found in
a) Leguminosae
b) Rutaceae
c) Compositae
d) Liliaceae

16. Which one of the following is NOT covered under Taxonomy?
a) Alpha taxonomy
b) Beta taxonomy
c) Delta taxonomy
d) Gamma taxonomy

17. Organizing taxonomic information in logical classification is called_____
a) Systematics
b) Phenetic
c) Phylogenetic
d) Dendogram
View Answer

18. Name the philosopher who first classified organisms?
a) Whittekar
b) Carl woese
c) Linnaeus
d) Aristotle

19. Name the organization which provides rules for naming plants.
a) ICZN
b) ICN
c) ICBN
d) IBM

20. Who is considered as the father of taxonomy?
a) Aristotle
b) Linnaeus
c) Earnst Haeckel
d) Whittaker

21. What is tautonym?
a) These are the repeated sequences
b) It is a name of fish
c) Identical name of genus and species
d) It is a name of the genus

22. Arrange in the correct order.
1) Class
2) Kingdom
3) Phylum
4) Order
5) Genus
6) Family
7) Species
a) 6, 2, 4, 1, 5, 7, 3
b) 7, 1, 3, 4, 5, 6, 1
c) 1, 2, 3, 4, 5, 6, 7
d) 2, 3, 1, 4, 6, 5, 7

23. What is the term given to a duplicate specimen of original type?
a) Lectotype
b) Holotype
c) Isotype
d) Neotype

24. Number of series in Polypetalae are
a) 2
b) 3
c) 4
d) 5

25. Earlier classification emphasized on
a) Reproductive characters
b) Vegetative characters
c) Both
d) Anatomical characters

26. Naming a plant is called
a) Systematic botany
b) Nomenclature
c) Taxonomy
d) Cytology

27. Bentham and Hooker's classification is a
    a) phylogenetic system of classification
    b) artificial system of classification
    c) natural system of classification
    d) sexual system of classification

28. Who wrote the book 'Species Plantarum'
    a) Gaspard Bauhin
    b) Carolus Linnaeus
    c) Rivinus
    d) Bentham and Hooker

29. Carolus Linnaeus proposed classification based on
    a) Artificial system
    b) Nature system
    c) Phylogenetic system
    d) Modern system

30. Genera Plantarum was published by
    a) Engler and Prantl
    b) Carolus Linnaeus
    c) Bentham and Hooker
    d) Darwin

31. Number of seed plants described by Bentham and Hooker's classification were
    a) 102
    b) 302
    c) 402
    d) 202

32. The classification that is exhaustive and broad based
    a) Modern System
    b) Phylogenetic System
    c) Natural System
    d) Artificial System

33.The system of classification widely accepted and followed in India is the one proposed by
    a) Carleus Linnaeus
    b) Adolf Engler and Karl Prantl
    c) Lamarck
    d) Bentham and Hooker

34. Thalamus is prominent in
    a) Thalamiflorae
    b) Disciflorae
    c) Caliciflorae
    d) Inferae

35.”An Integrated system of classification of flowering plants” appeared in the year
    a) 1881
    b) **1981**
    c) 1883
    d) 1859

36.The largest group of plant kingdom is
    a) Cryptogams
    b) Angiosperms
    c) Gymnosperms
    d) Phanerogams

37.The later system of classification laid more importance
    a) Reproductive characters
    b) Vegetative characters
    c) Both
    d) Anatomical characters

38.The first part of Genera Plantarum appeared in
    a) June 1852
    b) July 1882
    c) April 1883
    d) July 1862

39. Number of volumes in Genera Plantarum
    a) Two
    b) Three
    c) Four
    d) Five

40. A good example for natural system of classification is that proposed by
    a) Carolus Linnaeus
    b) Bentham and Hooker
    c) Adolf Engler and Karl Prantl
    d) Arthur Cronquist and Adjunct

41. Royal Botanical Garden is situated at
    a) United States of America
    b) England
    c) French
    d) India

42. All important character are considered for classification in
    a) Artificial system
    b) Nature system
    c) Phylogenetic system
    d) Modern system

43. The number of species in angiosperms is
    a) 3,75,000
    b) 6,00,000
    c) 2,86,000
    d) 17,500

44. Bentham and Hooker are associated with
    a) Indian Botanical Garden
    b) Royal Botanical Garden
    c) American Botanical Garden
    d) French Botanical Garden

45. The division of angiosperms is achieved by
    a) Floral characters
    b) Anatomy
    c) Physiology
    d) Ecology

46. Accurate description of plants requires a thorough knowledge of
    a) Anatomy
    b) Physiology
    c) Morphology
    d) Ecology

47. Classification of plants in to different groups is known as
    a) Physiology
    b) Morphology
    c) Systematic botany
    d) Pathology

48. Number of families included under Gymnosperms are
    a) 3
    b) 6
    c) 9
    d) 12

49. The last part of Genera Plantarum appeared in
    a) June 1852
    b) July 1882
    c) April 1883
    d) July 1862

50.'Origin of species' was written by
    a) Linnaeus
    b) Mendel
    c) Lamarck
    d) Darwin

51. Artifical system of classification is published by
    a) Bentham and Hooker
    b) Bauhin
    c) Linnaeus
    d) Engler

52.According to Bentham and Hooker number of polypetalae families are
    a) 82
    b) 28
    c) 72
    d) 62

53. Main system of classification is
    a) Artificial
    b) Natural
    c) Phylogenetic
    d) All the three

54. Number of series in Monocotyledons are
    a) 3
    b) 5
    c) 7
    d) 9

55.According to Bentham and Hooker number of monochlamydal families are

a) 26
b) 36
c) 46
d) 56

56. Artificial system is based on

a) Grouping of plants in to herbs, shrubs and trees
b) Number and arrangement of sexual parts
c) Arranged according to their related affinities
d) According to their evolutionary sequence and genetic affinities

57. Phylogenetic system of classification is based on

a) Number of arrangement of sexual parts
b) Their evolutionary sequence and genetic affinities
c) Grouping of plants in to herbs, shrubs and trees
d) Their related affinities

58. Natural system of classification is based on

a) Grouping of plants in to herbs, shrubs and tree
b) According to the evolution of sequence and genetic affinities
c) Number and arrangement of sexual parts
d) On their related affinities

59. According to Bentham and Hooker number of gamopetalae families are

a) 25
b) 35
c) 45
d) 55

60.The series Inferae is classified under the sub class

a) Polypetalae
b) Gamopetalae
c) Monochlamydae
d) Heteromerae

61. According to Bentham and Hooker number of monocotyledons families are

a) 14
b) 24
c) 34
d) 44

62. Subclass polypetalae includes the series
    a) Thalamiflorae
    b) Disciflorae
    c) Caliciflorae
    d) All the three

63. Gamopetalae includes the series
    a) Inferae
    b) Bicarpellatae
    c) Heteromerae
    d) All the three

64. Description of species in highly reliable in
    a) Bentham and Hooker
    b) Engler and Prantl
    c) Linnaeus
    d) Gaspard Bauhin

65. The flower consists only two stamens alternate with the carpels is belongs to which family
    a) Apocynaceae b) **Oleaceae** c) Tiliaceae d) Bignoniaceae

66. Appearance of glands on the base of the leaf is specific to ¬¬¬¬¬¬¬¬¬¬¬_____ family
    a) Rubiaceae b) **Combretaceae** c) Apocynaceae d) Commelinaceae

67. Documenting all plants of a given region is called
    a) **Flora** b) Monograph c) Keys d) Botanical garden

68. _____ is a technique of species identification using short conserved sequence from the standard region of a genome.
    a) rDNA technology b) **DNA barcoding** c) Transgenic d) Mutation

69. The largest herbarium of the world is located in
    a) New York b) **Kew** c) Geneva d) Berlin

70. The newly collected specimen which is used as a substitute, when the original type material is missing
    a) Lectotype b) Holotype c) **Neotype** d) Isotype

71. If the flower parts attached below the ovary, the ovary is a
    a) Inferior ovary b) **Superior ovary** c) Half-Inferior d) Half-Superior

72. The _____ is the petals of a flower considered as a group or unit and usually in a different color.
a) Calyx b) **Corolla** c) Sepals d) All of the above

73. Accurate description of plants requires a thorough knowledge of
a) Anatomy b) Physiology c) **Morphology** d) Ecology

74. If the flower parts attached above the ovary, the ovary is a
a) **Inferior ovary** b) Superior ovary c) Half-Inferior d) Half-Superior

75. The first published two or more names are called
a) Tautonym b) Autonym c) **Homonym** d) Basionym

76. The commelinaceae family is commonly called as
a) Spiderwort family b) Aster family c) Grass family d) Lily family

77. The principles of numerical taxonomy were developed by
a) Engler and Prantl
b) Sneath and Sokal
c) Bentham and Hooker
d) Rendle

78. A document containing a comprehensive account of a specific taxonomic group, generally a genus or family is
a) **Flora** b) Monograph c) Keys d) Revision

79. Binomials with identical genus name and specific epithet are called
a) **Tautonym** b) Autonym c) Homonym d) Basionym

80. When two or more authors publish a new species or propose a new name, their names are linked using the epithet?
a) ex b) **et al** c) in d) emend

81. The name for plants that have flowers and produce an enclosed seed is:
a) Gymnosperms
b) Angiosperms
c) Bryophyta
d) Thallophyta

82. The science of describing, classifying, and naming organisms is
a. **taxonomy**. c. life science. c. classification. d. organization.

83. The scientific name of an organism comes from its
a. kingdom and phylum. b. class and genus. c. kingdom, phylum, and class.
d. genus and species name.

84. Which one of the following is more primitive than others
a **Ranunculaceae** b Caryophyllaceae
c Rutaceae d Fabaceae

85. In Poaceae the fruits are usually
(a) Follicle (b) Nutlets
(c) Capsule (d) **Caryopsis**

86. Which one of the following family stands first and foremost in respect of food and fodder
(a) Asteraceae (b) **Poaceae**
(c) Liliaceae (d) Brassicaceae

87. A plant that belongs to Liliaceae in which stipules are modified into tendrils is
(a) Gloriosa (b) Yucca
(c) Lilium (d) **Smilax**

88. The inflorescence of Paddy is
(a) racemose (b) catkin
(c) **panicle** (d) verticillaster

89. In Poaceae the Lodicules are
(a) petals (b) **perianth leaves**
(c) sepals (d) bracts

90. Linnaeus is credited with introducing
a) The concept of inheritance b) Law of limiting factor
c) Theory of heredity d) **Binomial nomenclature**

91. The term Taxonomy was coined by
(a) **De Candolle** (b) Theophrastus (c) Pliny (d) Linnaeus

92. Basic taxonomic unit is
a) Kingdom b) Genus c) **Species** d) Order

93. Binomial nomenclature means writing the name of plant in two words which designate
a) Order and Family b) Family and genus c) Species and variety d) **Genus and species**

94. Classical taxonomy is also termed
a) **Beta taxonomy** b) Systematic c) Descriptive taxonomy d) Experimental taxonomy

95. Two organisms of same class but different families will be kept under the same
a) **Order** b) family c) Species d) Genera

96. Which of the following will form a new species?
a) inter breeding b) **variations**
c) differential reproduction d) none of the above

97. One of the following cannot called a taxon
a) Order b) family c) Genes d) **none of the above**

98. In classification the category below the level of family is
a) Class b) family c) Species d) **Genes**

99. Which is not a taxonomic category?
a) Class b) Series c) **Glumaceae** d) Phylum

100. The suffix phyta indicates
a) Order b) family c) Genes d) **Division**

PLANT SYSTEMATICS

5 MARKS QUESTIONS
K3 level question
Unit 1

1. List out the scope and importance of plant taxonomy.
2. Explain the scope and importance of plant taxonomy in various fields.
3. Write short notes on valid publication.
4. Discuss the merits and demerits of Bentham and Hooker classification.
5. Explain the Engler and Prantl classification of angiosperms.
6. Explain about the Takhtajan classification of flowering plants.
7. Describe typification with examples.
8. How are organisms classified? Why is common system of naming essential?
9. What is the role of APG System of classification in plant taxonomy?

Unit 2

10. List out the major herbaria in India
11. List out the major herbaria in World
12. Explain about biosystematic categories
13. Define and explain about phenotypic plasticity
14. Write briefly about Herbarium technique

15. Describe the importance of floras in plant taxonomy
16. Explain about monograph and revision

Unit 3

17. Describe the floral characters of magnoliaceae, give the evidence for primitiveness.
18. Describe the peculiar floral characters of polygalaceae.
19. List out the advantages of the binomial system of nomenclature.
20. Describe the morphological characters of the family zygophyllaceae.
21. Describe the morphological differences between the species of *Tribulus* with suitable diagram.
22. Describe the floral characters of lythraceae.
23. Write the floral characters of the family tiliaceae.

Unit 4

24. Write the specific features of the family verbenaceae, add examples.
25. Discuss the special features of pedaliaceae.
26. Write short notes on author's citation.
27. Give a brief account on the important of botanical gardens.
28. Differentiate gentianaceae and boraginaceae.
29. Explain how the members of family boraginaceae are economically important.
30. Write short notes on economic importance of oleaceae.
31. Explain about the specific characters of nyctaginaceae.
32. Explain the floral features of commelinaceae.

Unit 5

33. Write short notes on numerical taxonomy.
34. How is phytochemistry related to taxonomy?
35. Explain the importance of computer aided taxonomy
36. Explain the role of DELTA and GRIN in taxonomy
37. Write short notes on uses of Biodiversity portal in plant taxonomy
38. Give a brief account on GIS in taxonomy
39. Write short notes on cytological evidence in plant taxonomy
40. Discuss the chemical characters and their use in taxonomy
41. Discuss about the Molecular taxonomy and its applications
42. What are the modern approaches to taxonomy? Discuss in detail.
43. Write short notes on utility of palynological data in systematics.

10 MARKS QUESTIONS
K4 level question
Unit 1

1 Write in detail with examples and suitable diagram
2 i) Zygomorphic flower
ii) Didynamous anther iii) Bicarpellary gynoecium iv) Parietal placentation.
3 Give a detailed account on the Betham and Hooker's classification.
4 Write a elaborated note on botanical nomenclature. Explain why scientific names are important?
5 Give a comparison of Bentham and Hooker with Engler and Prantl system of Classification.
6 What is principle of priority? Explain in detail with examples.
7 Explain the Principles of International Code of Botanical Nomenclature (ICBN)
8 Give some disadvantages of common names. Distinguish between scientific name and common name.
9 Describe in detail on International Code of Botanical Nomenclature.

Unit 2

10 Explain the aim and scope of Biosystematics-
11 Describe biosystematic categories.
12 Distinguish between 'Flora and Monograph'.
13 Mention the kinds and particular of species and genus concept.
14 Give the outline of Herbarium technique and role of herbaria in taxonomy.
15 Add notes on major herbaria in India.
16 Write about the major herbaria in World.
17 Give a detailed account on phenotypic plasticity

Unit 3

18 Describe the economic importance and floral characters of portulacaceae with suitable diagrams.
19 Describe the floral characters of Caryophyllaceae
20 Give the suitable examples of and floral characters of Lythraceae.
21 Describe the economic importance Sapindaceae and Combretaceae.
22 Explain the floral characters of Rhamnaceae with suitable diagrams.
23 Explain the morphological and floral characters of aizoaceae.

Unit 4

24 With suitable diagrams describe the floral characters of oxalidaceae and mention any two economic importances.
25 Explain the morphological and floral characters of loranthaceae

26 Write about the characteristic features and economic importance of Sapindaceae.
27 Explain the general characteristics features of Oxalidaceae with suitable diagrams
28 Write about the characteristic features and economic importance of bignoniaceae.
29 Write about the characteristic features and economic importance of apocynaceae.
30 Write the general characteristics features of cyperaceae with suitable diagrams.
31 Describe the floral characters of Chenopodiaceae with suitable diagrams and mention its economic importance.
32 With suitable diagrams describe the floral characters of aroideae.

Unit 5

33 Describe the role of anatomy and embryology in systematics of angiosperms.
34 Discuss about cytological evidences in relation to taxonomy.
35 Generate the evidences for chemical characters and their use in taxonomy.
36 How will you justify the applications of the Molecular taxonomy
37 Discuss in detailed about Computer aided taxonomy.
38 Explain the role of DELTA, GRIN and IPNI in plant taxonomy.
39 Explain the main objective and originality of the India Biodiversity Portal (IBP).
40 Describe the economic importance and floral characters of Moraceae with suitable diagrams.
41 Illustrate the applications of GIS in plant taxonomy.
42 Explain about the importance of Computers and Online databases in plant taxonomy with examples.
43 Give a detailed note on genetic approach in plant taxonomy.