Roll No. .....

Question Booklet Number

O. M. R. Serial No.

M. Sc. (Second Semester)
(NEP) EXAMINATION, 2025-26

BOTANY

(Taxonomy of Angiosperms And Biosystematics)

Paper Code							
B	0	4	0	8	0	1	T

Questions Booklet Series
A

Time : 1:30 Hours] [*Maximum Marks : 75*

Instructions to the Examinee :

1. Do not open the booklet unless you are asked to do so.

2. The booklet contains 100 questions. Examinee is required to answer 75 questions in the OMR Answer-Sheet provided and not in the question booklet. All questions carry equal marks.

3. Examine the Booklet and the OMR Answer-Sheet very carefully before you proceed. Faulty question booklet due to missing or duplicate pages/questions or having any other discrepancy should be got immediately replaced.

परीक्षार्थियों के लिए निर्देश :

1. प्रश्न-पुस्तिका को तब तक न खोलें जब तक आपसे कहा न जाए।

2. प्रश्न-पुस्तिका में 100 प्रश्न हैं। परीक्षार्थी को 75 प्रश्नों को केवल दी गई OMR आन्सर-शीट पर ही हल करना है, प्रश्न-पुस्तिका पर नहीं। सभी प्रश्नों के अंक समान हैं।

3. प्रश्नों के उत्तर अंकित करने से पूर्व प्रश्न-पुस्तिका तथा OMR आन्सर-शीट को सावधानीपूर्वक देख लें। दोषपूर्ण प्रश्न-पुस्तिका जिसमें कुछ भाग छपने से छूट गए हों या प्रश्न एक से अधिक बार छप गए हों या उसमें किसी अन्य प्रकार की कमी हो, तो उसे तुरन्त बदल लें।

(Remaining instructions on the last page) **(शेष निर्देश अन्तिम पृष्ठ पर)**

(Only for Rough Work)

1. The classification system proposed by Bentham and Hooker was published in :
   (A) *Species Plantarum*
   (B) *Genera Plantarum*
   (C) *Systema Naturae*
   (D) *Origin of Species*

2. Bentham and Hooker's system is mainly based on :
   (A) Phylogeny
   (B) Evolutionary relationships
   (C) Natural affinities
   (D) Molecular data

3. Bentham and Hooker divided flowering plants into :
   (A) 2 classes
   (B) 3 classes
   (C) 4 classes
   (D) 5 classes

4. In Bentham & Hooker's system, Dicots are divided into :
   (A) Polypetalae, Gamopetalae, Monochlamydeae
   (B) Archichlamydeae and Metachlamydeae
   (C) Monochlamydeae and Polypetalae
   (D) Rosidae and Asteridae

5. Bentham and Hooker system is considered :
   (A) Artificial
   (B) Natural
   (C) Phylogenetic
   (D) Molecular

6. The major drawback of Bentham and Hooker system is :
   (A) Based on floral characters only
   (B) No phylogenetic basis
   (C) Based on molecular data
   (D) Too simple

7. Takhtajan classification is mainly :
   (A) Artificial
   (B) Natural
   (C) Phylogenetic
   (D) Morphological

8. Takhtajan placed angiosperms under division :
   (A) Magnoliophyta
   (B) Anthophyta
   (C) Spermatophyta
   (D) Tracheophyta

9. In Takhtajan system, dicots are called :
   (A) Liliopsida
   (B) Magnoliopsida
   (C) Cycadopsida
   (D) Coniferopsida

10. The Takhtajan classification system is based on :

(A) Only morphology.

(B) Morphology + anatomy + embryology + cytology + phylogeny

(C) Floral color

(D) Economic importance

11. ICBN stands for :

(A) International Code of Botanical Nomenclature

(B) International Code of Biology Nomenclature

(C) Both (A) and (B)

(D) None of the above

12. The principle of Priority states that :

(A) The oldest validly published name is accepted

(B) The shortest name is accepted

(C) The most common name is accepted

(D) The name given by Linnaeus is always accepted

13. In binomial nomenclature, the first word indicates :

(A) Species

(B) Variety

(C) Genus

(D) Family

14. The specimen on which the description of a new species is based is called :

(A) Isotype

(B) Paratype

(C) Holotype

(D) Lectotype

15. If the original holotype is lost, the selected substitute specimen is called :

(A) Neotype

(B) Isotype

(C) Syntype

(D) Epitype

16. Which of the following "suffixes" used for units of classification in plants indicate a taxonomic category of “family” ?

(A) -ale

(B) -onae

(C) -aceae

(D) -ae

17. Two or more different names for the same taxon are called :

(A) Homonyms

(B) Synonyms

(C) Antonyms

(D) Autonyms

18. A ..... is the original or base name of a taxon that is later transferred to a new genus or rank, with the original epithet (species name) being retained.

(A) Basionym

(B) Homonym

(C) Tautonym

(D) Synonym

19. Biosystematics is also known as :

(A) Classical taxonomy

(B) Experimental taxonomy

(C) Artificial classification

(D) Numerical taxonomy

20. Biosystematics mainly studies :

(A) Morphological characters only

(B) Evolutionary and genetic relationships

(C) Economic uses of plants

(D) Fossil plants only

21. The study of variation within and between populations is important in :

(A) Artificial system

(B) Classical taxonomy

(C) Biosystematics

(D) Economic botany

22. Numerical taxonomy is also known as :

(A) Cladistics

(B) Phenetics

(C) Cytotaxonomy

(D) Biosystematics

23. Numerical taxonomy was developed by :

(A) Linnaeus

(B) Bentham & Hooker

(C) Sneath and Sokal

(D) Takhtajan

24. Numerical taxonomy is based on :

(A) Evolutionary relationships

(B) Overall similarity of characters

(C) Fossil evidence

(D) Economic importance

25. The basic unit of study in numerical taxonomy is :

(A) Character

(B) Taxon

(C) Operational Taxonomic Unit (OTU)

(D) Species

26. The graphical representation of relationships in numerical taxonomy is called :

(A) Cladogram

(B) Dendrogram

(C) Herbarium sheet

(D) Phylogram

27. The principle of numerical taxonomy includes :

(A) Maximum use of characters

(B) Few important characters

(C) Only reproductive characters

(D) Only floral characters

28. In numerical taxonomy, characters are usually coded as :

(A) A, B, C

(B) + and –

(C) 0 and 1

(D) Roman numerals

29. OTU stands for :

(A) Operational Taxonomic Unit

(B) Original Taxonomic Unit

(C) Organized Taxonomic Unit

(D) Observed Taxonomic Utility

30. Cluster analysis in numerical taxonomy is mainly :

(A) Subjective

(B) Statistical

(C) Fossil-based

(D) Artificial

31. Chemotaxonomy mainly deals with :

(A) Primary metabolites only

(B) Secondary metabolites

(C) DNA sequences only

(D) Chromosome numbers

32. Proteins and amino acid sequences used in taxonomy fall under :

(A) Serotaxonomy

(B) Cytotaxonomy

(C) Numerical taxonomy

(D) Artificial classification

33. Which technique is widely used for separation of plant chemicals?

(A) Hybridization

(B) Chromatography

(C) Karyotyping

(D) Fossil dating

34. Presence of glucosinolates is a characteristic of :

(A) Solanaceae

(B) Brassicaceae

(C) Poaceae

(D) Lamiaceae

35. Cyanogenic glycosides are found in :

(A) Fabaceae

(B) Brassicaceae

(C) Asteraceae

(D) Orchidaceae

36. Essential oils are important taxonomic characters in :

(A) Lamiaceae

(B) Poaceae

(C) Fabaceae

(D) Orchidaceae

37. Betalains are mainly found in the order :

(A) Rosales

(B) Caryophyllales

(C) Asterales

(D) Poales

38. Betalains are most significant at the taxonomic level of :

(A) Kingdom

(B) Division

(C) Order and Family

(D) Species only

39. Palynotaxonomy is the study of :

(A) Leaves

(B) Wood anatomy

(C) Pollen morphology for classification

(D) Fossils only

40. The process of drying plant specimens for herbarium preparation is called :

(A) Fixation

(B) Mounting

(C) Pressing

(D) Embedding

41. The outer wall of a pollen grain is called :

(A) Intine

(B) Exine

(C) Cortex

(D) Endodermis

42. The resistant material present in exine is :

(A) Lignin
(B) Cellulose
(C) Sporopollenin
(D) Suberin

43. Tricolpate pollen grains are characteristic of :

(A) Monocots
(B) Gymnosperms
(C) Dicots (Eudicots)
(D) Bryophytes

44. Palynotaxonomy is useful in determining :

(A) Economic value
(B) Evolutionary relationships
(C) Soil fertility
(D) Water absorption

45. Pollen characters are considered taxonomically valuable because they are :

(A) Highly variable
(B) Environmentally unstable
(C) Genetically controlled and stable
(D) Visible to naked eye

46. Palynological evidence strongly supports the separation of :

(A) Gymnosperms and Angiosperms
(B) Monocots and Dicots
(C) Algae and Fungi
(D) Bryophytes and Pteridophytes

47. The evolutionary advancement from monosulcate to tricolpate pollen indicates :

(A) Reduction
(B) Primitive condition
(C) Advancement in angiosperms
(D) Degeneration

48. Which of the following plants from the Rubiaceae family is used for the production of quinine, a treatment for malaria?

(A) *Coffea arabica*
(B) *Cinchona officinalis*
(C) *Gardenia jasminoides*
(D) *Morinda citrifolia*

49. Fossil pollen studies are useful in :

(A) Cytotaxonomy
(B) Paleobotany
(C) Chemotaxonomy
(D) Ecology only

50. In Brassicaceae, pollen grains are typically :

(A) Monosulcate
(B) Tricolpate
(C) Monoporate
(D) Winged

51. The use of embryological characters in classification is called :

(A) Cytotaxonomy

(B) Palynotaxonomy

(C) Embryotaxonomy

(D) Chemotaxonomy

52. Embryological characters are considered taxonomically important because they are :

(A) Highly variable

(B) Environmentally influenced

(C) Genetically controlled and stable

(D) Temporary

53. Double fertilization is a characteristic of :

(A) Gymnosperms

(B) Bryophytes

(C) Angiosperms

(D) Pteridophytes

54. The most common type of ovule in angiosperms is :

(A) Orthotropous

(B) Anatropous

(C) Campylotropous

(D) Amphitropous

55. Unitegmic ovules are commonly found in :

(A) Monocots

(B) Gymnosperms

(C) Dicots only

(D) Bryophytes

56. Helobial type of endosperm is commonly found in :

(A) Dicots

(B) Monocots

(C) Gymnosperms

(D) Bryophytes

57. The genus Agave was separated from Amaryllidaceae and kept under Agavaceae because it shows :

(A) Variable chromosome number

(B) Different chromosomal behaviour

(C) Various chromosomal bending patterns

(D) Different chromosomal size

58. Polyembryony is taxonomically significant in :

(A) Citrus

(B) Wheat

(C) Rice

(D) Mustard

59. Embryological evidence indicates that the Lamiaceae family evolved from :

(A) Fabaceae

(B) Poaceae

(C) Orchidaceae

(D) Arecaceae

60. Who is recognized for integrating embryological evidence into plant taxonomy and establishing the foundation of embryotaxonomy?

(A) Carolus Linnaeus

(B) G. L. Coulter

(C) P. Maheshwari

(D) Charles Darwin

61. The most commonly used DNA in plant phylogeny is :

(A) Mitochondrial DNA

(B) Chloroplast DNA

(C) Ribosomal DNA

(D) Satellite DNA

62. Hypanthodium inflorescence is characteristic of which plant family?

(A) Fabaceae

(B) Moraceae

(C) Asteraceae

(D) Poaceae

63. The APG classification is mainly based on :

(A) Morphology only

(B) Embryology only

(C) Molecular phylogeny

(D) Economic importance

64. The most recent widely accepted APG system is :

(A) APG I

(B) APG II

(C) APG III

(D) APG IV

65. The most primitive extant angiosperm according to APG is :

(A) Magnolia

(B) Nymphaea

(C) Amborella

(D) Ranunculus

66. DNA barcoding is especially useful in :

(A) Morphological classification only

(B) Identifying cryptic species

(C) Studying fossils

(D) Economic botany only

67. The standard barcode regions for plants are :

(A) COI gene

(B) rbcL and mat

(C) ITS only

(D) 185 rRNA only

68. The concept of DNA barcoding was proposed by :

(A) Linnaeus

(B) Darwin

(C) Paul Hebert

(D) Takhtajan

69. Molecular phylogeny primarily constructs :

(A) Herbarium sheets

(B) Dendrograms

(C) Phylogenetic trees

(D) Fossils

70. Cladistics is based on :

(A) Overall similarity

(B) Shared derived characters

(C) Artificial keys

(D) Habit

71. An ideal DNA barcode region should be :

(A) Highly conserved only

(B) Highly variable only

(C) Conserved with sufficient variation

(D) Random

72. The family Magnoliaceae is characterized by :

(A) Inferior ovary

(B) Numerous free carpels arranged spirally

(C) Zygomorphic flowers

(D) Syngenesious stamens

73. Fruit of Magnoliaceae is generally :

(A) Berry

(B) Capsule

(C) Aggregate of follicles

(D) Drupe

74. Capparidaceae shows close affinity with :

(A) Malvaceae

(B) Brassicaceae

(C) Solanaceae

(D) Fabaceae

75. Androecium in Capparidaceae is often :

(A) Tetradynamous

(B) Polyandrous

(C) Monadelphous

(D) Syngenesious

76. Gynophore is commonly found in :

(A) Fabaceae

(B) Capparidaceae

(C) Myrtaceae

(D) Rubiaceae

77. The corolla in Fabaceae is :

(A) Cruciform

(B) Papilionaceous

(C) Tubular

(D) Ligulate

78. Aestivation in Fabaceae is :

(A) Valvate

(B) Twisted

(C) Vexillary

(D) Imbricate

79. Stamens in Fabaceae are usually :

(A) Polyandrous

(B) Diadelphous (9 + 1)

(C) Syngenesious

(D) Epipetalous

80. Leaves of Myrtaceae are :

(A) Exstipulate with oil glands

(B) Stipulate

(C) Compound

(D) Parallel venation

81. Placentation in Myrtaceae is :

(A) Parietal

(B) Free central

(C) Axile

(D) Basal

82. Leaves in Rubiaceae are :

(A) Alternate

(B) Opposite with interpetiolar stipules

(C) Whorled without stipules

(D) Compound

83. Economic importance of Rubiaceae includes :

(A) Rubber

(B) Coffee

(C) Opium

(D) Tea

84. The inflorescence of Asteraceae is :

(A) Corymb

(B) Umbel

(C) Capitulum

(D) Spike

85. Calyx in Asteraceae is modified into :

(A) Corona

(B) Pappus

(C) Spur

(D) Ligule

86. Anthers in Asteraceae are :

(A) Free

(B) Monadelphous

(C) Syngenesious

(D) Diadelphous

87. Fruit of Asteraceae is :

(A) Berry

(B) Cypsela

(C) Legume

(D) Capsule

88. Presence of pollinia is a characteristic of :

(A) Solanaceae

(B) Asclepiadaceae

(C) Asteraceae

(D) Acanthaceae

89. Plants of Apocynaceae usually contain :

(A) Alkaloids and latex

(B) Essential oils

(C) Tannins

(D) Resins only

90. Placentation in Solanaceae is :

(A) Parietal

(B) Basal

(C) Axile

(D) Free central

91. A special feature of Acanthaceae fruit is :

(A) Pappus

(B) Retinacula (jaculators)

(C) Pollinia

(D) Gynophore

92. Inflorescence in Lamiaceae is commonly :

(A) Capitulum

(B) Verticillaster

(C) Umbel

(D) Corymb

93. A special type of inflorescence in Euphorbiaceae is :

(A) Verticillaster

(B) Cyathium

(C) Capitulum

(D) Spike

94. Presence of milky latex is common in :

(A) Lamiaceae

(B) Euphorbiaceae

(C) Solanaceae

(D) Asteraceae

95. Orchidaceae is characterized by :

(A) Actinomorphic flowers

(B) Resupinate flowers

(C) Cruciform corolla

(D) Capitulum inflorescence

96. Fusion of androecium and gynoecium forms :

(A) Corona

(B) Gynophore

(C) Column (Gynandrium)

(D) Spur

97. Inflorescence in Arecaceae is :

(A) Spike

(B) Spadix with spathe

(C) Capitulum

(D) Umbel

98. Perianth in Poaceae is represented by :

(A) Petals

(B) Pappus

(C) Lodicules

(D) Corona

99. The floral formula of Poaceae is :

(A) ⚥ K(5) C(5) A5 G(2)

(B) ⚥ P3+3 A3+3 G(3)

(C) ⚥ P2 A3 G(3)

(D) ⚥ K(5) C1+2+(2) A(9)+1 G1

100. The formula % ⚥ K(5) C1+2+(2) A(9)+1 G1 belongs to :

(A) Fabaceae

(B) Solanaceae

(C) Lamiaceae

(D) Poaceae

(Only for Rough Work)

4. Four alternative answers are mentioned for each question as—A, B, C & D in the booklet. The candidate has to choose the correct answer and mark the same in the OMR Answer-Sheet as per the direction :

Example :

Question :

Q. 1 (A) ● (C) (D)
Q. 2 (A) (B) ● (D)
Q. 3 (A) ● (C) (D)

Illegible answers with cutting and over-writing or half filled circle will be cancelled.

5. Each question carries equal marks. Marks will be awarded according to the number of correct answers you have.

6. All answers are to be given on OMR Answer Sheet only. Answers given anywhere other than the place specified in the answer sheet will not be considered valid.

7. Before writing anything on the OMR Answer Sheet, all the instructions given in it should be read carefully.

8. After the completion of the examination candidates should leave the examination hall only after providing their OMR Answer Sheet to the invigilator. Candidate can carry their Question Booklet.

9. There will be no negative marking.

10. Rough work, if any, should be done on the blank pages provided for the purpose in the booklet.

11. To bring and use of log-book, calculator, pager and cellular phone in examination hall is prohibited.

12. In case of any difference found in English and Hindi version of the question, the English version of the question will be held authentic.

Impt. : On opening the question booklet, first check that all the pages of the question booklet are printed properly. If there is any discrepancy in the question Booklet, then after showing it to the invigilator, get another question Booklet of the same series.

4. प्रश्न-पुस्तिका में प्रत्येक प्रश्न के चार सम्भावित उत्तर—A, B, C एवं D हैं। परीक्षार्थी को उन चारों विकल्पों में से सही उत्तर छाँटना है। उत्तर को OMR आन्सर-शीट में सम्बन्धित प्रश्न संख्या में निम्न प्रकार भरना है :

उदाहरण :

प्रश्न :

प्रश्न 1 (A) ● (C) (D)
प्रश्न 2 (A) (B) ● (D)
प्रश्न 3 (A) ● (C) (D)

अपठनीय उत्तर या ऐसे उत्तर जिन्हें काटा या बदला गया है, या गोले में आधा भरकर दिया गया, उन्हें निरस्त कर दिया जाएगा।

5. प्रत्येक प्रश्न के अंक समान हैं। आपके जितने उत्तर सही होंगे, उन्हीं के अनुसार अंक प्रदान किये जायेंगे।

6. सभी उत्तर केवल ओ. एम. आर. उत्तर-पत्रक (OMR Answer Sheet) पर ही दिये जाने हैं। उत्तर-पत्रक में निर्धारित स्थान के अलावा अन्यत्र कहीं पर दिया गया उत्तर मान्य नहीं होगा।

7. ओ. एम. आर. उत्तर-पत्रक (OMR Answer Sheet) पर कुछ भी लिखने से पूर्व उसमें दिये गये सभी अनुदेशों को सावधानीपूर्वक पढ़ लिया जाये।

8. परीक्षा समाप्ति के उपरान्त परीक्षार्थी कक्ष निरीक्षक को अपनी OMR Answer Sheet उपलब्ध कराने के बाद ही परीक्षा कक्ष से प्रस्थान करें। परीक्षार्थी अपने साथ प्रश्न-पुस्तिका ले जा सकते हैं।

9. निगेटिव मार्किंग नहीं है।

10. कोई भी रफ कार्य, प्रश्न-पुस्तिका के अन्त में, रफ-कार्य के लिए दिए खाली पेज पर ही किया जाना चाहिए।

11. परीक्षा-कक्ष में लॉग-बुक, कैलकुलेटर, पेजर तथा सेल्युलर फोन ले जाना तथा उसका उपयोग करना वर्जित है।

12. प्रश्न के हिन्दी एवं अंग्रेजी रूपान्तरण में भिन्नता होने की दशा में प्रश्न का अंग्रेजी रूपान्तरण ही मान्य होगा।

महत्वपूर्ण : प्रश्नपुस्तिका खोलने पर प्रथमतः जाँच कर देख लें कि प्रश्न-पुस्तिका के सभी पृष्ठ भलीभाँति छपे हुए हैं। यदि प्रश्नपुस्तिका में कोई कमी हो, तो कक्षनिरीक्षक को दिखाकर उसी सिरीज की दूसरी प्रश्न-पुस्तिका प्राप्त कर लें।