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
B

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 use of embryological characters in classification is called :

(A) Cytotaxonomy

(B) Palynotaxonomy

(C) Embryotaxonomy

(D) Chemotaxonomy

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

(A) Highly variable

(B) Environmentally influenced

(C) Genetically controlled and stable

(D) Temporary

3. Double fertilization is a characteristic of :

(A) Gymnosperms

(B) Bryophytes

(C) Angiosperms

(D) Pteridophytes

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

(A) Orthotropous

(B) Anatropous

(C) Campylotropous

(D) Amphitropous

5. Unitegmic ovules are commonly found in :

(A) Monocots

(B) Gymnosperms

(C) Dicots only

(D) Bryophytes

6. Helobial type of endosperm is commonly found in :

(A) Dicots

(B) Monocots

(C) Gymnosperms

(D) Bryophytes

7. 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

8. Polyembryony is taxonomically significant in :

(A) Citrus

(B) Wheat

(C) Rice

(D) Mustard

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

(A) Fabaceae

(B) Poaceae

(C) Orchidaceae

(D) Arecaceae

10. 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

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

(A) Mitochondrial DNA

(B) Chloroplast DNA

(C) Ribosomal DNA

(D) Satellite DNA

12. Hypanthodium inflorescence is characteristic of which plant family?

(A) Fabaceae

(B) Moraceae

(C) Asteraceae

(D) Poaceae

13. The APG classification is mainly based on :

(A) Morphology only

(B) Embryology only

(C) Molecular phylogeny

(D) Economic importance

14. The most recent widely accepted APG system is :

(A) APG I

(B) APG II

(C) APG III

(D) APG IV

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

(A) Magnolia

(B) Nymphaea

(C) Amborella

(D) Ranunculus

16. DNA barcoding is especially useful in :

(A) Morphological classification only

(B) Identifying cryptic species

(C) Studying fossils

(D) Economic botany only

17. The standard barcode regions for plants are :

(A) COI gene

(B) rbcL and mat

(C) ITS only

(D) 185 rRNA only

18. The concept of DNA barcoding was proposed by :

(A) Linnaeus

(B) Darwin

(C) Paul Hebert

(D) Takhtajan

19. Molecular phylogeny primarily constructs :

(A) Herbarium sheets

(B) Dendrograms

(C) Phylogenetic trees

(D) Fossils

20. Cladistics is based on :

(A) Overall similarity

(B) Shared derived characters

(C) Artificial keys

(D) Habit

21. An ideal DNA barcode region should be :

(A) Highly conserved only

(B) Highly variable only

(C) Conserved with sufficient variation

(D) Random

22. The family Magnoliaceae is characterized by :

(A) Inferior ovary

(B) Numerous free carpels arranged spirally

(C) Zygomorphic flowers

(D) Syngenesious stamens

23. Fruit of Magnoliaceae is generally :

(A) Berry

(B) Capsule

(C) Aggregate of follicles

(D) Drupe

24. Capparidaceae shows close affinity with :

(A) Malvaceae

(B) Brassicaceae

(C) Solanaceae

(D) Fabaceae

25. Androecium in Capparidaceae is often :

(A) Tetradynamous

(B) Polyandrous

(C) Monadelphous

(D) Syngenesious

26. Gynophore is commonly found in :

(A) Fabaceae

(B) Capparidaceae

(C) Myrtaceae

(D) Rubiaceae

27. The corolla in Fabaceae is :

(A) Cruciform

(B) Papilionaceous

(C) Tubular

(D) Ligulate

28. Aestivation in Fabaceae is :

(A) Valvate

(B) Twisted

(C) Vexillary

(D) Imbricate

29. Stamens in Fabaceae are usually :

(A) Polyandrous

(B) Diadelphous (9 + 1)

(C) Syngenesious

(D) Epipetalous

30. Leaves of Myrtaceae are :

(A) Exstipulate with oil glands

(B) Stipulate

(C) Compound

(D) Parallel venation

31. Placentation in Myrtaceae is :

(A) Parietal

(B) Free central

(C) Axile

(D) Basal

32. Leaves in Rubiaceae are :

(A) Alternate

(B) Opposite with interpetiolar stipules

(C) Whorled without stipules

(D) Compound

33. Economic importance of Rubiaceae includes :

(A) Rubber

(B) Coffee

(C) Opium

(D) Tea

34. The inflorescence of Asteraceae is :

(A) Corymb

(B) Umbel

(C) Capitulum

(D) Spike

35. Calyx in Asteraceae is modified into :

(A) Corona

(B) Pappus

(C) Spur

(D) Ligule

36. Anthers in Asteraceae are :

(A) Free

(B) Monadelphous

(C) Syngenesious

(D) Diadelphous

37. Fruit of Asteraceae is :

(A) Berry

(B) Cypsela

(C) Legume

(D) Capsule

38. Presence of pollinia is a characteristic of :

(A) Solanaceae

(B) Asclepiadaceae

(C) Asteraceae

(D) Acanthaceae

39. Plants of Apocynaceae usually contain :

(A) Alkaloids and latex

(B) Essential oils

(C) Tannins

(D) Resins only

40. Placentation in Solanaceae is :

(A) Parietal

(B) Basal

(C) Axile

(D) Free central

41. A special feature of Acanthaceae fruit is :

(A) Pappus

(B) Retinacula (jaculators)

(C) Pollinia

(D) Gynophore

42. Inflorescence in Lamiaceae is commonly :

(A) Capitulum

(B) Verticillaster

(C) Umbel

(D) Corymb

43. A special type of inflorescence in Euphorbiaceae is :

(A) Verticillaster

(B) Cyathium

(C) Capitulum

(D) Spike

44. Presence of milky latex is common in :

(A) Lamiaceae

(B) Euphorbiaceae

(C) Solanaceae

(D) Asteraceae

45. Orchidaceae is characterized by :

(A) Actinomorphic flowers

(B) Resupinate flowers

(C) Cruciform corolla

(D) Capitulum inflorescence

46. Fusion of androecium and gynoecium forms :

(A) Corona

(B) Gynophore

(C) Column (Gynandrium)

(D) Spur

47. Inflorescence in Arecaceae is :

(A) Spike

(B) Spadix with spathe

(C) Capitulum

(D) Umbel

48. Perianth in Poaceae is represented by :

(A) Petals

(B) Pappus

(C) Lodicules

(D) Corona

49. 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

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

(A) Fabaceae

(B) Solanaceae

(C) Lamiaceae

(D) Poaceae

51. The classification system proposed by Bentham and Hooker was published in :

(A) *Species Plantarum*

(B) *Genera Plantarum*

(C) *Systema Naturae*

(D) *Origin of Species*

52. Bentham and Hooker's system is mainly based on :

(A) Phylogeny

(B) Evolutionary relationships

(C) Natural affinities

(D) Molecular data

53. Bentham and Hooker divided flowering plants into :

(A) 2 classes

(B) 3 classes

(C) 4 classes

(D) 5 classes

54. 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

55. Bentham and Hooker system is considered :

(A) Artificial

(B) Natural

(C) Phylogenetic

(D) Molecular

56. 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

57. Takhtajan classification is mainly :

(A) Artificial

(B) Natural

(C) Phylogenetic

(D) Morphological

58. Takhtajan placed angiosperms under division :

(A) Magnoliophyta

(B) Anthophyta

(C) Spermatophyta

(D) Tracheophyta

59. In Takhtajan system, dicots are called :

(A) Liliopsida

(B) Magnoliopsida

(C) Cycadopsida

(D) Coniferopsida

60. The Takhtajan classification system is based on :

(A) Only morphology.

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

(C) Floral color

(D) Economic importance

61. 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

62. 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

63. In binomial nomenclature, the first word indicates :

(A) Species

(B) Variety

(C) Genus

(D) Family

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

(A) Isotype

(B) Paratype

(C) Holotype

(D) Lectotype

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

(A) Neotype

(B) Isotype

(C) Syntype

(D) Epitype

66. 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

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

(A) Homonyms

(B) Synonyms

(C) Antonyms

(D) Autonyms

68. 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

69. Biosystematics is also known as :

(A) Classical taxonomy

(B) Experimental taxonomy

(C) Artificial classification

(D) Numerical taxonomy

70. Biosystematics mainly studies :

(A) Morphological characters only

(B) Evolutionary and genetic relationships

(C) Economic uses of plants

(D) Fossil plants only

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

(A) Artificial system

(B) Classical taxonomy

(C) Biosystematics

(D) Economic botany

72. Numerical taxonomy is also known as :

(A) Cladistics

(B) Phenetics

(C) Cytotaxonomy

(D) Biosystematics

73. Numerical taxonomy was developed by :

(A) Linnaeus

(B) Bentham & Hooker

(C) Sneath and Sokal

(D) Takhtajan

74. Numerical taxonomy is based on :

(A) Evolutionary relationships

(B) Overall similarity of characters

(C) Fossil evidence

(D) Economic importance

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

(A) Character

(B) Taxon

(C) Operational Taxonomic Unit (OTU)

(D) Species

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

(A) Cladogram

(B) Dendrogram

(C) Herbarium sheet

(D) Phylogram

77. The principle of numerical taxonomy includes :

(A) Maximum use of characters

(B) Few important characters

(C) Only reproductive characters

(D) Only floral characters

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

(A) A, B, C

(B) + and –

(C) 0 and 1

(D) Roman numerals

79. OTU stands for :

(A) Operational Taxonomic Unit

(B) Original Taxonomic Unit

(C) Organized Taxonomic Unit

(D) Observed Taxonomic Utility

80. Cluster analysis in numerical taxonomy is mainly :

(A) Subjective

(B) Statistical

(C) Fossil-based

(D) Artificial

81. Chemotaxonomy mainly deals with :

(A) Primary metabolites only

(B) Secondary metabolites

(C) DNA sequences only

(D) Chromosome numbers

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

(A) Serotaxonomy

(B) Cytotaxonomy

(C) Numerical taxonomy

(D) Artificial classification

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

(A) Hybridization

(B) Chromatography

(C) Karyotyping

(D) Fossil dating

84. Presence of glucosinolates is a characteristic of :

(A) Solanaceae

(B) Brassicaceae

(C) Poaceae

(D) Lamiaceae

85. Cyanogenic glycosides are found in :

(A) Fabaceae

(B) Brassicaceae

(C) Asteraceae

(D) Orchidaceae

86. Essential oils are important taxonomic characters in :

(A) Lamiaceae

(B) Poaceae

(C) Fabaceae

(D) Orchidaceae

87. Betalains are mainly found in the order :

(A) Rosales

(B) Caryophyllales

(C) Asterales

(D) Poales

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

(A) Kingdom

(B) Division

(C) Order and Family

(D) Species only

89. Palynotaxonomy is the study of :

(A) Leaves

(B) Wood anatomy

(C) Pollen morphology for classification

(D) Fossils only

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

(A) Fixation

(B) Mounting

(C) Pressing

(D) Embedding

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

(A) Intine

(B) Exine

(C) Cortex

(D) Endodermis

92. The resistant material present in exine is :

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

93. Tricolpate pollen grains are characteristic of :

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

94. Palynotaxonomy is useful in determining :

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

95. 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

96. Palynological evidence strongly supports the separation of :

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

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

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

98. 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*

99. Fossil pollen studies are useful in :

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

100. In Brassicaceae, pollen grains are typically :

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

(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।