Roll No. .....

Question Booklet Number

O. M. R. Serial No.

M. Sc. (Second Semester)
(NEP) EXAMINATION, 2025-26
BOTANY
(Morphology, Anatomy And Embryology of Angiosperms)

Paper Code							
B	0	4	0	8	0	2	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. Stomatal apparatus consists of :

(A) Stomatal aperture only

(B) Stomatal aperture and guard cell

(C) Susidiary cell

(D) Both (A) and (B)

2. Starch sheath is found in dicot stem in :

(A) Endodermis

(B) Cortex

(C) Pericycle

(D) Pith

3. Root cap is formed by :

(A) Dermatogen

(B) Vascular cambium

(C) Calyptrogen

(D) Wound cambium

4. Ray parenchyma cells help in :

(A) Radial conduction of food

(B) Radial conduction of water

(C) Axial conduction of food

(D) Axial conduction of water

5. Abnormal secondary growth is found in :

(A) Dracaena and Yucca

(B) Triticum

(C) Helianthus

(D) Cucurbita

6. Choose the correct sequence of embryo development in dicot plants :

(A) Proembryo $\rightarrow$ Globular embryo $\rightarrow$ Heart shaped $\rightarrow$ Mature embryo

(B) Proembryo $\rightarrow$ Heart shaped embryo $\rightarrow$ Globular embryo $\rightarrow$ Mature embryo

(C) Globular embryo $\rightarrow$ Heart shaped embryo $\rightarrow$ Proembryo $\rightarrow$ Mature embryo

(D) None of the above

7. The endosperm tissue of angiosperm is :

(A) $2n$

(B) n

(C) $3n$

(D) $4n$

8. Formation of fruit without fertilization is called :

(A) Parthenogenesis

(B) Apomixis

(C) Parthenocarpy

(D) None of the above

9. Hypocotyl is located on :

(A) Below cotyledon

(B) Above cotyledon

(C) At same level of cotyledon

(D) None of the above

10. In old tissue gaseous exchange takes place through :

(A) Stomata

(B) Aerenchyma

(C) Hydathodes

(D) Lenticels

11. Stele is made up of :

(A) Vascular cambium

(B) Pericycle

(C) Pith

(D) All of the above

12. The two nuclei at the end of the pollen tube are called :

(A) Sperm and ovum

(B) Tube nucleus and generative nucleus

(C) Generative nucleus and stigma

(D) Tube nucleus and sperm

13. The waxy substances present in the walls of cork cell that makes them impervious to water :

(A) Lignin

(B) Suberin

(C) Cutin

(D) Cellulose

14. Root anatomy, the pericycle gives rise to :

(A) Lateral root

(B) Vascular bundle

(C) Epidermis

(D) Pith

15. Functional megaspore in a flowering plant develops into :

(A) Endosperm

(B) Ovule

(C) Embryo sac

(D) Embryo

16. Plasmodesmata are best described as :

(A) Intercellular space

(B) Cytoplasmic bridge between cell

(C) Cell wall thickning

(D) Type of plastids

17. Pollen tube is formed by :

(A) Exine

(B) Intine

(C) Tectum

(D) Hexine

18. Primary angiosperms are :

(A) Grasses

(B) Climbers

(C) Tree

(D) Parasites

19. Which of the following is responsible for the formation of heartwood ?

(A) Phellogen activity

(B) Tyloses formation in vessels

(C) Increased phloem production

(D) None of the above

20. The resistant material present in the outer layer of pollen grain is made up of :

(A) Cellulose

(B) Pectine

(C) Sporobollinin

(D) Amylose

21. Hypodermis of dicot stem is made of :

(A) Parenchyma

(B) Collenchyma

(C) Sclerenchyma

(D) All of the above

22. Which are the external protective tissues of plant ?

(A) Cortex and epidermis

(B) Cork and cortex

(C) Pericycle and cortex

(D) Epidermis and cork

23. Embryo sac is located inside the :

(A) Stigma

(B) Ovule

(C) Micropyle

(D) Style

24. Which meristem helps in girth of plant ?

(A) Primary meristem

(B) Apical meristem

(C) Lateral meristem

(D) Intercalary meristem

25. Endothecium layer of anther lobe is present :

(A) Outside the epidermis

(B) Just inside the epidermis

(C) In the innermost layer

(D) In the middle region

26. Phloem parenchyma is absent in :

(A) Gymnosperm

(B) Moncot

(C) Both (A) and (B)

(D) None of the above

27. How many meiotic divisions are necessary to produce 100 pollen grains ?

(A) 100

(B) 25

(C) 50

(D) 20

28. Intine layer of pollen grain is composed of :

(A) Lipid and protein

(B) Cellulose and pectin

(C) Lignin and cutine

(D) Pectin and lignin

29. Soft wood lacks :

(A) Tracheids

(B) Vessels

(C) Tylosis

(D) None of the above

30. A monosporic eight nucleated and seven celled female gametophyte is found in :

(A) Oenothera

(B) Polygonum

(C) Allium

(D) Adoxa

31. Velamen layer found in orchid root is needed for :

(A) Respiration in plant

(B) Protection of tissue

(C) Absorption of moisture

(D) Mechanical support

32. Vivipary in plant is the character of :

(A) Xerophytes

(B) Hydrophytes

(C) Mangroves

(D) Epiphytes

33. Filiform apparatus is a characteristic feature of :

(A) Generative cell

(B) Nucleus embryo

(C) Aleurone cell

(D) Synergid cell

34. Interfascicular cambium is formed by :

(A) Pericycle cells

(B) Endodermal cells

(C) Medullary cells

(D) Complementary cell

35. Which is correct statement for isobilateral leaves ?

(A) Present in all angiosperms

(B) Two different types of mesophyll found

(C) Similar sizes of vascular bundles

(D) None of the above

36. The normal type of embryo sac is 8 nucleated and …….... .

(A) 8 celled

(B) 7 celled

(C) 6 celled

(D) 5 celled

37. Enzyme callase is synthesized by :

(A) Pollen grain

(B) Pollen tube

(C) Tapetum

(D) Endothecium

38. Triple fusion acts as true fertilization, was proposed by :

(A) Hofmeister

(B) Thomas

(C) Navaschin

(D) Strasburger

39. Light does not affect :

(A) Syngamy

(B) Transpiration

(C) Seed germination

(D) Flowering

40. The broad green part of the leaf is called :

(A) Petiole

(B) Lamina

(C) Veins

(D) Midrib

41. Which of the following vegetables is not a root ?

(A) Potato

(B) Carrot

(C) Radish

(D) Turnip

42. Suberin is present in cell wall of :

(A) Phloem

(B) Phellogen

(C) Phellem

(D) Phelloderm

43. Bast fibres are commonly found in :

(A) Secondary xylem

(B) Secondary phloem

(C) Primary phloem

(D) All of the above

44. Kranz type of anatomy is found in :

(A) Stem

(B) Leaf

(C) Root

(D) Flower

45. Protoxylem towards outside is called :

(A) Exarch

(B) Endarch

(C) Mesarch

(D) Centrarch

46. Tunica carpus theory was proposed by :

(A) Hanstein

(B) Schmidt

(C) Nageli

(D) Hofmeister

47. In root stem transition 4-8 system is found in :

(A) Type D

(B) Type C

(C) Type A

(D) Type B

48. Periderm is formed from :

(A) Fasicular cambium

(B) Phellogen

(C) Interfasciular cambium

(D) None of the above

49. Interxylary phloem is found in :

(A) Strychnos

(B) Aristolochia

(C) Bougainvillea

(D) Dracaena

50. Secondary cortex is also called as :

(A) Phellem

(B) Phelloderm

(C) Secondary xylem

(D) Secondary phloem

51. The plant which traps and feed on insect is :

(A) Cuscuta

(B) China rose

(C) Pitcher plant

(D) Rose

52. Inverted cortical vascular bundle is found in :

(A) Boerhaavia

(B) Dracaena

(C) Amaranthus

(D) Nyctanthes

53. The formation of wedges of phloem into the xylem due to unequal activity of cambium present :

(A) Bougainvillea

(B) Amaranthus

(C) Bignonia

(D) Chenopodium

54. Which of the following is not a root vegetable ?

(A) Bottle gourd

(B) Radish

(C) Beetroot

(D) Carrot

55. Which of the following is not a flower part ?

(A) Petiole

(B) Sepal

(C) Stamen

(D) Pistil

56. Veins of the leaves are useful for :

(A) Transport of water and minerals

(B) Transport of organic nutrient

(C) Mechanical support

(D) All of the above

57. Placenta and pericarp are edible portions in :

(A) Tomato

(B) Apple

(C) Banana

(D) Potato

58. Quiescent centre in root is discovered by :

(A) Clowes, 1961

(B) K. A. Wolf, 1953

(C) Hanstein, 1875

(D) Schmidt, 1924

59. Hydathodes are :

(A) Oil secreting gland

(B) Water secreting gland

(C) Resin gland

(D) Both (B) and (C)

60. Sun-hemp jute is produced by :

(A) Leaf

(B) Xylem

(C) Phloem

(D) Mesocarp

61. Father of Indian Embryology was :

(A) R. P. Ray

(B) Prof. P. Maheshwari

(C) Birbal Sahni

(D) Jagadish Chandra Bose

62. Polyembryony is found in :

(A) Orange

(B) Citrus

(C) Mango

(D) All of the above

63. In one anther, the number of pollen sacs is :

(A) Two

(B) Three

(C) Four

(D) Eight

64. Assimilatory roots are found in :

(A) Trapa

(B) Amophilia

(C) Asparagus

(D) Lemna

65. Cladode is found in :

(A) Ruscus

(B) Asparagus

(C) Amophilia

(D) Acacia

66. Cork cambium is an example of :

(A) Intercalary meristem

(B) Lateral meristem

(C) Apical meristem

(D) Primary meristem

67. Histogen theory was given by :

(A) Hanstein

(B) Wolf

(C) Nageli

(D) None of the above

68. 'V' shape xylem is a character of :

(A) Moncot stem

(B) Dicot root

(C) Monocot root

(D) Monocot stem and root both

69. Dicotyledon roots are :

(A) Only diarch

(B) Only polyarch

(C) Diarch to hexarch

(D) None of the above

70. Commercial cork is formed by the plant name :

(A) Salex

(B) Betula

(C) Quercus

(D) Tectona

71. What do the annual rings in a tree trunk represent ?

(A) The age of the tree

(B) The number of branches

(C) The height of the tree

(D) The depth of the roots

72. The science of counting and analyzing annual growth rings is called :

(A) Dendrology

(B) Ecology

(C) Dendrochronology

(D) Both (B) and (C)

73. What is the position of the floral parts in epigynous flower ?

(A) Below the ovary

(B) At the same level as the ovary

(C) Above the ovary

(D) Beside the ovary

74. A leaf trace is best defined as :

(A) The vascular gap in the stem

(B) The vascular bundle connecting the stem to the leaf base

(C) The pith region at the node

(D) The xylem in the leaf

75. In which plant group is the multilacunar node commonly found ?

(A) Grasses

(B) Annona

(C) Rumex

(D) Betula

76. Normal shedding of an old leaf at the base of autumn is called :

(A) Osmosis

(B) Abscission

(C) Dissolution

(D) None of the aove

77. A syncarpous gynoecium has two or more :

(A) Free carpels

(B) Fused carpels

(C) Free ovaries

(D) Distinct stamens

78. Which nodal type is commonly found in vascular plants ?

(A) Trilacunar

(B) Unilacunar

(C) Multilacunar

(D) None of the above

79. Which hormone is known as stress hormone that promotes leaf abscis-ion ?

(A) Abscisic acid (ABA)

(B) Gibberellic acid

(C) Auxin

(D) Cytokinin

80. The floral formula symbol representing an inferior ovary is :

(A) $\underline{G}$

(B) $\bar{G}$

(C) G –

(D) G

81. In the terms of ontogeny, a half-inferior ovary is usually associated with which floral condition ?

(A) Hypogynous

(B) Perigynous

(C) Epigynous

(D) None of the above

82. Korper-Kappe theory was given by :

(A) Schupp

(B) Schmidt

(C) Both (A) and (B)

(D) None of the above

83. Wound healing in plant is initiated by :

(A) Apical meristem

(B) Lateral meristem

(C) Secondary meristem

(D) Intercalary meristem

84. Trichomes are modified forms of which plant tissue ?

(A) Endodermis

(B) Xylem

(C) Epidermal cell

(D) Cortex

85. Apomixis is a form of :

(A) Vernalization

(B) Parthenogenesis

(C) Parthenocarpy

(D) None of the above

86. Leaf lamina is reduced in :

(A) Hydrophytes

(B) Mesophytes

(C) Xerophytes

(D) Epiphytes

87. The leaves of dicotyledonous plants are mostly :

(A) Hypostomatic

(B) Epistomatic

(C) Astomatic

(D) Ampistomatic

88. Adhesion of stamens to the gynoecium as seen in Calotropis forms a structure called :

(A) Gynostegium

(B) Gynostemium

(C) Synadrium

(D) Pollinia

89. When stamens are fused by their anthers and filaments are free, it is called :

(A) Synandrous

(B) Monoadelphous

(C) Syngenesious

(D) Diadelphous

90. The process of formation of seeds without fertilization is called :

(A) Budding

(B) Apomixis

(C) Sporulation

(D) Somatic hybridization

91. Trichomes are generally found on the :

(A) Root epidermis

(B) Shoot system

(C) Vascular bundle

(D) Endodermis

92. Which of the following represents a multilacunar node ?

(A) Eucalyptus

(B) Azadirachta

(C) Rumex

(D) Brassica

93. During root stem transition, the vascular bundles generally change from :

(A) Conjoint to radial

(B) Radial to conjoint

(C) Concentric to radial

(D) Conjoint to concentric

94. What is the primary function of modified stem tendrils in cucumbers and pumpkins ?

(A) Photosynthesis

(B) Protection

(C) Climbing and support

(D) Water storage

95. Cambium activity is highest in :

(A) Spring

(B) Winter

(C) Autumn

(D) Rainy

96. Duramen is :

(A) Periderm

(B) Bark

(C) Sapwood

(D) Heartwood

97. Difuse porous woods are characteristics of plant growing in :

(A) Alpine region

(B) Cold winter region

(C) Temperate climate

(D) Tropics

98. Root cap is formed by :

(A) Dermatogen

(B) Vascular cambium

(C) Calyptrogen

(D) Wood cambium

99. Nucellar adventive polyembryony is of great significance in :

(A) Aquaculture

(B) Horticulture

(C) Apiculture

(D) None of the above

100. What are tyloses ?

(A) Balloon like outgrowth of parenchyma into lumen of vessels

(B) Lignified fibers found in xylem

(C) Sclereids found in pith

(D) Dead cells of phloem

(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।