Roll No. .....

Question Booklet Number

O. M. R. Serial No.

M. Sc. (Second Semester)

(NEP) EXAMINATION, 2025-26

BOTANY

(Paleobotany) (Elective)

Paper Code							
B	0	4	0	8	0	4	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 boundary between crust and mantle is called :

(A) Gutenberg Discontinuity

(B) Mohorovicic Discontinuity

(C) Conrad Discontinuity

(D) Lehmann Discontinuity

2. The Earth's radius is approximately :

(A) 1,000 km

(B) 3,500 km

(C) 6,371 km

(D) 10,000 km

3. The theory of plate tectonics explains :

(A) Weather formation

(B) Movement of lithospheric plates

(C) Ocean currents

(D) Movement of lithospheric plates

4. The Mid-Atlantic Ridge is an example of :

(A) Convergent boundary

(B) Divergent boundary

(C) Transform boundary

(D) Subduction zone

5. When two oceanic plates collide, it forms :

(A) Fold Mountains

(B) Rift Valley

(C) Volcanic island arc

(D) Plateau

6. The Pacific "Ring of Fire" is mainly associated with :

(A) Stable cratons

(B) Convergent boundaries

(C) Transform boundaries

(D) Divergent boundaries

7. The supercontinent Pangaea existed during the :

(A) Coenozoic Era

(B) Mesozoic Era

(C) Paleozoic Era

(D) Pre-Cambrian Era

8. The continental drift theory was proposed by :

(A) Isaac Newton

(B) Alfred Wegener

(C) Charles Lyell

(D) James Hutton

9. One major evidence for continental drift was :

(A) Ocean currents

(B) Matching fossils on different continents

(C) Satellite images

(D) Earthquakes

10. What is the study of the distribution of fossils across different regions and environments called ?

(A) Phylogeny

(B) Paleobiography

(C) Chronostratigraphy

(D) Tophonomy

11. What is the process of fossilization where mineral deposits fill in the process of an organism and harden into rock ?

(A) Permineralization

(B) Replacement

(C) Carbonization

(D) Mummification

12. The Glossopteris plant fossils were found in :

(A) Only Europe

(B) Only Africa

(C) Several Southern Continents

(D) Only North America

13. According to Wegener, the continents drifted apart due to :

(A) Tidal force

(B) Earthquakes

(C) Volcanic corruptions

(D) Unknown forces

14. Which of the following is an igneous rock ?

(A) Sandstone

(B) Marble

(C) Granite

(D) Limestone

15. Basalt is generally :

(A) Light-colored and coarse

(B) Dark-colored and fine grained

(C) Layered

(D) Fossil rich

16. The large ocean surrounding Pangaea was called :

(A) Tethys

(B) Atlantic

(C) Panthalassa

(D) Arctic

17. The largest division of geological time is :

(A) Era

(B) Period

(C) Epoch

(D) Eon

18. According to uniformitarianism :

(A) Past events were sudden

(B) Natural laws remain constant overtime

(C) Earth is static

(D) Only fossils change

19. The principle stating that younger layers lie above older layers is :

(A) Uniformitarianism

(B) Superposition

(C) Cross-cutting

(D) Lateral continuity

20. The principle of original horizontality states that :

(A) Layers are originally vertical

(B) Layers are originally horizontal

(C) Layers are folded at formation

(D) Layers are always tilted

21. We are currently living in the :

(A) Mesozoic Era

(B) Paleozoic Era

(C) Cenozoic Era

(D) Pre-Cambrian

22. The principle of fossil succession helps in :

(A) Measuring earthquakes

(B) Dating rock layer

(C) Studying volcanoes

(D) Measuring rainfall

23. The San Andreas Fault is an example of :

(A) Divergent boundary

(B) Convergent boundary

(C) Transform boundary

(D) Subduction zone

24. The core is mainly composed of :

(A) Silicon and Aluminium

(B) Iron and Nickel

(C) Oxygen and Hydrogen

(D) Magnesium and Potassium

25. At transform boundaries, plates :

(A) More apart

(B) Collide

(C) Slide past each other

(D) Melt

26. According to Oparin, life originated as :

(A) Self reproduction

(B) God's desire

(C) Effect of sunlight on mud

(D) None of the above

27. The first evidence of life on earth dates back to about :

(A) 4.5 million years

(B) 3.5 million years

(C) 2.5 million years

(D) 1.5 million years

28. Which of the following plant was first known in fossil state but was later discovered in living state as well ?

(A) Araucaria

(B) Cycas

(C) Metasequoia (deciduous gymnosperm)

(D) Agathis

29. Which is a character of good fossil :

(A) Must be short lived

(B) Wide geological range

(C) Cannot easily decompose

(D) All of the above

30. Who is the founder of "Modern Paleontology" ?

(A) George Cuvier

(B) Leonardo Dan Vinci

(C) Birbal Sahni

(D) Charles Lyell

31. If whole bodies of extinct organisms are found frozen in ice it is :

(A) Unaltered fossil

(B) Petrified fossil

(C) Mould fossil

(D) Cast fossils

32. Fossiliferous area in India to which Prof. Sahni gave special attention was :

(A) Rajmahal hills of Bihar and Salt range

(B) Shivalik Hills of Northern Himalaya

(C) Karakoram Hills

(D) None of the above

33. Limestone the most abundant of the non-clastic sedimentary rocks comprises of :

(A) Sodium carbonate

(B) Calcium carbonate

(C) Sulphur

(D) Phosphorus

34. What scientific avenue of investigation gave scientists the best estimate of the age of the earth ?

(A) Dating fossils

(B) Archaeological dating

(C) Radiometric dating

(D) Carbon dating

35. Buried plants due to constant heat and pressure turn in :

(A) Wood

(B) Coal

(C) Fertilizer

(D) Oil

36. Which of the following will NOT make a fossil ?

(A) Decomposed organic material

(B) Plant impressions (Casts)

(C) Animal foot prints

(D) Loose animal bones

37. The physical, chemical or biological alteration of sediments into sedimentary rock is :

(A) Fossil

(B) Diagenesis

(C) Fertilizer

(D) Humus

38. The study of what has happened to an organism from the moment of death until it is found as a fossil is :

(A) Taphonomy

(B) Preservation

(C) Phosphatization

(D) None of the above

39. Carbonization is the process occurring within the sediment in the absence of :

(A) Carbon dioxide

(B) Oxygen

(C) Nitrogen

(D) Phosphorus

40. …… is the division of Earth's history based on life forms which lived during that period.

(A) Seafloor spreading

(B) Geologic Time Scale

(C) Prehistoric dinosaurs

(D) All of the above

41. What is the longest part of Earth's history ?

(A) Precambrian Time

(B) Paleozoic Era

(C) Mesozoic Era

(D) Cenozoic Era

42. Dinosaurs and birds are said to have evolved during Mesozoic era.

(A) True

(B) False

43. The Geologic time scale is subdivided into 4 groups. List them beginning with the largest :

(A) Eons, periods, epochs, eras

(B) Eras, eons, periods, epochs

(C) Epochs, periods, eras, eons

(D) Eons, eras, periods, epochs

44. The angiosperms were developed in :

(A) Paleozoic era

(B) Mesozoic era

(C) Coenozoic era

(D) Archaeozoic era

45. What does a "Paleogeographic map" show ?

(A) The current political boundaries

(B) The future projections of continental movements

(C) Trends and patterns of ancient geological features through time

(D) The exact depth of the ocean floor today

46. A "Cap rock" or "Seal rock" in an oil trap must have :

(A) High permeability

(B) Low permeability

(C) High Porosity

(D) Fractures

47. During the drilling of an oil well, which product is extracted first ?

(A) Marsh gas

(B) Coal gas

(C) Bio gas

(D) Natural gas

48. The average thickness of continental crust in about :

(A) 5 km

(B) 10 km

(C) 35 km

(D) 100 km

49. Which layer generates Earth's magnetic field ?

(A) Crust

(B) Mantle

(C) Outercore

(D) Innercore

50. The Earth's Lithosphere is divided into :

(A) Layers

(B) Plates

(C) Continents

(D) Zones

51. Which force drives plate movements ?

(A) Wind currents

(B) Ocean tides

(C) Mantle convection

(D) Solar radiation

52. The naming of fossils is based on which system ?

(A) Trinomial nomenclature

(B) Binomial nomenclature

(C) Polynomial nomenclature

(D) Vernacular naming

53. The rules for naming fossil organisms are governed by :

(A) ICZN

(B) WHO

(C) IUCN

(D) FAO

54. The classification of fossils is mainly based on :

(A) Color

(B) Habitat

(C) Morphological characters

(D) Size only

55. The term "Holotype" refers to :

(A) Duplicate fossil

(B) First discovered fossil

(C) Single specimen used as reference

(D) Poorly preserved fossil

56. Fossil taxonomy helps in :

(A) Oil extraction

(B) Determining evolutionary relationships

(C) Weather forecasting

(D) Soil testing

57. Which of the following is an example of an index fossil ?

(A) Elephant

(B) Trilobite

(C) Frog

(D) Human

58. Which acid is commonly used in palynological preparation to remove silicates ?

(A) HCl

(B) HNO_3

(C) HF

(D) H_2SO_4

59. Coal palynology helps in determining :

(A) Coal rank

(B) Age of coal deposits

(C) Calorific value

(D) Ash content

60. Spores found abundantly in coal are mostly derived from :

(A) Angiosperms

(B) Bryophytes

(C) Pteridophytes

(D) Gymnosperms

61. What is the study of trace fossils, such as footprints and burrows known as :

(A) Palaeoclimatology

(B) Palynology

(C) Ichnology

(D) Palaeogiography

62. Wegener proposed that all continents were once joined into :

(A) Laurasia

(B) Gondwana

(C) Pangaea

(D) Panthalassa

63. One criticism of Wegener's theory was :

(A) No fossil evidence

(B) No explanation of driving mechanism

(C) No map evidence

(D) No climate evidence

64. The rock cycle shows that rocks :

(A) Remain unchanged

(B) Change from one type to another

(C) Exist only underground

(D) Form only once

65. The theory of plate tectonics was developed in the :

(A) 17th century

(B) 18th century

(C) Early 20th century

(D) Late 20th century

66. Which of the following is a metamorphic rock ?

(A) Shale

(B) Granite

(C) Slate

(D) Conglomerate

67. Which of the following is NOT a paleogeographic feature :

(A) Ancient mountain ranges

(B) Shallow seas

(C) Modern day subway lines

(D) Deep ocean basins

68. What does the presence of coal deposits in Antarctica indicate about its paleogeography ?

(A) It was always cold

(B) It was once located in a warmer, tropical/subtropical climate

(C) It was submerged in a deep ocean

(D) It was formed by volcanic activity

69. The primary method used to image subsurface structure for all exploration is :

(A) Magnetic survey

(B) Gravimetric analysis

(C) Seismic survey

(D) Geological Mapping

70. How to increase the extraction efficiency ?

(A) Crush the material

(B) Dissolve the water

(C) Dissolve in distilled water

(D) Dry the material

71. Which period saw the emergence of diverse marine invertebrates such as trilobites ?

(A) Cambrian

(B) Ordovician

(C) Silurian

(D) Devonian

72. What is the term for a group of organisms that share a common ancestor and all of its descendants ?

(A) Taxon

(B) Genus

(C) Phylogeny

(D) Clade

73. Which of the following is NOT a proxy indicator for past climate ?

(A) Glacial deposits

(B) Fossilized pollen

(C) Instrumental weather data

(D) Corals

74. Why do scientists study past climate ?

(A) To predict exactly what the weather will be next year

(B) To understand how human influence the earth climate system

(C) To prove that climate never changes

(D) To replace modern weather forecasting

75. What does the "Hot house period" of Mesozoic era indicate ?

(A) A time with massive ice sheets

(B) Warmer earth with higher sea levels no polar ice caps

(C) A period of rapid human development

(D) A time with very low CO_2 levels

76. Which of the following factors strongly influences long-term climate over millions of years ?

(A) Daily tidal movements

(B) Plate tectonics and continental drift

(C) Urban heat island

(D) Short-term weather patterns

77. What is paleofloristics ?

(A) The study of ancient animal life

(B) The study of fossilized pollens and spores only

(C) The study of the distribution and composition of ancient plant communities

(D) The study of sedimentary rock layers

78. Which of the following is considered a "Living fossil" plant ?

(A) Cycas

(B) Fern

(C) Ginkgo biloba

(D) Psilophyton

79. Which of the following are the earliest known fossil land plants ?

(A) Ferns

(B) Cooksonia

(C) Cycads

(D) Angiosperms

80. A fossil that consists of a three-dimensional filling of a cavity left by a decayed plant part is called a :

(A) Compression

(B) Cast

(C) Mold

(D) Impression

81. What are tiny, organic walled microfossils, often considered to be algal spores, that are important for Paleozoic biostratigraphy ?

(A) Stromatolites

(B) Acritarch

(C) Chocoliths

(D) Diatoms

82. Which of the following is an example of "Microfossil" plant ?

(A) Petrified

(B) Leaf compression

(C) Pollen grain

(D) Stem cast

83. A "Compression" fossil differs from an "Impression" because a compression retains :

(A) Internal cellular structure
(B) Organic matter
(C) A 3D-shape
(D) None of the above

84. Coal balls are specifically known for preserving :

(A) Invertebrate fossils
(B) Petrified plant tissues
(C) Dinosaur attacks
(D) Impression of leaves

85. Which technique is commonly used to remove fossils from rock matrices, especially when studying cuticles ?

(A) Maceration
(B) Sectioning
(C) Grinding
(D) All of the above

86. What is the name of famous plant fossil genus that showed the existence of complex, flowerlike structures in the Jurassic/cretaceous studied by Prof. Birbal Sahni?

(A) Pentoxylon
(B) Williamsonia
(C) Rhynia
(D) Lycopsids

87. Unconformity represents :

(A) Continuous deposition
(B) Gap in geological record
(C) Volcanic eruption
(D) Metamorphism

88. Stratigraphy mainly deals with :

(A) Structure of minerals
(B) Study of rock layers and their sequence
(C) Study of earthquakes
(D) Study of fossils only

89. Peat represents :

(A) Highest grade of coal
(B) Lowest stage in coal formation
(C) Igneous rock
(D) Metamorphic rock

90. Which coal variety has the highest carbon content ?

(A) Lignite
(B) Bituminous
(C) Anthracite
(D) Peat

91. The correct order of coal formation (low to high carbon) is :

(A) Anthracite $\rightarrow$ Bituminous $\rightarrow$ Lignite $\rightarrow$ Peat
(B) Peat $\rightarrow$ Lignite $\rightarrow$ Bituminous $\rightarrow$ Anthracite
(C) Lignite $\rightarrow$ Peat $\rightarrow$ Bituminous $\rightarrow$ Anthracite
(D) Peat $\rightarrow$ Bituminous $\rightarrow$ Lignite $\rightarrow$ Anthracite

92. Fusain in coal resembles :

(A) Shiny glass

(B) Charcoal

(C) Sandstone

(D) Limestone

93. The percentage of carbon in anthracite is approximately :

(A) 30 – 40%

(B) 40 – 55%

(C) 60 – 70%

(D) 85 – 95%

94. The primitive atmosphere of Earth was believed to contain :

(A) Oxygen, Nitrogen, Carbon dioxide

(B) Methane, Ammonia, Hydrogen, Water vapour

(C) Oxygen and Ozone

(D) Nitrogen and Oxygen

95. "Coacervates" were proposed by :

(A) Darwin

(B) Oparin

(C) Haldane

(D) Pasteur

96. The first cells were (Living cells) :

(A) Eukaryotic and aerobic

(B) Prokaryotic and anaerobic

(C) Multicellular

(D) Photosynthetic plants

97. The prebiotic Earth atmosphere was :

(A) Oxidizing

(B) Reducing

(C) Neutral

(D) Highly oxygenated

98. The main source of energy in prebiotic Earth was :

(A) Solar radition and Lightning

(B) Fossil fuels

(C) Nuclear reactors

(D) Wind energy

99. Precambrian time accounts for approximately :

(A) 25% of Earth's history

(B) 50% of Earth's history

(C) 88% of Earth's history

(D) 10% of Earth's history

100. Banded Iron Formations (BIFs) indicate :

(A) Volcanic eruptions

(B) Rise of oxygen in atmosphere

(C) Ice age

(D) Meteor impacts

(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।