Roll No. .....

Question Booklet Number

O. M. R. Serial No.

M. A./M. Sc. (Second Semester)
(NEP) EXAMINATION, 2025-26
MATHEMATICS
(History & Development of Indian Mathematics) (Elective)

Paper Code							
B	0	3	0	8	0	5	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. Which ancient language primarily preserved Indian Mathematical texts ?

(A) Pali

(B) Sanskrit

(C) Prakrit

(D) Tamil

2. The dissemination of Indian calculus knowledge of Europe was facilitated by translations into :

(A) Latin

(B) Arabic

(C) Greek

(D) Persian

3. The Ganitasara-Sangraha was authored by :

(A) Bhaskara I

(B) Mahavira

(C) Aryabhata

(D) Madhava

4. In Yuktibhasa, which mathematical series was described for approximating trigonometric function ?

(A) Infinite series

(B) Arithmetic series

(C) Fibonacci series

(D) Power series

5. What Indian text introduced the concept of zero as a mathematical entity ?

(A) Sulbasutra

(B) Yuktibhasa

(C) Lilavati

(D) Brahamasphuta Siddhanta

6. The word 'Shulba' in Shulbasutras means :

(A) Calculation

(B) String or Rope

(C) Fire

(D) Dimension

7. The primary purpose of developing geometry in the Vedic period was to :

(A) Measure land for agriculture

(B) Study planetary motions

(C) Build chariots

(D) Construct precise shapes for fire altars (Vedis)

8. Which of the following is not one of the major Shulbasutra ?

(A) Lilavati

(B) Baudhayana

(C) Manava

(D) Apastamba

9. What was the time period of Indus Civilization/Harappan civilization ?

(A) 2400 BC–1700 BC

(B) 2500 BC–1700 BC

(C) 2400 BC–1750 BC

(D) 2500 BC–1750 BC

10. Harappa is situated on the bank of the river :

(A) Ganga

(B) Ravi

(C) Yamuna

(D) Sindhu

11. In the binary system of Pingala, what does '0000' represent ?

(A) 0

(B) 1

(C) 16

(D) – 1

12. Pingala's work is a part of which Vedanga ?

(A) Jyotisha

(B) Kalpa

(C) Chhanda

(D) Nirukta

13. Varahamihira's 'Panchasiddhantika' deals with how many astronomical systems ?

(A) 5

(B) 4

(C) 3

(D) 6

14. In which city did Varahamihira live and work ?

(A) Patana

(B) Ujjain (Avanti)

(C) Kashi

(D) Nalanda

15. Which ancient Indian scholar was known for his contributions to both poetry and mathematics ?

(A) Bhaskara I

(B) Kalidasa

(C) Bhaskara II

(D) Aryabhata

16. Which ancient Indian text deals extensively with astronomy and astrology ?

(A) Aryabhatiya

(B) Surya Siddhanta

(C) Taittiriya Samhita

(D) Manusmriti

17. Which Indian scholar made significant contributions to both astronomy and mathematics and accurately calculated the length of the solar year ?

(A) Aryabhata
(B) Bhaskara I
(C) Varahamihira
(D) Bhaskara II

18. Sridharacharya was initially a devotee of Lord Siva but latter became a :

(A) Buddhist
(B) Jain
(C) Hindu-Vaishnava
(D) Atheist

19. Sridharacharya separated which of the following fields from Arithmetic ?

(A) Geometry
(B) Astronomy
(C) Astrology
(D) Algebra

20. The Bakhshali manuscript was discovered in 1881 in which present-day country ?

(A) Pakistan
(B) India
(C) Nepal
(D) Sri Lanka

21. The Bakhshali manuscript is written in which script ?

(A) Brahmi
(B) Devanagari
(C) Sharada
(D) Kharosthi

22. The language used in the Bakhshali manuscript is recognized as :

(A) Classical Sanskrit
(B) Gatha (a form of Prakrit)
(C) Pali
(D) Prakrit Tamil

23. In which year was the book 'Vedic Mathematics' published ?

(A) 1950
(B) 1960
(C) 1965
(D) 1955

24. How many upa sutras are there in Vedic mathematics ?

(A) 11
(B) 13
(C) 12
(D) 18

25. The sutra 'Urdhva-Tiryak' is mainly used for :

(A) Subtraction
(B) Multiplication
(C) Division
(D) Solving equations

26. The term 'Vedic' in Sanskrit means :

(A) Religion
(B) Wisdom and Knowledge
(C) Ritual
(D) Power

27. Which of the following is not a Vedic sutra for mathematics ?

(A) Ekadhikena purvena
(B) Urdhva-Tiryak
(C) Vilokanam
(D) Bhasmasurva-Vidhi

28. What did ancient Indian mathematicians (specifically in the Shulba-sutras) use to approximate irrational numbers ?

(A) Linear regression
(B) Logarithms
(C) Decimal-expansion
(D) Successive-approximation

29. Which of the following is not a valid Roman numeral ?

(A) XVI
(B) XXXX
(C) XC
(D) XL

30. What is the Hindu-Arabic numeral for MCD ?

(A) 1400
(B) 1600
(C) 1500
(D) 1100

31. Srinivasa Ramanujan's first published paper was about which topic in mathematics ?

(A) The constant pi
(B) The properties of logarithms
(C) Bernoulli number
(D) The structure of mathematical proofs

32. Which symbol is used in most of the Ramanujan's theorems ?

(A) Capital sigma
(B) Capital gamma
(C) e
(D) Phi

33. Srinivasa Ramanujan's study was mostly in the area of :

(A) Analytic number theory
(B) Geometric number theory
(C) Functional analysis
(D) Differential equations

34. Which of the following mathematical concepts was not known during the Vedic-period ?

(A) Use of zero
(B) Square roots and cube roots
(C) Decimal system (base 10)
(D) Modern-calculus

35. Who reconstructed the techniques of Vedic mathematics from the Vedas in the early 20^{th} century ?

(A) Aryabhata

(B) Bhaskara

(C) Bharti Krishna Tirthaji

(D) Ramanujan

36. Which of the following arithmetical treatises was written by Sripati ?

(A) Siddhant Siromani

(B) Ganitatilaka

(C) Lilavati

(D) Aryabhatiya

37. Which of the following subjects was not covered by Sripati in his writings ?

(A) Arithmetic

(B) Astrology

(C) Astronomy

(D) Rocketry

38. Who is known for the 'Chakravala method' of solving indeterminate equations ?

(A) Bhaskara II

(B) Arybahata

(C) Brahamgupta

(D) Baudhayana

39. Who developed Taylor series expansion of Trigonometric functions ?

(A) Mahaviracharya

(B) Madhava of Sangamagrama

(C) Shripati

(D) Neelkanth

40. Who discovered summation Σ ?

(A) Srinivasa-Ramanujan

(B) Mahjul Bhargav

(C) Madhva

(D) Sakuntala Kumari

41. The total number of dots on a dice is :

(A) 22

(B) 23

(C) 21

(D) 19

42. In which civilization, numbers were for the first time represented by words ?

(A) Indian

(B) Chinese

(C) Babylonian

(D) Hungarian

43. Which Indian mathematical concept transmitted by Arabs is used everyday everywhere ?

(A) Programming Language

(B) Number system

(C) Carnatic Music

(D) Set theory

44. The concept of infinity, or the ability to divide zero, was first discussed by :

(A) Aryabhata

(B) Brahmagupta

(C) Bhaskara II

(D) Varahamihira

45. What was the base of the Indian numeral system (decimal system) in ancient times ?

(A) 2

(B) 12

(C) 60

(D) 10

46. Baudhayana's approximation of $\sqrt{2}$ is :

(A) $1+\frac{1}{3}+\frac{1}{3\times4}-\frac{1}{3\times4\times34}$

(B) $1+\frac{1}{2}+\frac{1}{2\times3}-\frac{1}{2\times3\times23}$

(C) $1+\frac{1}{4}+\frac{1}{4\times5}-\frac{1}{4\times5\times45}$

(D) $1+\frac{1}{5}+\frac{1}{5\times6}-\frac{1}{5\times6-56}$

47. Which of the following mathematical concepts did Aryabhata work on ?

(A) Integral calculus

(B) Differential equations

(C) Trigonometric functions

(D) Complex numbers

48. According to Aryabhata, the ratio of Earth's diameter to the moon's is :

(A) 86 : 1

(B) 97 : 1

(C) 108 : 1

(D) 119 : 1

49. Which of the following equations did Brahamagupta solve ?

(A) Linear equations

(B) Quadratic equations

(C) Cubic equations

(D) Differential equations

50. Brahmagupta's identity states that :

(A) $(a^2 + b^2)(c^2 + d^2) = (ac + bd)^2 + (ad - bc)^2$

(B) $(a^2 - b^2)(c^2 - d^2) = (ac - bd)^2 - (ad + bc)^2$

(C) $(a^2 + b^2)(c^2 - d^2) = (ac - bd)^2 + (ad + bc)^2$

(D) $(a^2 - b^2)(c^2 + d^2) = (ac + bd)^2 - (ad - bc)^2$

51. "Om purnamadah purnamidam purnat purnamudchyate. Purnasya Purnamadaya purnamevashishyate." Where has this mantra been taken from ?

(A) Veda

(B) Kathakar Sangrah

(C) Geeta

(D) Upanishad

52. How many numbers are in Binary number system ?

(A) 3

(B) 2

(C) 1

(D) ∞ (infinite)

53. Pingala's (400–200 BCE) work led to binary numbers and combinatories. What was he analyzing ?

(A) Chandas (Prosody music)

(B) Grammar

(C) Etymology

(D) Vyuhas (war-formation)

54. Who first discovered the Harappan civilization ?

(A) Rai Bahadur Dayaram Sahni

(B) Radha Mohan

(C) Ravi-Dutta

(D) James Arthur-Ray

55. Which metal was unknown to the people of the Indus-valley civilization ?

(A) Copper

(B) Iron

(C) Bronze

(D) Gold

56. Who wrote 'Shulbasutra' ?

(A) Bhaskaracharya

(B) Brahmagupta

(C) Baudhayana

(D) Aryabhata

57. The shulbasutras, early texts containing geometric concepts, were linked to which region that includes modern day Bihar ?

(A) Kalinga

(B) Mithila

(C) Magadh

(D) Avanti

58. Which ancient university was famous for Mathematics and Astronomy studies ?

(A) Nalanda University

(B) Odantapuri University

(C) Taxila

(D) Vikramshila

59. The Aryabhata Knowledge University in located in which city of Bihar ?

(A) Mazaffarpur

(B) Gaya

(C) Bhagalpur

(D) Patna

60. Which formula belongs to Vedic Maths ?

(A) $(a + b)^2$

(B) Urdhva-Tiryagbhyam

(C) Pythagoras theorem

(D) Euler's Theorem

61. The *Aryabhatiya*, written by Aryabhata, contains how many verses ?

(A) 108

(B) 121

(C) 1212

(D) 121 shlokas in 4 chapters

62. The Mathematical concept of 'zero' was first formalized in India. Which scholar is often associated with its development ?

(A) Aryabhata

(B) Varahamihira

(C) Brahmagupta

(D) Bhaskara

63. When is Pi-day celebrated around the world ?

(A) March 14

(B) March 15

(C) June 14

(D) August 14

64. Who elected a fellow of the Royal-Society and received the Cole-prize in 1954 ?

(A) Sakuntla Kumari

(B) Harish Chandra

(C) Ramanujan

(D) None of the above

65. Which famous physicists did Harish Chandra work under in Cambridge ?

(A) C. V. Raman

(B) Homi J. Bhabha

(C) Paul Dirac

(D) Albert Einstein

66. Which area of mathematics is Harish Chandra primarily known for contributing to ?

(A) Number theory

(B) Representation theory and Harmonic analysis

(C) Algebraic Geometry

(D) Differential Equations

67. Which day is celebrated as National Statistics Day in India in honour of Mahalanobis ?

(A) 29th June

(B) 16 August

(C) 2nd October

(D) 26th January

68. Which major survey was initiated by Mahalanobis in India ?

(A) National Sample Survey

(B) Census of India

(C) Agriculture Survey

(D) Economic Survey

69. Prashant Chandra Mahalanobis was awarded the Padam Vibhushan in which year ?

(A) 1968

(B) 1957

(C) 1962

(D) 1972

70. How many main sutras did Swami Bharati Krishna Tirth define in his system of Vedic Mathematics ?

(A) 10

(B) 12

(C) 16

(D) 20

71. What was the birth name of Swami Bharati Krishna Tirth ?

(A) Seetharama

(B) Venkatraman Shastri

(C) Ramkrishna

(D) Narayana

72. In which year was his seminal book ‘¨Vedic Mathematics’ published posthumously ?

(A) 1950

(B) 1960

(C) 1970

(D) 1965

73. According to Swamiji the Vedic mathematics system is based on the study of which Veda ?

(A) Rigveda

(B) Samaveda

(C) Yajurveda

(D) Atharvaveda

74. Swami Bharati Krishna Tirth was the Shankarcharya of which Peetham ?

(A) Sringeri Sharada Peetham

(B) Govardhan Peetham (Puri)

(C) Dwaraka Sharada Peetham

(D) Jyotirmath

75. What was the subject of Ramanujan's first published paper in the journal of the India Mathematical society ?

(A) Prime Number

(B) Bernoulli Number

(C) Circle Method

(D) Infinite Series

76. Which year was declared as National Mathematics year in India to mark Ramanujan's 125th birth Anniversary ?

(A) 2010

(B) 2011

(C) 2012

(D) 2015

77. What is the name of the constant related to Ramanujan in number theory ?

(A) Euler's Constant

(B) Landau Ramanujan Constant

(C) Avogadro's number

(D) Pi

78. What is the famous 'Taxicab Number' associated with Ramanujan and Hardy ?

(A) 1729

(B) 1029

(C) 1927

(D) 1629

79. What is the name of the famous astronomical treatise completed by Nilakantha in 1509 CE ?

(A) Aryabhatiya

(B) Siddhanta-Shiromani

(C) Tantrasamgrah

(D) Grahapariksakrma

80. Nilakantha improved the series for π (Pi) to calculate it accurately up to how many decimal places ?

(A) 4

(B) 7

(C) 9

(D) 5

81. Which 16th century Malayalam text is considered the first in the world to discuss calculus concepts ?

(A) Tantrasangraha

(B) Yuktibhasa

(C) Siddhantadipika

(D) Aryabhatiya

82. 'Lilavati' is the first volume of which larger, main work by Bhaskaracharya ?

(A) Bijaganita

(B) Siddhanta-Shiromani

(C) Grahaganita

(D) Goladhyaya

83. What is the main subject of Bhaskaracharya's work Bijaganita ?

(A) Arithmetics

(B) Geometry

(C) Algebra

(D) Astronomy

84. Which method did Bhaskaracharya develop for solving indeterminate quadratic equations ?

(A) Chakravala

(B) Shulbasutra

(C) Pell's method

(D) None of the above

85. What is the name of the work authored by Sridharacharya that focused on prectical applications of arithmetic ?

(A) Lilavati

(B) Brahmasphutasiddhanta

(C) Patiganita

(D) Aryabhatiya

86. In Sridharacharya's method, what is the term $b^2 - 4ac$ known as ?

(A) Coefficient

(B) Constant

(C) Discrimination

(D) Root

87. Which of the following works on arithmetic was written by Sripati ?

(A) Ganitasarsangraha

(B) Ganitatilaka

(C) Siddhantasiromani

(D) Aryabhatiya

88. Sripati is known for introducing which mathematical technique in his astronomical work ?

(A) Linear equations

(B) Native sine tables

(C) The concept of zero

(D) Decimal system

89. Which later mathematician was heavily inspired by the work of Sripati ?

(A) Aryabhata

(B) Bhaskara II

(C) Mahavira

(D) Pingala

90. Which mathematician first explored the concept of 'Khahara' (division by zero) ?

(A) Bhaskara II

(B) Aryabhata

(C) Madhava

(D) Brahmagupta

91. Which school of mathematics is prominently known for contributions to early calculus ?
(A) Kerala School
(B) Nalanda School
(C) Takshashila School
(D) Mithila School

92. What is the term used by Aryabhata for trigonometric sine values ?
(A) Joyoti
(B) Jya
(C) Tantra
(D) Ganit

93. The calculation of surface area and volume of a sphere is attributed to the mathematician :
(A) Aryabhata
(B) Brahmagupta
(C) Madhava
(D) Bhaskara II

94. Brahamagupta's rule on division by zero states that any number divided by zero is :
(A) Zero
(B) Undefined
(C) Infinity
(D) Equal to itself

95. The idea of infinite series in Indian mathematics was primarily advanced by :
(A) Aryabhata
(B) Bhaskara I
(C) Mahavira
(D) Madhava

96. Aryabhata introduced iterative approximations for which mathematical value ?
(A) square-roots
(B) Pi (π)
(C) Logarithms
(D) Cube-roots

97. What is the name of the series used by Madhava to calculate sine values ?
(A) Infinite series
(B) Taylor series
(C) Power series
(D) Polynomial series

98. Bhaskara II's solution to quadratic equations is presented in which text ?
(A) Brahmasphuta Siddhanta
(B) Siddhants Shiromani
(C) Lilavati
(D) Aryabhatiya

99. The sine table of Aryabhata was computed using the notion of :
(A) Geometric series
(B) Algebraic derivation
(C) Circular degree
(D) Half chords of angles

100. In the Aryabhatiya, what is π approximated as :
(A) 3·14
(B) 22/7
(C) 62832/20000
(D) Square root of 10

(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।