This Question Paper consists of 44 questions and 8 printed pages + Graph Sheet.

Code No. 71/S/211/A1/E

Roll No. | 2 | 1 | 0 | 3 | 1 | 8 | 2 | 5 | 2 | 0 | 2 | 9 |

MATHEMATICS

(211)

Serial No. 21102

Day and Date of Examination : 20/04/2026

Signature of Invigilators : 1. _____

2. _____

General Instructions :

1. Candidate must write his/her Roll Number on the first page of the Question Paper.
2. Please check the Question Paper to verify that the total pages and the total number of questions contained in the Question Paper are the same as those printed on the top of the first page. Also check to see that the questions are in sequential order.
3. For the objective-type of questions, you have to choose any **one** of the four alternatives given in the question i.e. (A), (B), (C) or (D) and indicate your correct answer in the Answer-Book given to you.
4. All the questions including objective type questions are to be answered within the allotted time and no separate time limit is fixed for answering objective-type questions.
5. Making any identification mark in the Answer-Book or writing Roll Number anywhere other than the specified places will lead to disqualification of the candidate.
6. In case of any doubt or confusion in the question paper, the English Version will prevail.
7. Write your Question Paper Code No. **71/S/211/A1/E** on the Answer-Book.
8. (a) The Question Paper is in English/Hindi medium only. However, if you wish, you can answer in any one of the languages listed below :
   English, Hindi, Urdu, Punjabi, Bengali, Tamil, Malayalam, Kannada, Telugu, Marathi, Oriya, Gujarati, Konkani, Manipuri, Assamese, Nepali, Kashmiri, Sanskrit and Sindhi.
   You are required to indicate the language you have chosen to answer in the box provided in the Answer-Book.

   (b) If you choose to write the answer in the language other than Hindi and English, the responsibility for any errors/mistakes in understanding the questions will be yours only.

General Instruction :

(1) Answers of all questions are to be given in the Answer-Book given to you.

(2) 15 minutes time has been allotted to read this Question Paper. The question paper will be distributed at 02:15 p.m. From 02:15 p.m. to 02:30 p.m., the students will read the question paper only and will not write any answer on the Answer-Book during this period.

MATHEMATICS

(211)

Time : 2½ Hours] [Maximum Marks : 85

Note : (i) This Question Paper consists of 44 questions in all.

(ii) All questions are compulsory.

(iii) Marks are given against each question.

(iv) Section—A consists of

(a) Question Nos. 1 to 17 – Multiple Choice type Questions (MCQs) carrying 1 mark each. Select and write the most appropriate option out of the four options given in each of these questions.

(b) Question Nos. 18 to 28 – Objective type questions. Q. No. 18 to 27 carry 2 marks each (with 2 sub-parts of 1 mark each) and Q. No. 28 carries 5 marks (with 5 sub-parts of 1 mark each). Attempt these questions as per the instructions given for each of the questions 18 to 28.

(v) Section—B consists of

(a) Question Nos. 29 to 37 – Very Short Answer type questions carrying 2 marks each.

(b) Question Nos. 38 to 42 – Short Answer type questions carrying 3 marks each.

(c) Question Nos. 43 and 44 – Long Answer type questions carrying 5 marks each.

SECTION - A

1. $(x + 8)(x - 10)$ is equal to :- **[1]**

(A) $x^2 - 2x + 80$ (B) $x^2 - 2x - 80$

(C) $x^2 + 2x + 80$ (D) $x^2 + 2x - 80$

2. Which of the following is not a linear equation? **[1]**

(A) $2x + 5 = 1$ (B) $x - 1 = 0$

(C) $y + 7 = 0$ (D) $5x + 7$

3. If the roots of the equation $ax^2 + bx + c = 0$ are equal, then the value of c is :- **[1]**

(A) $-\frac{b}{2a}$ (B) $\frac{b}{2a}$

(C) $\frac{b^2}{4a}$ (D) $\frac{b^2}{4a}$

4. The 9th term from the end of the A.P. 7, 11, 15, ..., 147 is :- **[1]**

(A) 135 (B) 125

(C) 115 (D) 110

5. There are 25 radio's, 16 of them are out of order. Percentage of out of order radio's is :- **[1]**

(A) 85 (B) 75

(C) 64 (D) 60

6. Simple interest on ₹2,500 for 2 years and 6 months at 6% per annum is :- **[1]**

(A) ₹350 (B) ₹375

(C) ₹750 (D) ₹850

7. If x co-ordinate of a point is zero, then this point always lies :- **[1]**

(A) in 1st quadrant (B) in 2nd quadrant

(C) on x-axis (D) on y-axis

8. Number of tangents drawn to a circle from a point in the interior of the circle is :- **[1]**

(A) 0 (B) 1

(C) 2 (D) 4

9. Angles in the same segment of a circle are :- **[1]**

(A) Supplementary (B) Complementary

(C) Unequal (D) Equal

[1]

10. $1\ m^2$ is equal to :-

(A) $100\ cm^2$ (B) $1000\ cm^2$

(C) $10{,}000\ cm^2$ (D) $-01\ cm^2$

[1]

11. Diameter of a circle is :-

(A) Twice of radius (B) Half of radius

(C) Equal to radius (D) One-third of radius

[1]

12. If $\sin A = \frac{3}{5}$, then the value of cos A is :-

(A) $\frac{5}{3}$ (B) $\frac{5}{4}$

(C) $\frac{4}{5}$ (D) $\frac{3}{4}$

[1]

13. If $k + 7\sec^2 52° - 7\tan^2 52° = 7$, then the value of k is :-

(A) 0 (B) 1

(C) 7 (D) $\frac{1}{7}$

[1]

14. If $\cos\theta \times \frac{1}{\sec\theta} = 1$ and θ is an acute angle, the value of θ is :-

(A) 90° (B) 60°

(C) 30° (D) 0°

[1]

15. Which of the following cannot be probability of an event?

(A) $\frac{2}{3}$ (B) $-\frac{1}{5}$

(C) 15% (D) 0.5

[1]

16. Mean of first five prime numbers is :-

(A) 2.6 (B) 3.6

(C) 4.6 (D) 5.6

[1]

17. Median of the data 10, 12, 14, 16, 18, 20 is :-

(A) 12 (B) 14

(C) 15 (D) 16

[2]

18. Fill in the blanks :

a) $(x^2 + 3)^2 + (x^2 - 3)^2 =$ _____.

b) $(a - 5b)^3 =$ _____.

19. Match Column - I statement with the correct option of Column - II. **[2]**

Column - I	Column - II
a) 15^{th} term of the A.P. : 16, 11, 6, ... is -	i) 462
b) Sum of the first 12 terms of the A.P; 11, 16, 21, 26, ... is -	ii) 54
	iii) –54
	iv) 467

20. Write 'True' for correct statement and 'False' for incorrect statement : **[2]**

a) The point (4, 3) lies on the line $3x + 7y = 27$.

b) The graph of the equation $y = -3$ is a line parallel to x-axis.

21. Match Column - I statement with the correct option of Column - II. **[2]**

Column - I	Column - II
a) Roots of the equation $2x^2 + x - 6 = 0$ are :	i) real and equal
b) Roots of the equation $x^2 - 3x + 3 = 0$ are :	ii) real and distinct
	iii) not real

22. Fill in the blanks : **[2]**

a) The distance of the point P(–2, 3) from the y-axis is _____ units.

b) The distance between the points P(5 cos 35°, 0) and Q(0, 5 cos 55°) is ____ units.

23. Fill in the blanks : **[2]**

a) If PQ is a chord of a circle and PT is a tangent to the circle at P such that $\angle QPT = 60°$, then $\angle POQ$ is _____, where O is centre of the circle.

b) If TP and TQ are two tangents to a circle with centre O such that $\angle POQ = 110°$, then $\angle PTQ$ is _____.

24. Write 'True' for correct statement and 'False' for incorrect statement :- **[2]**

a) Construction of a triangle ABC, in which BC = 3cm and $\angle C = 30°$, is possible when AB – AC = 3.2cm.

b) To draw perpendicular bisector of a line segment AB, we open the compass less than $\frac{1}{2}$ AB.

25. Fill in the blanks : **[2]**

a) If ABCD is a cyclic quadrilateral in which $\angle DAB = 110°$, then $\angle BCD$ is ____.

b) AB is a chord of a circle with centre O and C is a point on the major arc. If $\angle OAB = 40°$, then $\angle ACB$ is _____.

26. Fill in the blanks : **[2]**

a) If $\tan(A+B)=\sqrt{3}$ and $\tan(A-B)=\frac{1}{\sqrt{3}}$, where A > B and A, B are acute angles, then sec (A – B) = _____.

b) The value of $\sec\theta\,(1-\sin\theta)\,(\sec\theta+\tan\theta)$ is _____.

27. Write 'True' for correct statement and 'False' for incorrect statement. **[2]**

a) Two dice are thrown, simultaneously. The probability of getting even number on both dice is $\frac{3}{4}$.

b) The probability of selecting a prime number from the natural numbers 1 to 30 is $\frac{1}{3}$.

28. In a juice shop, juice is served in two types of glasses. Both the glasses are cylindrical in shape with inner radius 3cm and height 10cm. First type of glass has hemispherical raised bottom and the second type of glass has conical raised bottom of height 1.5cm. **[5]**

On the basis of above information, answer the following questions:

i) The apparent capacity of the first type of glass is :

(A) 282.85 cm^3 (B) 284.85 cm^3

(C) 286.85 cm^3 (D) 288.85 cm^3

ii) The actual capacity of the first type of glass is :

(A) 229.28 cm^3 (B) 226.28 cm^3

(C) 223.28 cm^3 (D) 220.28 cm^3

iii) The actual capacity of the second type of glass is :

(A) 272.71 cm^3 (B) 268.71 cm^3

(C) 265.71 cm^3 (D) 263.71 cm^3

iv) Out of two glasses, which glass contains more quantity of Juice to drink and by how much?

(A) First, 42.43 cm^3 (B) Second, 42.43 cm^3

(C) First, 48.43 cm^3 (D) Second, 48.43 cm^3

v) The curved surface area of a glass is :

(A) 195.57 cm^2 (B) 192.57 cm^2

(C) 188.57 cm^2 (D) 183.57 cm^2

SECTION - B

29. Find the HCF of $P(x) = x^2 - 4$ and $Q(x) = x^2 + 4x + 8$. **[2]**

OR

If $x + \frac{1}{x} = 2$, find the value of $x^2 + \frac{1}{x^2}$.

30. Reena's mother said, to make idlis, you must take two parts rice and one part urad pulse. What percentage of such a mixture would be rice and what percentage would be urad pulse? **[2]**

OR

A table marked at ₹15,000 is available at ₹14,400. Find the discount percent.

31. By reducing the selling price of an article by ₹50, a gain of 5% turns into a loss of 5%. Find the original selling price of the article. **[2]**

OR

What price should a shopkeeper mark on a pair of shoes, which costs him ₹1200 so as to gain 12% profit after allowing a discount of 16%.

32. The cost of a car is ₹5,50,000 on 01.01.2025. Its value depreciates at the rate of 15% in the first year and then at the rate of 10% in the subsequent years. Find the value of the car on 31-12-2027. **[2]**

33. Find the co-ordinates of a point which divides the line segment joining the points (–1, 7) and (4, –3) in the ratio 2:3 internally. **[2]**

OR

Find the centroid of a triangle whose vertices are A (7, 5), B (2, –6) and C (9, 10).

34. The in circle of a Δ ABC, touches the sides BC, CA and AB at D, E and F respectively.

Prove that $AF + BD + CE = \frac{1}{2}$ (perimeter of Δ ABC). **[2]**

35. A chord of a circle is equal to its radius. Find the angle subtended by this chord at a point in the major segment. **[2]**

36. Find the median of the following data : **[2]**

x_i	20	25	35	40	50
f_i	5	11	24	16	5

37. A bag contains 5 red balls and some blue balls. If the probability of drawing a blue ball from the bag is four times that of a red ball, find the number of blue balls in the bag. **[2]**

38. Solve the following system of linear equations graphically. **[3]**

$x + y = 7, x - y = -1$.

39. Divide 16 into two parts such that twice the square of the larger part exceeds the square of smaller part by 164. **[3]**

OR

The product of Ramu's age (in years) 2 years ago with his age (in years) 5 years later is 120. Find Ramu's present age.

40. Prove that the angles in the same segment of a circle are equal. **[3]**

41. The minute hand of a wall clock is 14 cm long. Find the area swept by the minute hand and the distance covered by the tip of the minute hand, between 9 a.m. and 9.20 a.m. **[3]**

OR

A cube and a cuboid have same volumes. The dimensions of the cuboid are in the ratio 1:2:4. If the difference between the cost of polishing the cuboid and the cube at the rate of ₹5 per m^2 is ₹80. Find their volumes.

42. If the mean of the following data is 6, find the value of P : **[3]**

x_i	2	4	6	10	P+5
f_i	3	2	3	1	2

43. Construct a triangle ABC in which AB = 3 cm, BC = 4 cm and AC = 6 cm. Now construct a triangle similar to it whose sides are $\frac{2}{3}$ of the corresponding sides of Δ ABC. **[5]**

OR

Draw a circle of diameter 6 cm. From a point P outside the circle at a distance of 7 cm from the centre of the circle, draw two tangents to the circle.

44. As observed from the top of a light house, 100 m above sea level, the angle of depression of a ship, sailing directly towards it, changes from 30° to 45°. Find the distance travelled by the ship during the period of observation. (Take $\sqrt{3} = 1.732$) **[5]**

OR

The angle of elevation of the top of a building from the foot of a tower is 30° and the angle of elevation of the top of the tower from the foot of the building is 60°. If the tower is 50 m high, find the height of the building (Take $\sqrt{3} = 1.732$)