



Final Term Maths **MIND CURVE** Practice Paper Series 2024-25

PRACTICE PAPER 05

By Deepika Bhati Teaching Mathematics Passionately since 2009

S no	Syllabus Covered	Marking Scheme
1.	Unit 1 Number system	10
2.	Unit 2 Algebra	20
3.	Unit 3 Coordinate Geometry	04
4.	Unit 4 Geometry	27
5.	Unit – 5 Mensuration	13
6.	Unit – 6 Statistics & Probability	06

Note: Students/Teachers can refer to this Sample Paper for practice purpose. However, students may find or experience different exam pattern as syllabus or marking scheme may vary school to school.

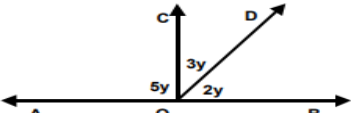
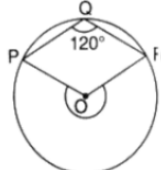
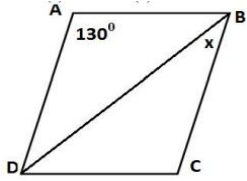
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GENERAL INSTRUCTIONS

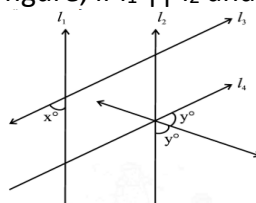
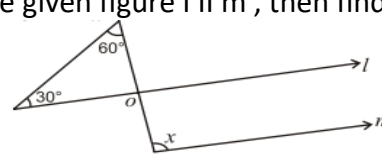
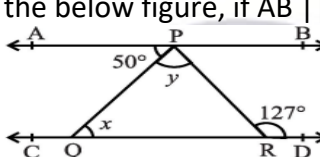
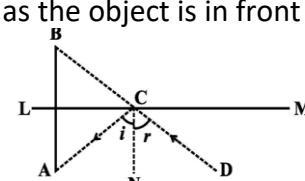
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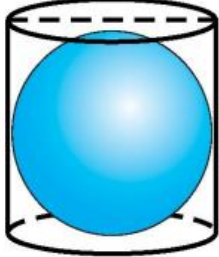
READ CAREFULLY ALL INSTRUCTIONS

1. This Question Paper has 5 Sections A, B, C, D and E.
2. Section A has 20 MCQs carrying 1 mark each
3. Section B has 5 questions carrying 02 marks each.
4. Section C has 6 questions carrying 03 marks each.
5. Section D has 4 questions carrying 05 marks each.
6. Section E has 3 case based integrated units of assessment (04 marks each) with sub parts of the values of 1, 1 and 2 marks each respectively.
7. All Questions are compulsory. However, an internal choice in 2 Qs of 5 marks, 2 Qs of 3 marks and 2 Questions of 2 marks has been provided. An internal choice has been provided in the 2marks questions of Section E
8. Draw neat figures wherever required. Take $\pi = 22/7$ wherever required if not stated.
9. This paper consists of 38 questions.
 - a. Write your answers neatly and legibly.
 - b. Ensure you have not left any question unanswered

Section A Consists of 20 questions of 1 mark each.		
1	Out of the following, which is not irrational number (a) $\sqrt{8} - 2\sqrt{2}$ (b) $\sqrt{8} - 4\sqrt{2}$ (c) $\sqrt{7} - \sqrt{2}$ (d) $\sqrt{9} - \sqrt{2}$	1
2	Degree of $P(x) = 0$ is (a) zero (b) 1 (c) not defined (d) constant	1
3	The value of k if $x = 3$ and $y = -2$ is a solution of the equation $2x - 13y = k$ is (a) 31 (b) 23 (c) 32 (d) 30	1
4	If $x + y + 2 = 0$, then $x^3 + y^3 + 8$ equals : (a) $(x + y + 2)^3$ (b) 0 (c) $6xy$ (d) $-6xy$	1
5	The ordered pair (m, n) satisfies the equation $ax + by + c = 0$ if (a) $am + bn = 0$ (b) $c = 0$ (c) $am + bn + c = 0$ (d) $am + bn - c = 0$	1
6	If two straight lines intersect each other in such a way that one of the angles so formed measure 90° , then each of the remaining angles measures is : (a) 50° (b) 75° (c) 90° (d) 60°	1
7	If $x - 2$ is a factor of $x^3 - 3x + 5a$ then the value of a is: (a) 1 (b) -1 (c) $\frac{2}{5}$ (d) $-\frac{2}{5}$	1
8	In the fig. the value of y is:  (a) 60° (b) 18° (c) 30° (d) 90°	1
9	If two interior angles on the same side of a transversal intersecting two parallel lines are in the ratio 2:3, then the greater of the two angles is : (a) 54° (b) 108° (c) 120° (d) 136°	1
10	If the area of an equilateral triangle is $81\sqrt{3}\text{cm}^2$, then its height is : (a) $9\sqrt{3}$ (b) $3\sqrt{3}$ (c) $12\sqrt{3}$ (d) none of these	1
11	What fraction of the whole circle is minor arc RP in the given figure ?  (a) $\frac{1}{4}$ of the circle (b) $\frac{1}{5}$ of the circle (c) $\frac{1}{3}$ of the circle (d) $\frac{1}{2}$ of the circle	1
12	The length of a chord of circle is 4 cm. If its perpendicular distance from the centre is 1.5 cm, determine the radius of the circle : (a) 2.5 cm (b) 1.5 cm (c) 6 cm (d) 5 cm	1
13	In the below figure ABCD is a rhombus, then the value of x is :  (a) 20° (b) 25° (c) 30° (d) 50°	1

14	Two circles of radii 5 cm and 3 cm intersect at two points and the distance between their centres is 4 cm. Find the length of the common chord. (a) 4 cm (b) 7 cm (c) 6 cm (d) 5 cm	1
15	A cylindrical pillar is 50 cm in diameter and 3.5 m in height. The cost of painting its curved surface at the rate of Rs. 12.50 per m ² is: (a) Rs. 68.75 (b) Rs. 58.75 (c) Rs. 48.75 (d) Rs. 38.75	1
16	A quadrilateral must be a parallelogram if one pair of opposite sides is (a) congruent, only (b) parallel and the other pair of opposite sides is congruent. (c) congruent and parallel (d) parallel only	1
17	The area of three adjacent faces of a cube is x, y and z. Its volume V is : (a) $V = xyz$ (b) $V^3 = xyz$ (c) $V^2 = xyz$ (d) none of these	1
18	From the graph of a line, we can find the coordinates of : (a) only two point lying on the line (b) only two points only lying on the line (c) only finite number of points lying on the line (d) only infinite number of points lying on the line.	1
19	Assertion (A) : The perimeter of triangle is 36 cm and it's side are in the ratio a:b:c= 3: 4:5 then a = 9cm,b=12cm,c=15cm Reason(R) : Perimeter of triangle = sum of all side of triangle by 2. (a) Both assertion and reason are true and reason is the correct explanation of assertion (b) Both assertion and reason are true but reason is not the correct explanation of assertion (c) Assertion is true but reason is false. (d) Assertion is false but reason is true.	1
20	Assertion (A) : All the rational and irrational number makes up the collection of real number. Reason(R) :If $r + s$ is rational and $r - s$ is irrational (a) Both assertion and reason are true and reason is the correct explanation of assertion (b) Both assertion and reason are true but reason is not the correct explanation of assertion (c) Assertion is true but reason is false. (d) Assertion is false but reason is true.	1
Section B Consists of 5 questions of 2 marks each		
21	Ram and Ravi have the same weight. If they each gain weight by 2 kg, how will their new weights be compared ? Use euclids axiom to support your answer.	2
22	Find $0 \cdot \bar{2} + 0 \cdot \bar{3}$ in p/q form Or Rationalize the denominator of the following : (i) $\frac{2}{\sqrt{3}-\sqrt{5}}$ (ii) $\frac{\sqrt{3}+\sqrt{2}}{\sqrt{3}-\sqrt{2}}$	2
23	If each side of a triangle is doubled then find the ratio of area of new triangle thus formed and the given triangle. or Prove that "If two angles and the included side of one triangle are equal to two angles and the included side of the other triangle, then the two triangles are congruent".	2

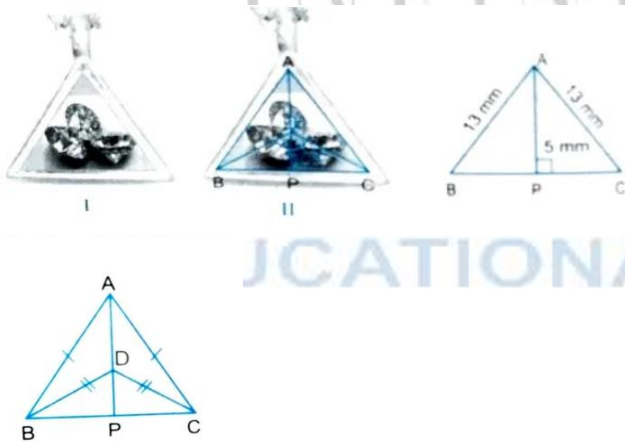
24	In figure, if $l_1 \parallel l_2$ and $l_3 \parallel l_4$. What is y in terms of x ?	2															
																	
25	A conical pit of top diameter 3.5 m is 12 m deep. What is its capacity in kilometres?	2															
<p style="text-align: center;">Section C Consists of 5 questions of 3 marks each.</p>																	
26	If $a + b + c = 0$, find the value of $\frac{(b+c)^2}{bc} + \frac{(c+a)^2}{ca} + \frac{(a+b)^2}{ab}$.	3															
27	In the given figure $l \parallel m$, then find the value of x .  <p style="text-align: center;">or</p> <p>In the below figure, if $AB \parallel CD$, $\angle APQ = 50^\circ$ and $\angle PRD = 127^\circ$, find x and y.</p> 	3															
28	The cost of four chairs and five tables Rs 3200 . Write a linear equation in two variables for this statement and find out of its two solutions .	3															
29	If $a = 2 + \sqrt{3}$, then find the value of $a - \frac{1}{a}$. <p style="text-align: center;">or</p> <p>If $\sqrt{2} = 1.414$, $\sqrt{3} = 1.732$, then find the value of $\frac{4}{3\sqrt{3}-2\sqrt{2}} + \frac{3}{3\sqrt{3}+2\sqrt{2}}$</p>	3															
30	The following table gives the life times of 400 neon lamps:	3															
<table><tr><th>Life time (in hours)</th><th>Number of lamps</th></tr><tr><td>300 – 400</td><td>14</td></tr><tr><td>400 – 500</td><td>56</td></tr><tr><td>500 – 600</td><td>60</td></tr><tr><td>600 – 700</td><td>86</td></tr><tr><td>700 – 800</td><td>74</td></tr><tr><td>800 – 900</td><td>62</td></tr><tr><td>900 – 1000</td><td>48</td></tr></table>		Life time (in hours)	Number of lamps	300 – 400	14	400 – 500	56	500 – 600	60	600 – 700	86	700 – 800	74	800 – 900	62	900 – 1000	48
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(i) Represent the given information with the help of a histogram. (ii) How many lamps have a life time of more than 700 hours?																	
31	For what value of m is $x^3 - 2mx^2 + 16$ divisible by $x + 2$?	3															
<p style="text-align: center;">Section D Consists of 4 questions of 5 marks each.</p>																	
32	The image of an object placed at a point A before a plane mirror LM is seen at the point B by an observer at D as shown in below Fig.. Prove that the image is as far behind the mirror as the object is in front of the mirror. 	5															
33	If $a = \frac{3+\sqrt{5}}{2}$ then find the value of $a^2 + \frac{1}{a^2}$.	5															

34	<p>P, Q, R and S are respectively the mid-points of the sides AB, BC, CD and DA of a quadrilateral ABCD such that $AC \perp BD$. Prove that PQRS is a rectangle.</p> <p>or</p> <p>P, Q, R and S are respectively the mid-points of sides AB, BC, CD and DA of quadrilateral ABCD in which $AC = BD$ and $AC \perp BD$. Prove that PQRS is a square.</p>	5
35	<p>A right circular cylinder just encloses a sphere of radius r. Find</p> <p>(i) surface area of the sphere,</p> <p>(ii) curved surface area of the cylinder,</p> <p>(iii) ratio of the areas obtained in (i) and (ii).</p>  <p>or</p> <p>Twenty seven solid iron spheres, each of radius r and surface area S are melted to form a sphere with surface area S'. Find the</p> <p>(i) radius r' of the new sphere,</p> <p>(ii) ratio of S and S'</p>	5

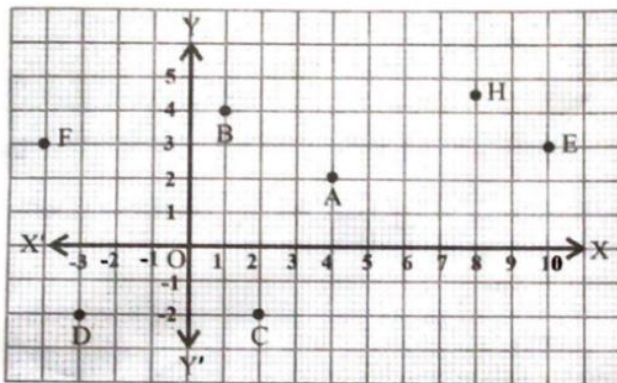
Section E

CASE BASE STUDY

Consists of 3 questions of 4 marks each.

36	<p>Look at the petite pedant giving dainty dazzle, crafted in white gold. It is triangular in shape studded with three sparkling diamonds. The sketch originally drawn by the artist designer and its details are for your reference to answer the given questions.</p> <p>$\triangle ABC$ is isosceles with $AB = AC$ and $\triangle DBC$ is isosceles with $BD = DC$.</p>  <p>Based on above, answer the following questions:</p> <p>(i) $\triangle ABD$ is congruent to ?</p> <p>(ii) If $\angle BDC = 100^\circ$, then $\angle DBC = ?$</p> <p>(iii) If the equal sides AB and AC of the given pendant are 13mm and its height from A to BC is 5mm then $BC = ?$</p> <p>Or</p> <p>Find the Area of the $\triangle ABC$.</p>	<p>1</p> <p>1</p> <p>2</p>
37	<p>Students of class IX are on visit of Sansad Bhawan. Teacher assigns them the activity to observe and take some pictures to analyse the seating arrangement between various MP and speaker based on coordinate geometry. The staff tour guide explained various facts related to Math's of</p>	

Sansad Bhawan to the students, students were surprised when teacher ask them you need to apply coordinate geometry on the seating arrangement of MP's and speaker.



Answer the following questions :

(i) Find the coordinates of minor image of point D with respect to x – axis .

(ii) Find the perpendicular distance of the point E from the y – axis .

(iii) Find : (abscissa of A) – (ordinate of B)

or

Find the area of triangle formed by joining points B,D and C.

1
1
2

38

Mathematics teacher of a school took her 9th standard students to show Red fort. It was part of their Educational trip. The teacher had interest in history as well. She narrated the facts of Red fort to students. Then the teacher said in this monument one can find combination of solid figures. There are 2 pillars which are cylindrical in shape. Also 2 domes at the corners which are hemispherical. 7 smaller domes at the centre. Flag hoisting ceremony on Independence Day takes place near these domes.



Answer the following questions based on information mentioned above

(i) How much cloth material will be required to cover to big domes each of radius 2.5m?

(ii) Find the lateral surface area of two pillars if height of each is 7m and radius is 1.4m ?

(iii) How much is the CSA and Volume of hemisphere if radius is 3.5m?

or

What is the ratio of volumes of two hemisphere of radius 1m each to volume of sphere of radius 2cm?

1
1
2

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