PRACTICE PAPER
TERM – 2 (2025-26)
CLASS-IX
SUBJECT- MATHEMATICS

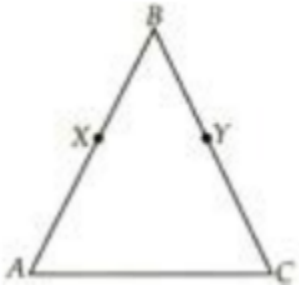
M.MARKS=80 **TIME: 3HOURS**

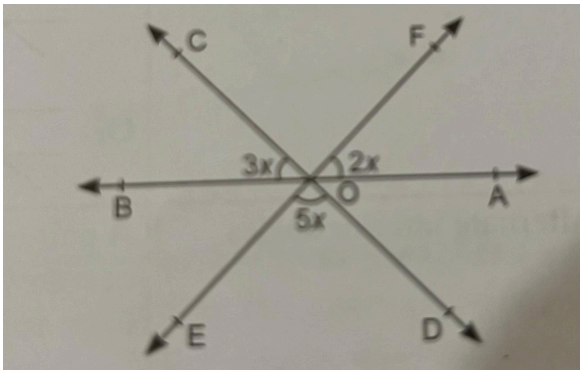
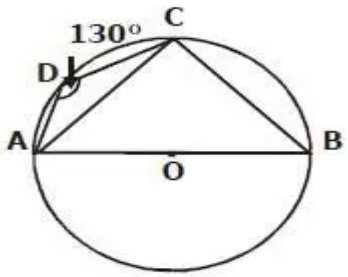
General Instructions:

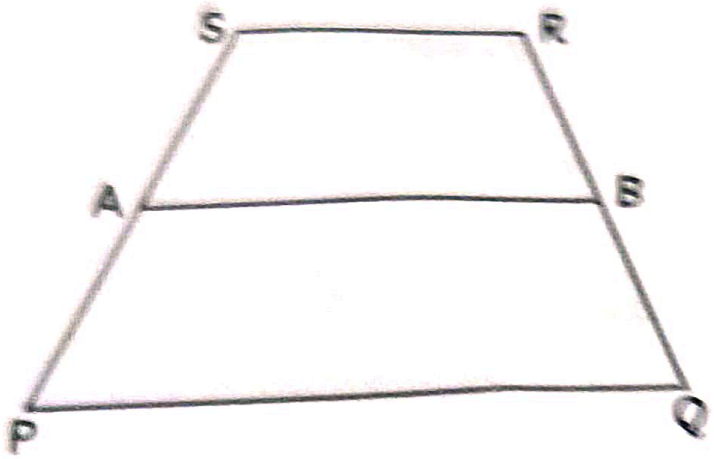
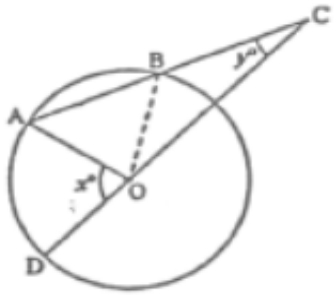
Read the following instructions carefully and follow them:

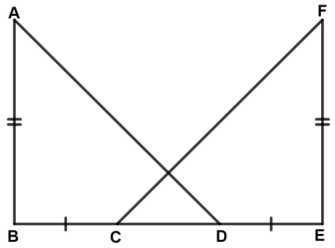
1. This question paper contains 38 questions. All Questions are compulsory.
2. This Question Paper is divided into 5 Sections A, B, C, D and E.
3. In Section A, Question numbers 1-18 are multiple choice questions (MCQs) and questions no. 19 and 20 are Assertion- Reason based questions of 1 mark each.
4. In Section B, Question numbers 21-25 are very short answer (VSA) type questions, carrying 02 marks each.
5. In Section C, Question numbers 26-31 are short answer (SA) type questions, carrying 03 marks each.
6. In Section D, Question numbers 32-35 are long answer (LA) type questions, carrying 05 marks each.
7. In Section E, Question numbers 36-38 are case study-based questions carrying 4 marks each with sub parts of the values of 1, 1 and 2 marks each respectively.
8. There is no overall choice. However, an internal choice in 2 questions of Section B, 2 questions of Section C and 2 questions of Section D has been provided. An internal choice has been provided in all the 2 marks questions of Section E.
9. Draw neat and clean figures wherever required. Take $\pi = \frac{22}{7}$ wherever required if not stated.
10. Use of calculators is not allowed.

SECTION A **Section A consists of 20 questions 1 mark each**		
Q.NO	**QUESTIONS**	**MARKS**
Q1	**A rational number between $\sqrt{2}$ and $\sqrt{3}$ is** **A)** $\frac{\sqrt{2}+\sqrt{3}}{2}$ **B)** $\frac{\sqrt{2}\times\sqrt{3}}{2}$ **C) 1.5** **D) 1.8**	**1**

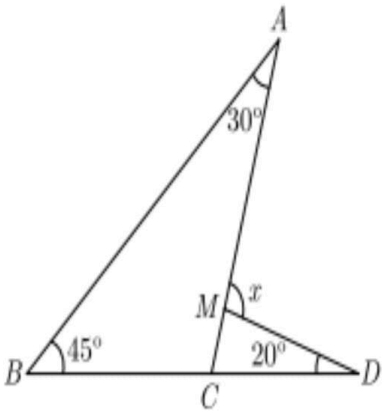
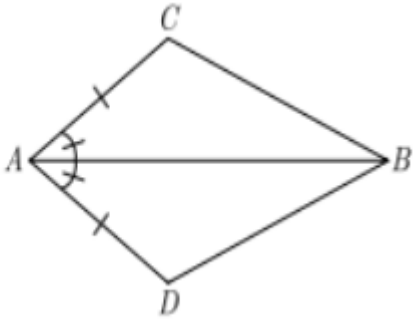
Q2	**The value of $0.\overline{5} + 0.\overline{9}$ in the form of p/q, where p and q are integers and q ≠ 0 is** **A)** $\overline{1.4}$ **B)** $\frac{14}{9}$ **C)** $\frac{7}{5}$ **D)** $\frac{7}{45}$	**1**
Q 3	**If the coordinates of two points are A(5,-2) and B(-7,8) then find $\frac{1}{3}$(Abscissa of B - Ordinate of A)** **A)** $\frac{-5}{3}$ **B) -3** **C) 3** **D)** $\frac{5}{3}$	**1**
Q4	**In the given figure, if AB = BC and BX = BY , then**  **A) AX = CY** **B) AC = XY** **C) AY = CX** **D) BX = CY**	**1**
Q5	**A point P(x,y) lies in the second quadrant, if the signs of x and y are interchanged then it will lie in** **A) I quadrant** **B) II quadrant** **C) III quadrant** **D) IV quadrant**	**1**
Q6	**In the given figure ,measure of ∠AOD is**	**1**

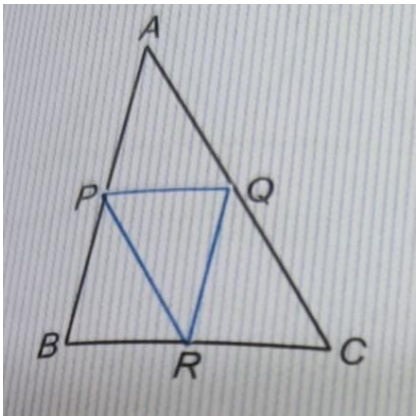
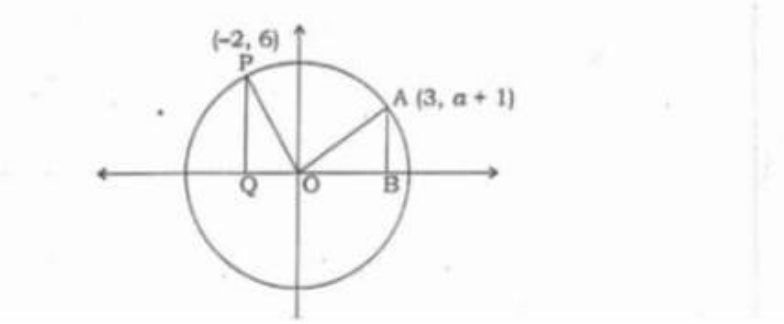
	 **(A)** 36° **(B)** 90° **(C)** 54° **(D)** 18°	
Q7	**In the given figure,AOB is a diameter and ABCD is a cyclic quadrilateral.If $\angle ADC=130^{\circ}$,then $\angle BAC$ is**  **(A) 90˚ (B) 25˚ (C) 50 ˚ (D) 40˚**	**1**
Q8	**PQRS is a trapezium in which PQ‖ SR , SR =40 cm and PQ=60 cm. If A and B are mid points of PS and QR, then the value of $\frac{area\ (SABR)}{area(APQB)}$ is :**	**1**

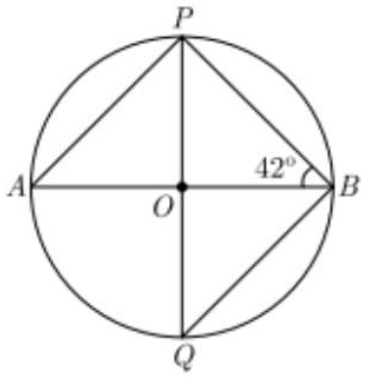
	 **A)** $\frac{9}{7}$ **B)** $\frac{11}{9}$ **C)** $\frac{7}{9}$ **D)** $\frac{9}{11}$	
Q9	**AB is a chord of the circle with centre O and AB is produced to C such that BO = BC. CO produced meets the circle at D. If ∠ACD = y and ∠AOD = x, then**  **A) x=3y always** **B) x=2y always** **C) x=4y always** **D) x=2y or x=3y**	**1**

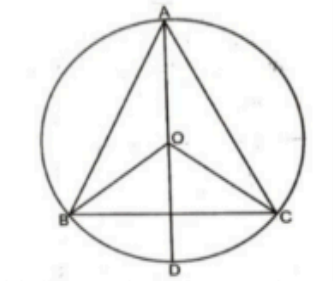
Q10	**A cone and a hemisphere have equal bases and equal volumes then the ratio of their respective heights is** **A) 1:2 B) 2:1 C) 4:1 D) $\sqrt{2}$:1**	**1**
Q11	**The number of lines that can pass through a given point is:** **A) 2 B) 1 C) none D) infinitely many**	**1**
Q12	**If the areas of three adjacent faces of a cuboid are $15cm^2$, $20cm^2$ and $12cm^2$,then the volume of the cuboid is** **A) 3600 cm^3 B) 60 cm^3 C) 120 cm^3 D) 450cm^3**	**1**
Q13	**If one of the angles of a triangle is 130° ,then the angle between the bisectors of the other two angles can be** **A) 50˚ B) 65˚ C) 155 ˚ D) 145˚**	**1**
Q14	**If (2x+5) is a factor of ($2x^2$ -k) then the value of k is** **A) 2 B) 25 C) -1 D) $\frac{25}{2}$**	**1**
Q15	**In the given figure, AB ⊥ BE, EF ⊥ BE, AB = EF and BC = DE, then**  **A) △ABD≅△FEC B) △ABD≅△EFC** **C) △ABD≅△ECF D)△ABD≅△CEF**	**1**

Q16	**In the triangles ABC and DEF, AB=FD and ∠A=∠D. The two triangles will be congruent by SAS axiom if** **(A) BC=EF (B) AC=DE. (C) AC=EF (D) BC=DE**	**1**
Q17	**The area of an isosceles triangle whose base is 'a' and equal sides are of length 'b' is** **A)** $\frac{a}{4}\sqrt{4b^2 - a^2}$ **B)** $\frac{b}{4}\sqrt{4b^2 - a^2}$ **C)** $\frac{b}{2}\sqrt{4b^2 - a^2}$ **D)** $\frac{a}{2}\sqrt{4b^2 - a^2}$	**1**
Q18	**If** $\frac{x}{y} + \frac{y}{x} = -1,\ x, y \neq 0$ **then the value of** $x^3 - y^3$ **is:** **A) -1 B) 1 C) 0 D)** $\frac{1}{2}$	**1**
	DIRECTION: In the question number 19 and 20, a statement of **Assertion (A)** is followed by a statement of **Reason (R)**. Choose the correct option A)Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A) B)Both assertion (A) and reason (R) are true and reason (R) is not the correct explanation of assertion (A) C)Assertion (A) is true but reason (R) is false. D)Assertion (A) is false but reason (R) is true.	
Q19	**Assertion(A):- If the class mark of the class interval(10-x) is 20,then the upper limit x=30.** **Reason(R):-** $UpperLimit + LowerLimit = \frac{class\ mark}{2}$	**1**
Q20	**Assertion(A):The points (-3,5) and (5,-3) are at different positions in the coordinate plane.** **Reason(R):- If x is not equal to y,then (x,y) is not equal to**	**1**

	(y,x).	
SECTION B **Section B consists of 5 question each carry 2 marks**		
Q21	**In the given , find the value of x.**  **OR** **In the given figure, if BC=2.6 cm, then $2BD + \frac{BC}{2}$**  	**2**
Q22	**In the given figure, P, Q, R are midpoints of AB, BC, AC respectively . If AB=10 cm, BC= 8 cm and AC=12 cm, find perimeter of $\triangle$PQR.**	**2**

		
Q23	**If** $a + b + c = 6$**, find the value of :** $(2 - a)^3 + (2 - b)^3 + (2 - c)^3 - 3(2 - a)(2 - b)(2 - c)$ **OR** **If x=7+4**$\sqrt{3}$**,find the value of (**$\sqrt{x} + \frac{1}{\sqrt{x}}$**)**	**2**
Q24	**The** $ar(\triangle OAB) = ar(\triangle$**OPQ), find the ordinate of point A.** 	**2**
Q25	**In the following figure, find the measure of ∠PQB, where O is the centre of the circle.**	**2**

		
SECTION C **Section C consists of 6 questions each carry 3 marks**		
Q26	**A cloth having an area of 165 m^2 is shaped into the form of a conical tent of radius 5m.** **(i) How many students can sit in the tent if a student, on an average, occupies $\frac{5}{7} m^2$ on the ground ?** **(ii) Find the volume of the cone.** **OR** **The water for a factory is stored in a hemispherical tank whose internal diameter is 14 m. The tank contains 50 kilolitres of water. Water is pumped into the tank to fill its capacity. Calculate the volume of water pumped into the tank .**	**3**
Q27	**If $a^x = b^y = c^z$ and $b^2 = ac$, prove that $\frac{1}{x} + \frac{1}{z} = \frac{2}{y}$** **OR** **If $x^4 + \frac{1}{x^4} = 47$. Find the value of $x^3 + \frac{1}{x^3}$**	**3**
Q28	**By using a suitable identity, factorise the following expression :**	**3**

	$a^3 + \frac{1}{a^3} - 2$	
Q 29	**In the given figure, O is the centre of the circle. If diameter AD bisects ∠ BOC, prove that ∠BOD and ∠OBC are complementary angles.** 	**3**
Q30	**Find the value of a and b , if the line 6ax + by = 24 passes through (2,0) and (1, 2).**	**3**
Q31	**If each side of a triangle is doubled, then find the ratio of the area of the new triangle thus formed and the given triangle. Also, find the percentage increase in area.**	**3**
SECTION D Section D consists of 4 questions each carry 5 marks		
Q32	**A random survey of the number of children of various age groups playing a football match in a park was found as follows:**	**5**

Age in years	No of children
1-2	5
2-3	4
3-5	10
5-7	12

7-10	9
10-15	10
15-17	8

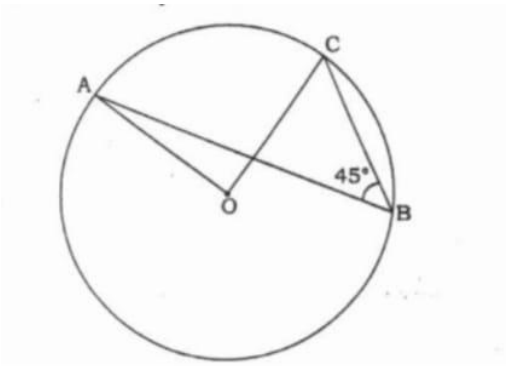
Draw histogram for above data

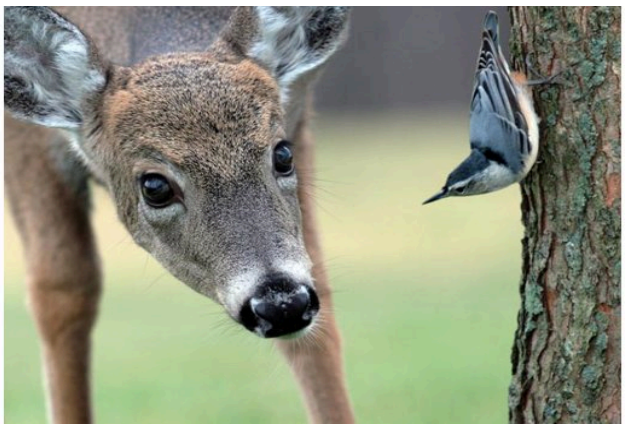
OR

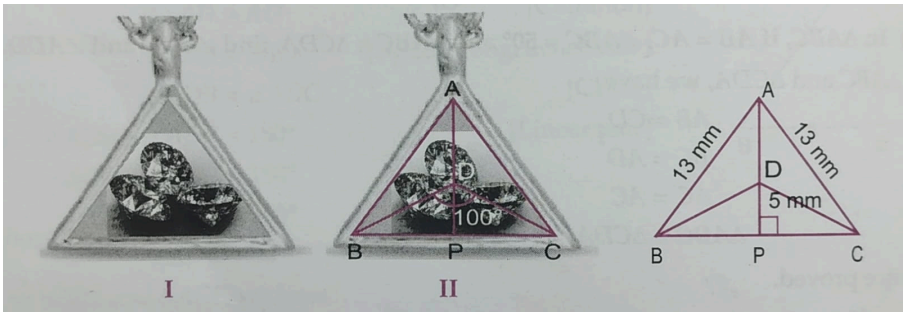
Draw a histogram to represent the following grouped frequency distribution:

Age in years	Number of Teachers
20-24	10
25-29	28
30-34	32
35-39	48
40-44	50
45-49	35
50-54	12

Q33	**Prove that the angle subtended by an arc of a circle at the centre is double the angle subtended by it at any point on the remaining part of the circle.** **On the basis of above theorem** **In figure $\angle ABC = 45°$, prove that $OA \perp OC$.**	**5**

		
Q34	**Find the values of a and b so that the polynomial** $x^3 - ax^2 - 13x + b$ **has** $(x - 1)$ **and** $(x + 3)$ **as factors.** **OR** **Factorize :** $a^7 - ab^6$	**5**
Q35	**Simplify :** $\frac{7\sqrt{3}}{\sqrt{10}+\sqrt{3}} - \frac{2\sqrt{5}}{\sqrt{6}+\sqrt{5}} - \frac{3\sqrt{2}}{\sqrt{15}+3\sqrt{2}}$	**5**
SECTION E **Section consists of 3 question of case study based each carry 4 marks**		
Q36	**Teachers and students of class IX of a school had gone to Nandan Kannan for a study tour. After visiting different places of Nandan Kannan , lastly , they visited a bird sanctuary and a deer park .Rohan is a clever boy and keen observer . He asked his friends " How many birds are there and how many deers are there (at particular time) in Nandan Kannan ?" Rahul's friend , Nishith gave the correct answer as follows:** **'Nishith answered that total animals have 1000 eyes and 1400 legs'**	**4**

	 **Based on the above information, answer the following questions ,assuming number of birds as ‘ x ’ and number of deers as ‘ y ‘.** **(i) Form a linear equation in two variables for the total number of eyes .** **(ii) Form a linear equation in two variables for the total number of legs.** **(iii) Find the number of birds in the zoo .** **OR** **Find the number of deers in the zoo.**	
Q37	**Look at the petite pendant 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.**	**4**

	 **ΔABC is isosceles, AB = AC & ΔDBC is isosceles, BD = DC** **Based on the above information, answer the following questions:** **(i) Show that $\Delta ABD \cong \Delta ACD$.** **(ii) Show that ΔABP$\cong\Delta$ACP.** **(iii) If $\angle BDC$ = 100^0 then find the measure of $\angle DBC$.** **OR** **If the equal sides AB and AC of a given pendant are 13 mm and its height from A to BC is 5 mm then find the length of BC.**	
Q38	**Sanchi stupa is a UNESCO World Heritage site and is located in Madhya Pradesh. It was built by Ashoka in the 3rd century BCE. Its nucleus was a simple hemispherical brick structure built as one of the relics of the Buddha. It was crowded by the chhatra for the honour and shelter of the relics. On measuring the dimensions of the great stupa, it was found that its diameter is approximately 36m and its height is 16m.**	**4**

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

(i) Find the volume of air filled in the stupa.

(ii) From inside the dome, it was whitewashed at the cost of ₹ 20366. If the cost of white washing is ₹ 10 per m^2, then what will be the inside surface area of the dome?

(iii) The architect was asked to cover the top-most chhatra by a conical chhatra of radius 4m and height 3m. Find the area of the silk cloth required to prepare the conical chhatra?

OR

If a sphere has the same surface area as the total surface area of the hemispherical dome of Sanchi. Find the ratio of their radii if r_1 is the radius of the sphere and r_2 is the radius of the hemisphere?

Note:- Please refer sample paper issued by CBSE