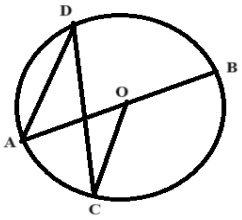
VIKAS BHARATI PUBLIC SCHOOL
SAMPLE PAPER (SESSION 2025-26)
CLASS: IX
SUBJECT: MATHEMATICS (041)

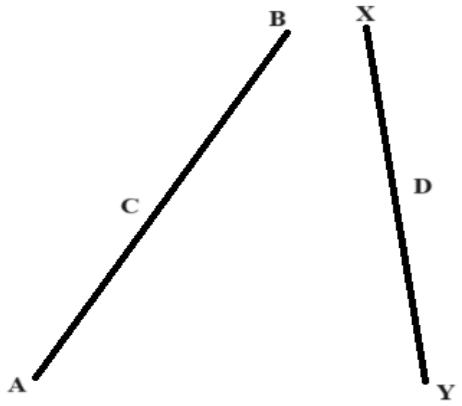
Time : 3 Hours **M.M: 80**

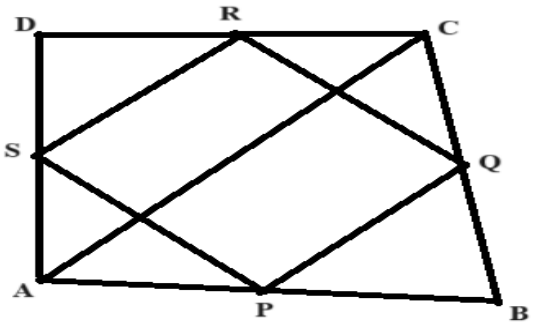
General Instructions:

- **This question paper has 5 Sections A - E.**
- **Section A has 20 MCQ's carrying 1 mark each, Section B has 5 questions carrying 2 marks each.**
- **Section C has 6 questions carrying 3 marks each, Section D has 4 questions of 5 marks each, Section E has 3 case based integrated units of assessment.**
- **Attempt all questions. Draw figures wherever required.**

		SECTION A	
1.		Given a polynomial $p(t) = t^4 - t^3 + t^2 + 6$,then p(-1) is a) 6 b) 9 c) 3 d) - 1	**1**
2.		The coordinates of a point which lies on both x axis and y axis are a) (0 , 0) b) (0 , 1) c) (1 , 0) d) (1 , 1)	**1**
3.		The coefficient of x in the expansion of $(x + 3)^3$ is a) 9 b) 1 c) 18 d) 27	**1**
4.		If AB = QR , BC = PR and CA = PQ , then a) Δ ABC $\cong$ Δ PQR b) Δ CBA $\cong$ Δ PRQ c) Δ BAC $\cong$ Δ RPQ d) Δ PQR $\cong$ Δ BCA	**1**
5.		One angle of a quadrilateral is 108^0 and the remaining three angles are equal. Then the equal angles have measure _____ . a) 55^0 b) 72^0 c) 68^0 d) 84^0	**1**
6.		AD is a diameter of a circle and AB is a chord. If AD = 34 cm, AB = 30 cm, the distance of AB from the centre of the circle is a) 5 cm b) 7 cm c) 8 cm d) 10 cm	**1**
7.		The condition that the equation ux + vy + w = 0 represents linear equation in two variables is a) $u \neq 0$ b) u = 0 , v = 0 c) $u \neq 0 , v \neq 0$ d) $w \neq 0$	**1**

8.		In the given figure , O is the centre of circle. If $\angle BOC = 120^0$, then the value of $\angle ADC$ is  a) 45^0 b) 90^0 c) 30^0 d) 60^0	**1**
9.		If (2p – 1 , p) is a solution of the equation 9y +12 = 10x , then the value of p is a) 0 b) - 1 c) -2 d) 2	**1**
10.		If one third of an angle is equal to its supplement, then the measure of the angle is a) 135^0 b) 125^0 c) 110^0 d) 105^0	**1**
11.		If (x-a) is a factor of $x^3 – mx^2 – 2xan + na^2$; $a \neq 0$ then a = ? a) m + n b) m - n c) m \ n d) mn	**1**
12.		How many linear equations are satisfied by x = 1 and y = - 4 ? a) 2 b) 1 c) infinitely many d) 3	**1**
13.		An isosceles triangle has perimeter 30 cm and each of the equal sides is 12 cm. The area of triangle will be a) $9\sqrt{15}$ cm^2 b) $11\sqrt{15}$ cm^2 c) $17\sqrt{15}$ cm^2 d) $15\sqrt{15}$ cm^2	**1**
14.		The perpendicular distance of the point P (3, 4) from y axis is a) 5 units b) 3 units c) 4 units d) 7 units	**1**
15.		Euclid stated that all right angles are equal to each other in the form of a) an axiom b) a definition c) a postulate d) a theorem	**1**
16.		Diagonals of a parallelogram ABCD intersect at O. If $\angle BOC = 90^0$ and $\angle BDC = 50^0$, then $\angle OAB$ is a) 90^0 b) 50^0 c) 40^0 d) 10^0	**1**
17.		The angles of a triangle are in the ratio 5 : 3: 7. The triangle is a) An acute angled triangle b) An obtuse angled triangle c) A right angled triangle d) An isosceles triangle	**1**
18.		In a triangle ABC, $\angle A = 40^0$ and AB = AC. Then $\angle B : \angle C$ = ? a) 1: 3 b) 1 : 1 c) 1 : 2 d) 2 : 1	**1**

		Directions: In 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.**	
19.		**Assertion** : Rajesh and Ram purchased some shares of equal value in the month of February. But in the month of April the value of shares decreased down to the half the value in February. Now, the share value of Rajesh and Ram is same in the month of April. **Reason :** Things that are halves of the same thing are equal to one another.	**1**
20.		**Assertion** : The number of times an observation occurs is called the frequency. **Reason :** A frequency distribution in which each upper limit of each class is excluded and the lower limit is included is called continuous form.	**1**
		SECTION B	
21.		Find the coordinates of the point whose	**2**
	a.	ordinate is – 4 and which lies on y axis.	
	b.	abscissa is 5 and which lies on x axis.	
22.		Find the value of a in the following: $\frac{6}{3\sqrt{2}-2\sqrt{3}} = 3\sqrt{2} - a\sqrt{3}$	**2**
		OR	
		Express $\frac{\sqrt{5}}{\sqrt{7}-2}$ with rational denominator.	
23.		In the adjoining figure, we have , AC = XD. C is the mid point of AB and D is the mid point of XY. Using Euclid's axiom, show that AB = XY.  	**2**

24.		Check whether x = 2 , y = - 1 is a solution of the following equation or not. 2x – 3y = -1	**2**
		OR	
		If x = 1 and y = 6 is a solution of the equation 8x – ay + a = 0, then find the value of a.	
25.		How is a bar graph different from histogram?	**2**
		SECTION C	
26.		Represent $\sqrt{3}$ on number line.	**3**
27.		Prove that angles opposite to equal sides of an isosceles triangle are equal.	**3**
28.		A solid metallic sphere of diameter 21 cm is melted and recast into a number of smaller cones, each of diameter 3.5 cm and height 3 cm. Find the number of cones so formed.	**3**
		OR	
		The curved surface area of a cone is 12,320 sq cm. If the radius of its base is 56 cm, find its height.	
29.		If two intersecting chords of a circle intersect within a circle make equal angles with the diameter passing through their point of intersection, prove that the chords are equal.	**3**
		OR	
		 ABCD is a quadrilateral in which P, Q, R , S are mid points of the sides AB , BC , CD and DA respectively. AC is the diagonal. Show that	
	a.	SR ∥ AC and SR = $\frac{1}{2}$ AC	
	b.	PQ = SR	
	c.	PQRS is a parallelogram.	

30.		Draw a histogram for the following marks obtained (out of 100) by a class of 50 students. | Marks	10 - 20	20 - 30	30 - 40	40 - 50	50 - 60
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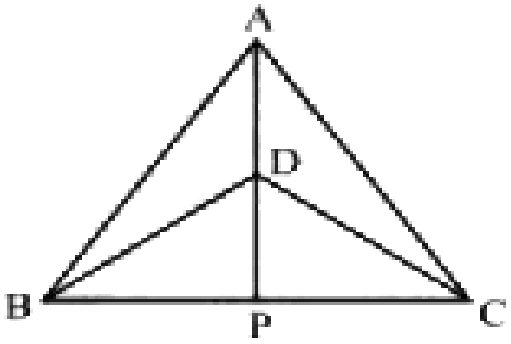
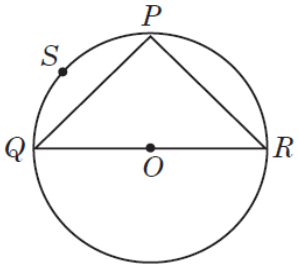
Number of students	18	10	15	3	4		**3**
31.		Factorize using appropriate identity : $2\sqrt{2}\,a^3 + 8b^3 - 27c^3 + 18\sqrt{2}\,abc$.	**3**
		SECTION D	
32.		The points A(a ,b) and B (b, 0) lie on the line given by the equation y = 8x + 3.	
	a)	Find the value of b	**1**
	b)	Find the value of a	**2**
	c)	Is (2, 0) a solution of y = 8x + 3?	**1**
	d)	Find whether the given equation of line passes through origin or not ?	**1**
33.		 Δ ABC and Δ DBC are two isosceles triangles on the same base BC and vertices A and D are on same side of BC. If AD is extended to intersect BC at P, show that	**5**
	a)	ΔABD ≅ ΔACD	
	b)	ΔABP ≅ ΔACP	
	c)	AP bisects ∠A as well as ∠ BDC.	

34.		If x is a positive real number and the exponents are rational numbers, then simplify $\left(\frac{x^b}{x^c}\right)^{b+c-a}$ x $\left(\frac{x^c}{x^a}\right)^{c+a-b}$ X $\left(\frac{x^a}{x^b}\right)^{a+b-c}$	**5**
		OR	
		Express the following in $\frac{p}{q}$ form : $0.\overline{4} + 0.1\overline{8} + 0.\overline{2}$	
35.		The lengths of the sides of a triangle are in ratio 5: 4: 3 and its perimeter is 96 cm.	**5**
	a)	Find the area of the triangle.	
	b)	Find the height of the triangle corresponding to the longest side.	
		OR	
		The cost of turfing a triangular field at the rate of Rs 5 per sq meter is Rs 6720. If the sides of the field are in the ratio 4: 7: 9, find the sides of the field. (Use $\sqrt{5} = 2.24$)	
		SECTION E	
36.		Ankit visited a mall with his father. He sees that three shops are situated at P, Q, R as shown in the figure from where they have to purchase things according to their needs. Distance between shop P and Q is 8 m, that of between shop Q and R is 10 m and between shop P and R is 6 m.   Considering O as the centre of the circle, answer the following questions.	
	a)	Find the radius of the circle.	**1**
	b)	Find area of Δ PQR.	**1**
	c)	Find length of the longest chord of the circle.	**1**

	d)	In figure, what is the region PSQP is known as?	**1**
37.		Juhi lives in Goa where there are lots of coconut trees. One day she bought a spherical shaped coconut and consumed the water inside it. She used her creativity for decorating its outer covering. If the radius of coconut was 21 cm (considering the thickness to be negligible), answer the following questions. 	**4**
	a)	What will be the surface area of spherical coconut?	
	b)	What was the volume of the coconut water she consumed?	
38.		A father had three sons A ,B and C. The height of A is (x+ 1) m and height of B is 1 m more than the height of A. Also the product of heights of three sons is given by $(x^3 + 6x^2 + 11x + 6)$ m^3. Based on the above information answer the following questions	
	a)	Find the height of C in terms of x.	**3**
	b)	Find the value of the polynomial that represents the product of heights of three sons at x = 4	**1**