INDIAN SCHOOL AL WADI AL KABIR

Final Examination Revision Paper (2022-23)

Class: IX Sub: MATHEMATICS Max Marks: 80

Date: /02/23 Time:3 hours

General Instructions:

1. This question paper has 5 sections- A - E.
2. Section A- PART-1(MCQ) comprises of 18 questions of 1 mark each.
3. Section A- PART-2(Assertion and Reason) comprises of 2 questions of 1 mark each.
4. *Section B* comprises of 5 questions of 2mark each.
5. Section *C* comprises of 6 questions of 3 marks each.
6. Section D comprises of 3 Case based integrated units of assessment (4 marks each) with sub-parts of the values 2, 1 and 1 marks each respectively.
7. Section E comprises of 4 questions of 5 marks each.
8. All questions are compulsory; however, an internal choice has been provided for certain questions.

Section A

PART-1(MCQ-1 mark each)

Q.1. The degree of the polynomial p(x) = $\sqrt{5}$ is

	A	5	**B**	$\sqrt{5}$	**C**	1	**D**	0

Q.2. The decimal number $2.2\overline{18}$ in the form of $\frac{p}{q}$, where p and q are integers and $q \neq 0$ is

	A	$\frac{12}{5}$	**B**	$\frac{122}{55}$	**C**	$\frac{22}{5}$	**D**	$\frac{21}{55}$

Q. 3. 1000 families with two children were selected randomly and following data was recorded as follows:

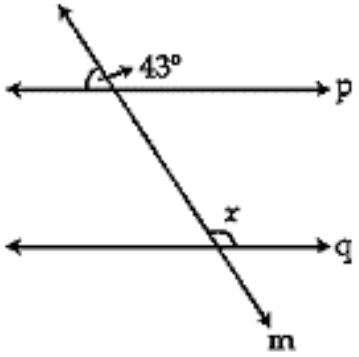
Number of girls in a family	0	1	2
Number of families	198	527	275

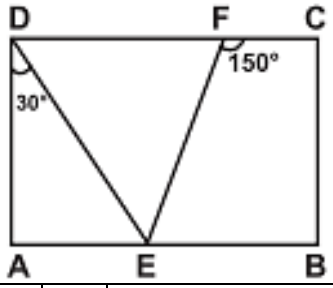
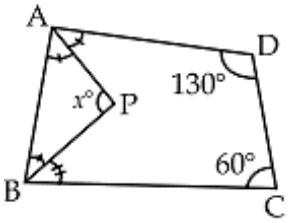
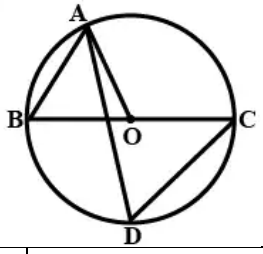
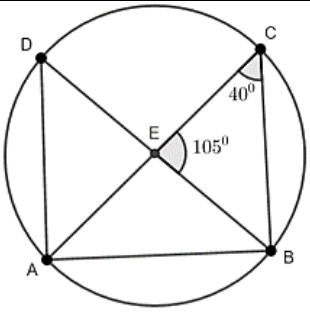
If a family member is chosen at random, find the probability that it has 2 boys

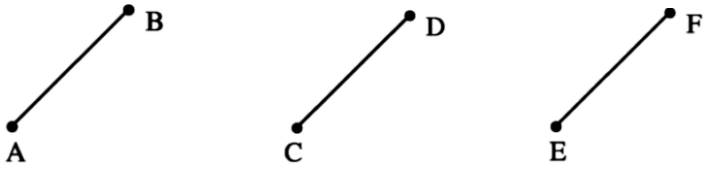
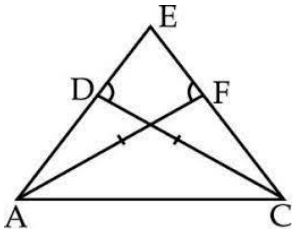
	A	$\frac{99}{500}$	**B**	$\frac{11}{40}$	**C**	0.527	**D**	$\frac{29}{40}$

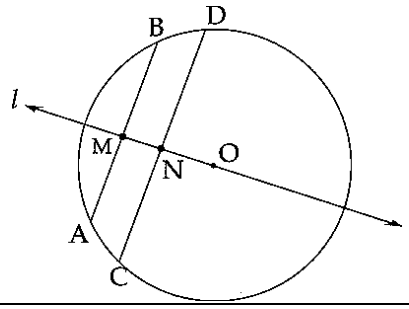
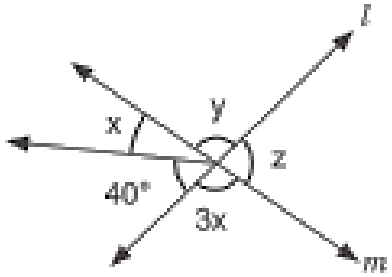
Q. 4. Which of the following equations represents a line parallel to y -axis?

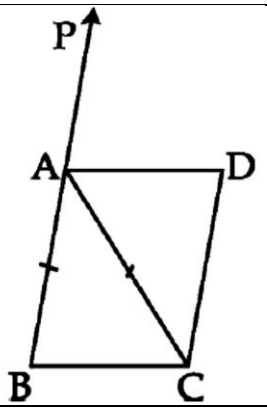
	A	2y = 5x	**B**	2y = 5	**C**	2x = 5	**D**	2x + 3y = 5

Q. 5.	According to Euclid's definition, the edges of a surface are							
	A	points	**B**	lines	**C**	plane	**D**	surfaces
Q. 6.	If p ∥ q then x is 							
	A	137°	**B**	117°	**C**	48°	**D**	47°
Q.7.	In ΔABC, AB = BC, ∠B = 50°, then ∠A is equal to							
	A	130°	**B**	45°	**C**	65°	**D**	100°
Q.8.	If a + b + c = 9 and ab + bc + ca = 26, find $a^2 + b^2 + c^2$							
	A	81	**B**	676	**C**	29	**D**	133
Q.9.	The coordinates of the point which lies on $y - axis$ at a distance of 4 units in negative direction of $y - axis$							
	A	(-4,0)	**B**	(4,0)	**C**	(0, -4)	**D**	(0,4)
Q.10	In ΔABC and ΔDEF, AB = DE, ∠A = ∠D. The two triangles will be congruent by SAS congruence if							
	A	BC = EF	**B**	AC = DF	**C**	AC = EF	**D**	BC = DF
Q.11.	If $x = \sqrt{3} - 2$, find the value of $\left(x + \frac{1}{x}\right)^3$							
	A	27	**B**	64	**C**	-36	**D**	-64
Q.12.	The graph of the linear equation $4x - 3y = 12$ cuts $y - axis$ at							
	A	(6, 0)	**B**	(4, 0)	**C**	(0, -6)	**D**	(0, -4)

Q.13.	In the given figure, ABCD is a rectangle. ∠ADE = 30° and ∠CFE = 150°. Find the measure of ∠DEF. 						
	A	90°	**B**	75°	**C**	110°	**D** 85°
Q.14.	In quadrilateral ABCD, AP and BP are bisectors of ∠A and ∠B respectively, then the value of x is 						
	A	60°	**B**	85°	**C**	95°	**D** 100°
Q.15.	In fig, BC is a diameter of the circle and ∠BAO = 60°, then ∠ADC is 						
	A	30°	**B**	60°	**C**	120°	**D** 45°
Q.16.	In the given figure, ∠ECB = 40° and ∠CEB = 105°, then ∠EAD is 						
	A	40°	**B**	50°	**C**	20°	**D** 35°
Q.17.	Volume of a hemisphere is 19404 cubic cm. The total surface area is						
	A	4272 cm^2	**B**	4158 cm^2	**C**	5544 cm^2	**D** 1386 cm^2
Q.18.	The hollow sphere, in which the circus motorcyclist performs his stunts, has a diameter of 7 m. Find the area available to the motorcyclist for riding.						
	A	200 m^2	**B**	74 m^2	**C**	154 m^2	**D** 324 m^2

Section A PART-2 ASSERTION AND REASON Type Questions (1 mark each)	
	DIRECTION: In each of the following questions, a statement of Assertion is given followed by a corresponding statement of Reason just below it. Choose the correct statement from the options as: 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.
Q.19.	**Assertion:** Given a circle of radius r and with centre O. A point P lies in a plane such that OP > r, then point P lies on the exterior of the circle. **Reason:** The region between an arc and the two radii, joining the centre of the end points of the arc, is called a sector.
Q.20.	**Assertion:** Decimal expansion of every rational number is only terminating **Reason:** Decimal expansion of every irrational number is terminating recurring
Section B (2 mark each)	
Q.21.	Find the area of an isosceles triangle whose base is 16 cm and one of its equal sides is 10 cm. **OR** Find the area of an equilateral triangle if its perimeter is 18 cm.
Q.22.	In the given figure, if AB = CD and CD = EF, is AB = EF? State which axiom is used here. 
Q.23.	In the figure if AF=CD, and ∠AFE = ∠CDE, prove that EF = ED 
Q.24.	A conical tent is 15 m high and the radius of its base is 20 m. Find the cost of the canvas required to make the tent at the rate of Rs 7 per m^2.

	OR A hemispherical bowl is made of steel 0.25 cm thick. If the inner radius of the bowl is 3.25 cm, then find the outer curved surface area of the bowl.
Q.25.	Find two irrational numbers between $\frac{5}{7}$ and $\frac{9}{11}$ **OR** Represent $\sqrt{5}$ on the number line.
Section C (3 mark each)	
Q.26.	Prove that equal chords of a circle subtend equal angles at the centre. OR In the given figure, a straight-line l passing through the centre O of the circle bisects the chords AB and CD. Prove that AB ∥ CD. 
Q.27.	In the given figure, l and m are intersecting lines. Find x, y and z. 
Q.28.	For what value of k, is the polynomial $p(x) = 2x^3 - kx^2 + 3x + 10$ exactly divisible by $(x + 2)$? **OR** Factorise $x^3 + 6x^2 + 5x - 12$.

Q.29.	In the given figure, ABC is an isosceles triangle in which AB = AC. AD bisects the exterior angle PAC and CD ∥ AB. Show that (i) ∠DAC = ∠BCA and (ii) ABCD is a parallelogram. 
Q.30.	Draw the graphs of the equations $x + y = 10$ and $2x - y = 5$ and find their point of intersection of lines representing the equations.
Q.31.	i) Plot the points A(0,4), B(-3,0), C(0,-4), D(3,0). ii) Name the figure obtained by joining the points A, B, C and D. iii) Also, name the quadrants in which sides AB and AD lie.
Section D (CASE STUDY BASED QUESTIONS - 4MARKS EACH)	
Q.32.	CASE STUDY BASED-I SAVE ANIMALS: Animals are an integral part of the nature. Animals also have a role to play in our daily lives. Every animal has a place in the ecosystem in the food chain to keep life in balance. 'Save Animals' must be a made into an awareness program for all to understand the value of animal life. Social workers started a campaign to protect animals. They prepared cardboard banners in the shape of equilateral triangles as shown in the figure.  (i) If the perimeter of a banner is 120 cm, then find the measure of one side. (1m) (ii) Find the area of one cardboard banner. (1m) (iii) Find the area of 25 cardboard banners. (2m) OR If cardboard costs ₹ 1 per 10 cm^2 , find the total cost of 5 such banners. (Take √3 = 1.73)

Q.33. CASE STUDY BASED-II

Three friends Vicky, Shubham and Gini start a business together. They decided to share their capitals depending upon the variable expenditure. The capital of the three partners together is given by $y^3 - 4y^2 + y + 6$, which is the product of their individual share factors.

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

(i) Find the capital of Vicky, Shubham and Gini together when $y = 10$ (in ₹). (1)

(ii) Find the zero of the polynomial p(x) = 3x – 4 (1)

(iii) Give the possible expressions for Vicky, Shubham and Gini's share. (2)

OR

Using Factor theorem, find the value of 'a' if $2x^4 + ax^3 + 4x^2 - x + 2$ is divisible by $2x + 2$.

Q.34. CASE STUDY BASED-III

Prime Minister's National relief fund is the fund raised to provide support for people affected by natural and man-made disasters. Natural disasters that are covered under this include flood, cyclone, earth quake etc. Man-made disasters that are included are major accidents, acid attacks, riots etc.

Two friends Sita and Gita together contributed ₹200 towards PMNF.

Answer the following questions:

(i) Represent the above situation as a linear equation in two variables.

(ii) If Sita contributed Rs. 76, then how much was contributed by Gita?

(iii) What is the standard form of the linear equation $x = -5$?

OR

The linear equation $3x = 2y$ when expressed in the form $ax + by + c = 0$, then find the values of a, b and c.

Section E (5 mark each)

Q.35. Draw a histogram and frequency polygon for the following data:

Age (in years)	No. of persons
0 - 4	3
4 - 8	6
8 - 12	8
12 - 16	10
16 - 20	8
20 - 24	5
24 - 28	3

Q.36. A hemispherical bowl is to be painted from inside at the rate of ₹20 per 100 m^2. The total cost of painting is ₹ 30.80. Find

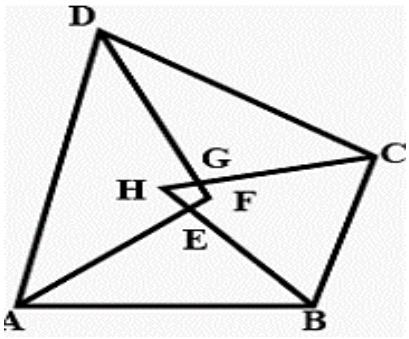
(i) Inner surface area of the bowl.

(ii) Volume of air inside the bowl.

Q.37. Prove that the angle subtended by an arc at the centre is double the angle subtended by it at any point on the remaining part of the circle.

OR

Prove that the quadrilateral formed by the internal angle bisectors of any quadrilateral is cyclic.



Q.38.	If $x = \frac{\sqrt{2}+1}{\sqrt{2}-1}$ and y = $\frac{\sqrt{2}-1}{\sqrt{2}+1}$, then find the value of $x^2 + y^2 + xy$. ? **OR** Prove that $\frac{1}{3+\sqrt{7}} + \frac{1}{\sqrt{7}+\sqrt{5}} + \frac{1}{\sqrt{5}+\sqrt{3}} + \frac{1}{\sqrt{3}+1}$ = 1.

ANSWER KEY							
1.	D	2.	B	3.	A	4.	C
5.	B	6.	A	7.	C	8.	C
9.	C	10.	B	11.	D	12.	D
13.	A	14.	C	15.	B	16.	D
17.	B	18.	C	19.	B	20.	D
21.	$48cm^2$ $9\sqrt{3}cm^2$	22.	Statement of first axiom	24.	₹11000 OR 77 cm^2	27.	35°, 105°, 75°
28.	-3, (x-1)(x+4)(x+3)	30.	(5,5)	31.	Rhombus, II, I Quadrant	32.	40cm $692cm^2$ $17300cm^2$ ₹346
33.	i)646 ii)$\frac{4}{3}$ iii)(y+1)(y-2)(y-3) a=9	34.	(i) x +y = 200 (ii) ₹124 (iii)1.x +0.y +5 =0 OR 3, -2, 0	36.	$154m^2$ $254.08m^3$	38.	35

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