N. K. BAGRODIA GLOBAL SCHOOL
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Session: 2024-25
MID TERM

SUBJECT: MATHEMATICS
CLASS: VIII

MAX. MARKS: 60
DURATION: 2 ½ Hr

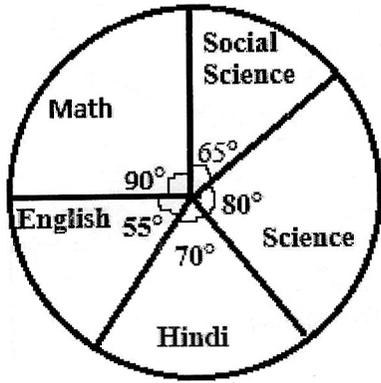## General Instructions:

1. This Question Paper has 5 Sections A-E.

2. Section A has 12 MCQ's carrying 1 mark each.

3. Section B has 6 questions carrying 2 marks each.

4. Section C has 3 questions carrying 03 marks each.

5. Section D has 3 questions carrying 05 marks each.

6. Section E has 3 case based integrated units of assessment (04 marks) with subparts of the values of 1, 1 and 2 marks each respectively.

7. All Questions are compulsory. However, an internal choice in 1 question of 5 marks, 1 question of 3 marks and 2 questions of 2 marks has been provided. An internal choice has been provided in the 2 marks question of Section E.

SECTION: A

Q. No	Questions	Marks
Q1.	The one's digit of the cube of 47 is a) 6 b) 3 c) 7 d) 9	1
Q2.	A linear equation in one variable has a) Only one solution b) Two solutions c) More than two solutions d) No solution	1
Q3.	The probability of getting odd numbers when a dice is rolled is a) $\frac{1}{2}$ b) $\frac{1}{3}$ c) $\frac{2}{3}$ d) $\frac{5}{6}$	1
Q4.	In a quadrilateral PQRS, PQ = PS = 6 cm, QR = RS = 8 cm, QS = 7 cm, then what type of quadrilateral is this? a) Parallelogram b) Rectangle c) Trapezium	1

	d) Kite	
Q5.	In a rhombus ABCD, the diagonals meet at point O. The ΔAOB is a) Isosceles right triangle b) Equilateral triangle c) Isosceles triangle but not right triangle d) Scalene right triangle	1
Q6.	$-\dfrac{5}{3} y = -\dfrac{3}{5}$, then $y =$ a) $-\left(\dfrac{3}{5}\right)^2$ b) $-\left(\dfrac{5}{3}\right)^2$ c) $\left(\dfrac{3}{5}\right)^2$ d) $\left(\dfrac{5}{3}\right)^2$	1

Q7.	**Assertion (A)** $- 12^2 - 11^2 = 23$
	
	Reasons (R) $-$ The difference between square of two consecutive numbers is $2n + 1$.
	
	    A. Both A and R are true and R is the correct explanation of A
	
	    B. Both A and R are true but R is not the correct explanation of A
	
	    C. A is true but R is false
	
	    D. A is false but R is true
		1

Q8.	Tell what property allows you to compute $13 \times (6 \times 43)$ as $(13 \times 6) \times 43$? a) commutative b) closure c) associative d) distributive	1
Q9.	A point in which the x-coordinate is zero and y-coordinate is non-zero will lie on the a) x-axis b) (0,0) c) (0,1) d) y-axis	1
Q10.	The following data: 2, 5, 15, 25, 20, 12, 8, 7, 6, 16, 21,22, 30, 32, 23, 40, 51, 15, 2, 9, 57, 19, 25 is grouped in the classes 0-5, 5-10, 10-15 etc. The frequency of the class 20-25 is a) 5 b) 4 c) 3 d) 2	1
Q11.	The number of perfect cubes from 1 to 1000 are a) 10 b) 20 c) 30 d) 25	1
Q12.	The product of the additive and multiplicative inverse of $\dfrac{1}{3}$ is a) $-\dfrac{1}{3}$ b) -1 c) 1 d) -3	1
	SECTION: B	
Q13.	If $\dfrac{5x}{3} - 4 = \dfrac{2x}{5}$, then find the numerical value of $2x - 7$.	2
Q14.	What number should be subtracted from 1554 to make it a perfect square number? **OR** What number should be added to 3007 to make it a perfect square?	2
Q15.	The pie chart gives the marks scored in an examination by a student in different subjects. If the total marks obtained were 540, how many marks were obtained by the student in Mathematics than in Hindi?	2

Q16.	Write the following numbers in descending order: $\dfrac{1}{3}, \dfrac{5}{6}, \dfrac{7}{9}, \dfrac{10}{27}, \dfrac{-2}{3}$ **OR** Write a rational number equivalent to $\dfrac{4}{7}$ with i) numerator 172 ii) denominator 385	2
Q17.	The opposite angles of a parallelogram are $(3x + 5)°$ and $(61 − x)°$. Find the measure of four angles.	2
Q18.	Raj made a cuboid of plasticine. Length, breadth and height of the cuboid are 15 cm, 30 cm, and 15 cm respectively. How many such cuboids will he need to make a perfect cube?	2

SECTION: C

Q19.	Make a line graph for the area of a square as per the given table. 	Side (in cm)	1	2	3	4	 	Area (in cm²)	1	4	9	16		3

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Q20.	Adjacent sides of a rectangle are in the ratio 5:12; if the perimeter of the given rectangle is 34 cm, find the length of the diagonal. **OR** The ratio of exterior angle to the interior angle of a regular polygon is 2:3. Find the number of sides of the polygon.	3
Q21.	Use appropriate property and solve $-\dfrac{1}{6} \times \dfrac{4}{7} + \dfrac{1}{2} - \dfrac{3}{7} \times \dfrac{1}{6}$	3

SECTION: D

Q22.	Solve the following equations and check your results: A. $\dfrac{5(1 − x) + 3(1 + x)}{1 − 2x} = 8$	3
	B. $4t − 3 − (3t + 1) = 6t + 6$	2
Q23.	A. Three numbers are in the ratio 1:2:3 and the sum of their cubes is 4500. Find the numbers.	3
	B. Observe the following pattern:	

	$2^3 - 1^3 = 1 + 2 \times 1 \times 3$ $3^3 - 2^3 = 1 + 3 \times 2 \times 3$ $4^3 - 3^3 = 1 + 4 \times 3 \times 3$ Using the above pattern find the value of the following: i) $9^3 - 8^3$ ii) $10^3 - 9^3$ **OR** A. Difference of two perfect cubes is 386. If the cube root of the smaller of the two numbers is 7, find the cube root of the larger number. B. Find cube root of 46656 by prime factorization method.	2

Q24. Shoes of the following brands are sold in Nov 2007 at a shoe store

Brand	A	B	C	D	E
Number of pair of shoes sold	130	120	90	40	20

A. Draw a pie chart to represent the above information. — 3

B. Which brand had the lowest sales in the given year, and what was the difference between the highest and lowest sales of brands? — 1

C. What percentage of the total pair of shoes sold did the brand B contribute? — 1

Section:E

Q 25. A badminton academy charges fees on a per-hour basis for their badminton court. They also issue monthly booking passes costing Rs 1500. The pass allows a user to play for 2 hours, 5 times a week. Any extra time is charged on an hourly basis.

The graph shows the per hour cost of booking a badminton court.

Badminton Court booking cost per hour
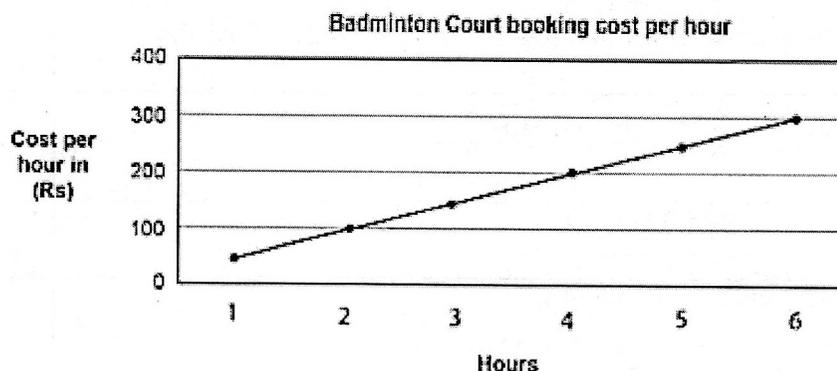
i) Paul and his friends booked the badminton court for 7 hours. How much did the booking cost? — 1

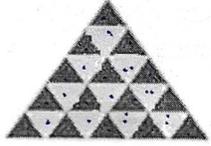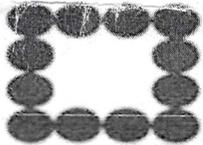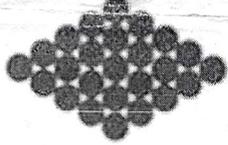a) Rs 50   b) Rs 300   c) Rs 350   d) Rs 400

ii) Rohan plays for 2 hours, 4 times a week. He pays on an hourly basis. Would using a monthly — 2

	pass be more economical for Rohan? **OR** Riya and Aashi played badminton for 10 hours and 14 hours respectively in the academy for a week. What is the difference in the amount paid by them for the number of hours played?	
iii)	With monthly pass, how many hours of training can be done in a month?	1
Q 26.	A group of students is exploring different types of quadrilaterals. They encountered the following scenario: Four friends Aryan, Bhavana, Chetan, and Divya participated in a geometry project. They constructed a figure with four sides and made following observations: 1. The opposite sides of the figure are parallel. 2. The opposite angles of the figure are equal. 3. The figure has two pairs of equal sides. 4. The sum of the measures of the interior angles of the figure is 360°. Based on this information, the students were asked to analyze the properties of the quadrilateral they constructed.	
i)	The type of the quadrilateral formed by their figure is: a) Parallelogram b) Rhombus c) Rectangle d) Square	1
ii)	If it is a regular quadrilateral, then what will be the measurement of each interior angle?	1
iii)	A diagonal and a side of a rhombus are of equal length. Find the measure of the angles of the rhombus. **OR** Find the value of x and y in the given parallelogram.	2
Q	For a school performance, an equal number of students are to be arranged in each row	
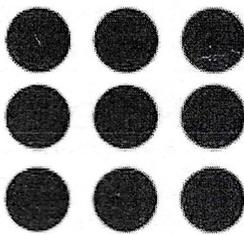
27.	and column. 9 students can be arranged as shown in Arrangement 1.	
	Arrangement 1	
i)	How many students will be there in a row/ column in Arrangement 1 for 625 students?	1
ii)	The teachers organizing the performance think that it will be difficult to arrange 625 students in one group. They think of dividing the group into two square arrangements. How many students can be there in each arrangement? **OR** Express 625 as a sum of two consecutive numbers.	2
iii)	Which of the following symmetric arrangement cannot be used to represent a squared number? A. B. C. D.	1