



# Summer Fields School

KAILASH COLONY, NEW DELHI-110048

Roll No.							
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- Please check that this questionnaire contains 9 printed pages.
- Please check that this questionnaire contains 25 questions in Part 1 and 14 questions in Part 2.

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## 30<sup>th</sup> ARYABHATTA INTER-SCHOOL MATHS COMPETITION 2013

### CLASS V

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Time Allowed: 2 Hrs.

Max.Marks: 100

#### GENERAL INSTRUCTIONS:

1. Participant should not write his/her name on the questionnaire.
  2. Write your Roll no. on all pages of the paper.
  3. All questions are compulsory.
  4. Read questions carefully, think twice before you write the answer.  
Another copy of the questionnaire will not be provided.
  5. Marks are indicated at the end of each question.
  6. Write the answer within the prescribed limited space.
  7. Do your rough work on a sheet pinned up with the questionnaire.
  8. Overwriting is not allowed.
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ROLL NO \_\_\_\_\_

**PART – 1: ARITHMETIC**

**Q1.** The remainder when the product of  $1472 \times 1776 \times 1812 \times 1996$  is divided by 5 is \_\_\_\_\_. (2)

**Q2.** Number of minutes in half of a seventh part of a quarter of a week are \_\_\_\_\_. (2)

**Q3.** Which of the numbers 5, 6, 7, 8 or 9 when placed in the box given below, gives the fraction which is closest to  $2\frac{1}{2}$  (2)

$\frac{19}{\square}$

**Q4.** The average of four consecutive even numbers is 17. The largest number of the four is \_\_\_\_\_. (2)

**Q5.** Which of the following has the largest reciprocal? (2)

$(\frac{1}{3}), (\frac{2}{5}), (1), (5), (1986)$

\_\_\_\_\_ has the largest reciprocal.

**Q6.** If 5 times a number is 2, then 100 times the reciprocal is \_\_\_\_\_. (2)

**Q7.** Naman added 4gms of sugar in 16gms of water. The percentage of sugar in the sugar solution is \_\_\_\_\_. (2)

**Q8.** A three digit number whose sum of the digits is equal to the product of the numbers is \_\_\_\_\_. (2)

**Q9.** Manya bought a book for Rs.135. She paid the shopkeeper in Rs. 5 and Rs. 10 notes. If there were fifteen notes altogether, the number of ten rupees notes was \_\_\_\_\_. (2)

**Q10.** Use the digits 1, 1, 2, 2, 3, 3, 4 and 4 to make an eight digit number. The 1's must be separated by one digit. The 2's must be separated by two digits. The 3's must be separated by three digits. The 4's must be separated by four digits.

The number is \_\_\_\_\_ (2)

**Q11.** At a supermarket, flour was sold in 12kg and 15kg bags. A baker found that by buying them in 12kg bags he would need to get 2 more bags than if he were to buy them in 15kg bags. The least amount of flour that the baker was buying is

\_\_\_\_\_ (2)

**Q12.** Make a seven digit number without repeating any digit which is divisible by 2, 3, 4, 6, 8, 9, 11.

\_\_\_\_\_ (2)

**Q13.** Every birthday Dhruv receives as many toy cars as his age in years. Now he has a collection of 120 cars. Dhruv's age is \_\_\_\_\_ (2)

**Q14.** Simplify

$0.47 \times 0.47 + 0.35 \times 0.35 - 2 \times 0.47 \times 0.35 =$  \_\_\_\_\_ (2)

**Q15.** A marathon began at noon one day and ended 1100mins later. The time at which the marathon ended is \_\_\_\_\_ (2)

**Q16.** A sweater costs as much as 5 shirts. Naisha spent  $\frac{3}{7}$  of her money on 2 sweaters and 8 shirts. If she had spent all her money on shirts instead, the number of shirts she would have bought is \_\_\_\_\_ (2)

**Q17.**  $\frac{3}{5}$  of the pens Raman bought were red and the rest were blue. He gave away  $\frac{2}{3}$  of the red pens and  $\frac{1}{4}$  of the blue pens and had 180 pens left. The number of blue pens he had at first is \_\_\_\_\_ (3)

**Q18.** One day Rohan was arranging his story book collection. He has fewer than 40 comic books, yet he found that he could make eight different arrangements with the same number of books in each pile. For e.g. in one arrangement, he had five books in each pile. The number of comic books Rohan has is \_\_\_\_\_. (3)

**Q19.** Kripa took 40% of her money from her mother. She used 25% of it to buy a computer game and Rs.300 to buy a book. If she still has Rs. 920 left, the total money she had in the beginning was \_\_\_\_\_. (3)

**Q20.** Place the numbers 1 through 9 in the boxes to form a correct addition. Each number must be used only once. (3)

$$\begin{array}{r}
 \square \quad \square \quad \square \\
 + \quad \square \quad \square \quad \square \\
 \hline
 \square \quad \square \quad \square
 \end{array}$$

**Q21.** The least number that must be subtracted from 1936 so that when divided by 9, 10, 15 will leave remainder 7 in each case is \_\_\_\_\_. (3)

**Q22.** Sachin travelled  $\frac{2}{5}$  of the distance by car and  $\frac{1}{3}$  of the remaining distance walking and rest of the 72km on a motorcycle. It took him 3hrs 30min to travel the entire distance. His speed in m/sec is \_\_\_\_\_. (3)

**Q23.** The average weight of eight men is increased by 2kg, when one of the men whose weight is 48kg is replaced by a new man. The weight of the new man is \_\_\_\_\_. (3)

**Q24. (a)** Rewrite this incorrect equation by re-arranging one line to make the equation correct:

$$VI + II = V$$

\_\_\_\_\_ (1)

**(b)**  $CDLXIII + DCCXCII \div CXCVIII \times XLIX =$  \_\_\_\_\_

(2)

**Q25.** Look at the given Time-Table and answer the following questions:

STATION		TRAIN 1	TRAIN 2	TRAIN 3
HERSHEY TOWN	a	-	1315	0835
	d	0225	1317	0840
CADBURY CITY	a	0410	1620	1110
	d	0415	1625	1118
PERFETTI SQUARE	a	0845	1915	1514
	d	0848	1925	1520
MT TOBLERONE	a	1420	2219	1730
	d	1440	2230	-

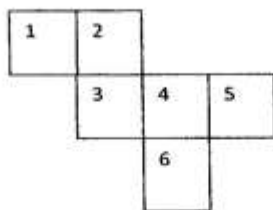
- Which is the fastest train going to Mt Toblerone from Hershey Town?  
\_\_\_\_\_
- Which train takes the shortest time from Cadbury City to Mt Toblerone?  
\_\_\_\_\_
- Which train takes the shortest time to reach Perfetti Square from Cadbury City?  
\_\_\_\_\_
- Which train takes the longest time from Hershey Town to Perfetti Square?  
\_\_\_\_\_

(4)

**Part B**

**Note – The diagrams are not made to scale.**

**Q1.** The face opposite to the face with number 6 in the cube formed by the following net is \_\_\_\_\_.



(2)

**Q2.** A triangle is cut off from a rectangle by the line connecting the midpoints of the adjacent sides. Fraction of the area of the rectangle that is cut off is \_\_\_\_\_.

(2)

**Q3.** Smallest possible dimensions of a rectangle whose perimeter and area have the same numerical value are:

*Note – Side lengths have to be whole numbers.*

Length \_\_\_\_\_ Breadth \_\_\_\_\_

(2)

**Q4.** A 4cm x 4cm x 4cm cubical box contains 64 identical small cubes that exactly fit in the box. The number of small cubes that touch a side or bottom of the box is \_\_\_\_\_.

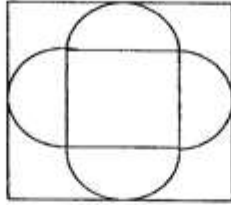
(2)

**Q5.** A rectangular garden 50m long 10m wide is enclosed by a fence. To make the garden larger, while using the same fence, its shape is changed to a square. The area increases by \_\_\_\_\_.

(2)

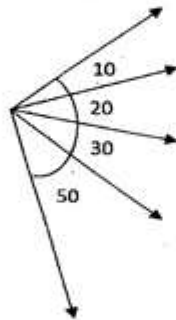
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**Q6.** Around the outside of a 5cm by 5cm square four semicircles are drawn with the four sides of the square as their diameters. Another square is drawn as shown below. The area of the outside square is \_\_\_\_\_.



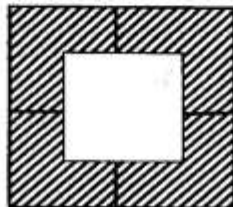
(3)

**Q7.** The number of angles with different degree measures that can be seen in the given figure are \_\_\_\_\_.



(3)

**Q8.** The area of each of the four congruent L-shaped regions of this 100cm by 100cm square is  $\frac{3}{16}$  of the total area. The length of each side of the centre square is \_\_\_\_\_.



(3)

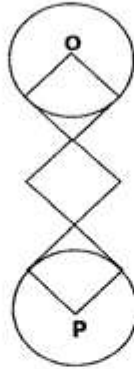
ROLL NO \_\_\_\_\_

**Q9.** Nia has many rectangular blocks, each measuring 4cm by 3cm by 2cm. The number of blocks she must use to make the smallest possible cube is \_\_\_\_\_.

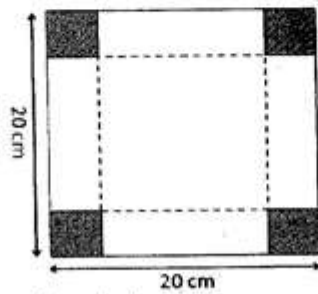
(3)

**Q10.** Point O and P are the centre of the circles. The perimeter of each square is 48 cm. The total length of all the lines in the figure given below is \_\_\_\_\_.

(3)



**Q11.** From a square sheet of paper 20cm by 20cm, we can make a box without a lid by cutting a square from each corner and folding up the flaps.



*Note – Side lengths have to be whole numbers.*

The maximum possible volume of the box that can be obtained is \_\_\_\_\_.

The length of the cut out square is \_\_\_\_\_

(3)

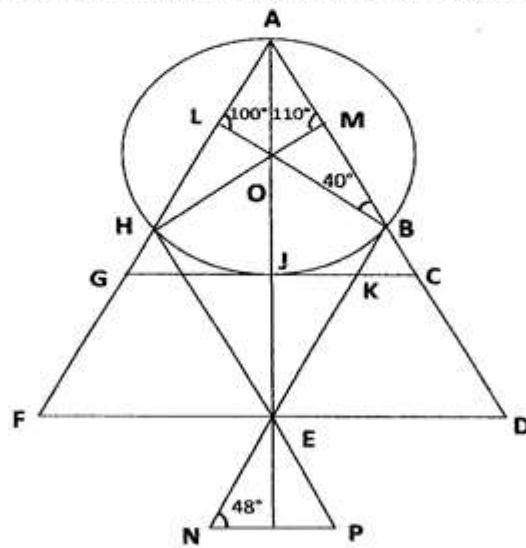


**Q12.** Fill in the blanks:

- a) Sum of any two non-opposite angles of a parallelogram is \_\_\_\_\_.
- b) Kind of four sided figure formed by two equilateral triangles is \_\_\_\_\_.
- c) Number of diagonals that can be drawn from one vertex in a heptagon is \_\_\_\_\_.
- d) If each side of a triangle LMN is 5.8cm, then the measure of angle LMN = \_\_\_\_\_.  
(1x4=4)

**Q13.** The measures of seven angles of an octagon are  $96^\circ$ ,  $123^\circ$ ,  $142^\circ$ ,  $102^\circ$ ,  $78^\circ$ ,  $153^\circ$ ,  $97^\circ$ . The measure of the eighth angle is \_\_\_\_\_.  
(1)

**Q14.** Look at the given figure and answer the following questions:



- a) Number of isosceles triangles \_\_\_\_\_ (2)
- b) Measure of angle LHO = \_\_\_\_\_ (2)
- c) Measure of angle CKE = \_\_\_\_\_ (1)
- d) Number of chords = \_\_\_\_\_ (1)
- e) Shade a major segment. (1)