Summer Fields School
KAILASH COLONY, NEW DELHI-110048

Roll No.							

- Please check that this questionnaire contains 9 printed pages.
- Please check that this questionnaire contains 25 questions in Part-A and 15 questions in Part-B.

29th ARYABHATTA INTER-SCHOOL MATHEMATICS COMPETITION-2012

CLASS - V

Time Allowed: 2 Hours 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.*

ROLL NO. _____

PART A

Q1. The product of $(1-\frac{1}{2})(1-\frac{1}{3})(1-\frac{1}{4})$ - - - - - - - - - - - - - $(1-\frac{1}{100})$ = _____

(2)

Q2. Complete the series:

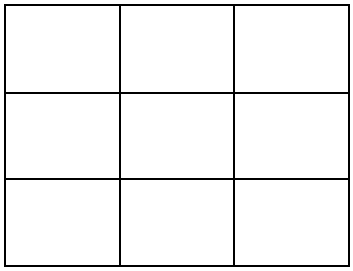
1, 4, 13, 28, 49, ___, ___ (2)

Q3. In a certain year, January had exactly four Tuesdays and five Saturdays. The day on which January 1 falls that year is _____. (2)

Q4. A tank containing 19.62 litres of water can be emptied in 10min. Amount of water that can be emptied in 1 sec is ____litres. (2)

Q5. The fraction halfway between $\frac{1}{5}$ and $\frac{1}{3}$ is _____. (2)

Q6. Placing no more than one X in each small square, the greatest number of Xs that can be put in the grid without getting three Xs in a row vertically, horizontally, or a diagonally is _____. (2)



Q7. The number of 3 digit numbers divisible by 13 is _____. (2)

Q8. Greeting cards are sold in packs of 6, 8 and 24 cards. The minimum number of packs needed to buy exactly 110 cards is _____. (2)

Q9. Nine flag poles have to be equally placed in a straight line along one side of the school ground. The distance between the first pole and the sixth pole is 90m. The distance between the first and the last pole is ____. (2)

ROLL NO. _____

Q10. Date and Time 2012 minutes after the beginning of 19th January, 2012 was _____. (2)

Q11. The difference between the first 1591 even numbers and 1591 odd numbers is _____. (2)

Q.12 Use each of the digits 1, 2, 3, 12 only once in the following expression so as to obtain the lowest possible answer.

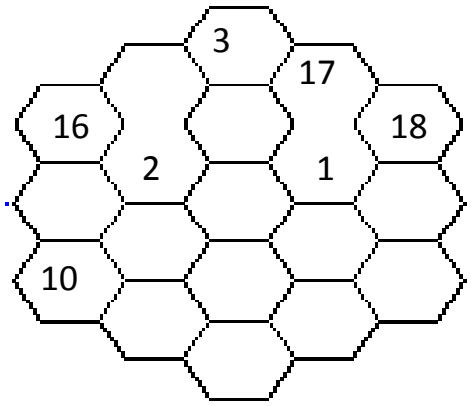
$$\frac{\square}{\square} \div \frac{\square}{\square}$$

(2)

Q13. A tennis singles tournament had six players. Each player played every other player once with no ties. If the first player won 4 games, second won 3 games, third won 2 games, fourth won 2 games, fifth 2 games, then the sixth player won _____ games. (2)

Q14. A factory packs 48 chocolates in each box. They have 243 boxes to be filled. They have already made 10,000 chocolates. The number of chocolates they have to make more to fill the boxes is _____. (2)

Q15. Fill in the empty cells with numbers 1-19 so that the sum of the numbers in each diagonal or vertical row is the same. (2)



ROLL NO. _____

Q16. Neha and Priya were once the same height. Since then Priya has grown 30% while Neha has grown half as many centimetres as Priya. Priya is now 65cm tall. Present height of Neha is _____. (3)

Q17. There are nine kids seated in a row. The average weight of first five kids is 7kg 9gm and the average weight of last five kids in the row is 12kg 50gm. If the average weight of all nine kids is $7\frac{5}{9}$ kg, then the weight of the kid common to both groups is _____. (3)

Q18. For a party, the chef is making 30kg of fruit salad using 25% guavas, 30% apples, and 45% bananas. In anticipation of more guests, he adds 5kg of apples more to his salad. The percentage of apples in the fruit salad now is _____. (3)

Q19. A store normally sells T-shirts at Rs.100 each. This week the store is offering one T-shirt free for each purchase of four. Samaira needs 7 T-shirts and Naisha needs 8 T-shirts. Money they will save if they purchase together is _____. (3)

Q20. Each of the 46 students in a painting class has a box of crayons or a box of poster colours or both crayons and poster colours. 23 students have a box of crayons and 32 students have a box of poster colours. The number of students who have both crayons and poster colours is _____. (3)

Q21. Suppose $\frac{1}{5}$ of class V students of a school participate in a maths competition and 0.95 of these students get maths teacher of their choice next year. Only 50% of the class V students who do not participate in the maths competition get the maths teacher of their choice next year. The percentage of students who get the maths teacher of their choice next year is _____. (3)

Q22. A hare is running at a rate of 1m every min, while a tortoise is crawling at a rate of 1cm every second. In 1hr, the difference between the distance covered by the hare and the tortoise would be _____. (3)

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Q23. At a seminar $\frac{2}{5}$ of the audience were children, $\frac{3}{10}$ were ladies. The rest were men .If the number of children was 28 more than men, then the total number of people in the audience was _____. (3)

Q24. Look at the given Time-Table and answer the following questions:

STATION		**TRAIN 1**	**TRAIN 2**	**TRAIN 3**
VENUS	a	0000	1315	0935
	d	0125	1318	0945
MARS	a	0310	1520	1210
	d	0325	1524	1348
JUPITER	a	0715	1815	1611
	d	0748	1825	1615
PLUTO	a	1220	2117	1830
	d	1240	2230	2030

a) The fastest train going to Pluto from Venus is _____.
b) Train that takes shortest time from Mars to Pluto is _____.
c) The fastest train between Mars and Jupiter is _____.
d) The train that takes the longest time from Venus to Jupiter is _____.

(4)

Q25. Fill in the box with a Roman number so as to make this equation true.

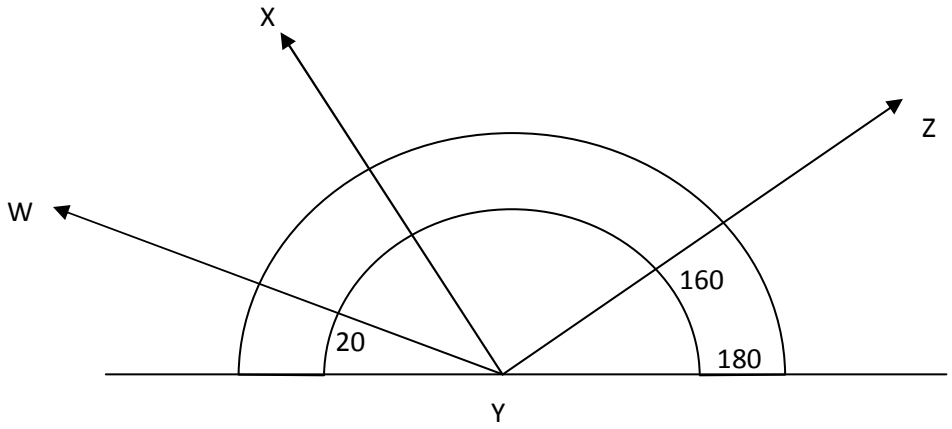
CDXCVII x ☐ = $\overline{\text{XXXI}}$ DCCCVIII (2)

ROLL NO. _____

PART B

Note: The diagrams are not drawn to scale.

Q1. In the given figure ∠XYZ is a right angle. The measure of ∠WYX is _____. (2)



Q2. The length of each side of a triangle and a square is of same measure. The area of this square is 36sqm.

a) The perimeter of this triangle is _____. (1)
b) The kind of figure formed if we join 2 such triangles at the base without overlapping other sides is _____. (1)

Q3. The measure of six angles of a heptagon are 126°, 109°, 168°, 132°,189° and 113°. The measure of the seventh angle is _____. (2)

Q4. Number of isosceles triangles that can be formed having a perimeter 23cm is _____.

Note: Sides have length in whole numbers. (2)

Q5. The measure of the supplement of the smaller angle formed by the hands of a clock that displays a time of four o'clock is _____. (2)

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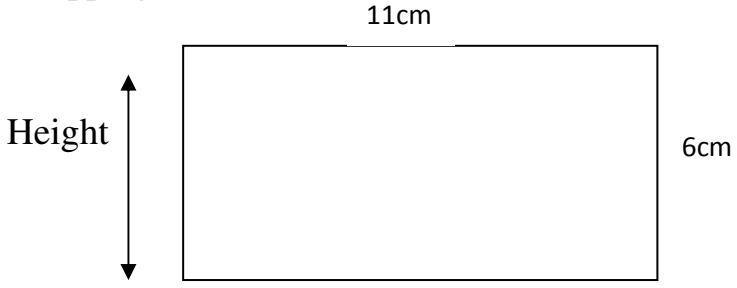
Q6. The arrow of a spinner points east. Samarth moves it clockwise $3\frac{1}{4}$ revolutions and then counter clockwise $2\frac{3}{4}$ revolutions. The direction in which the arrow points at after these two moves is _____. (2)

Q7. In order to walk 1.5km in a rectangular park, Rohan has to walk the length 30 times or walk the perimeter 10 times. The area of this rectangular park is _____. (3)

Q8. There are 36 students in a class. The class teacher wants to make a pie graph to show the club preference of the students in her class. 11 students are in Mathematics club, 9 students in skating club, and 4 students in gymnastics. Out of the remaining, $\frac{1}{4}$ are in painting club. Rest of them are in the dance club. The no. of degrees the teacher will use to show the students in the dance club is _____. (3)

Q9. Neena brought a box of 60 biscuits to the school for giving it for a charity. Aakash brought a bigger box containing same biscuits, but his box was twice as high, twice as wide and twice as long. The number of biscuits in the second box is _____. (3)

Q10. Medhavi made a cylindrical pencil box from this rectangular sheet of paper without overlapping the sides.

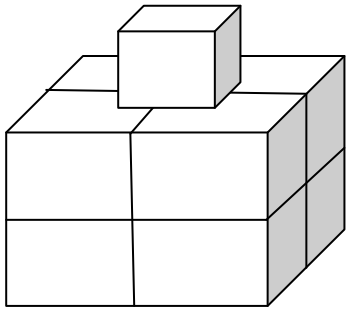


The diameter of the base of this box is _____. (3)

ROLL NO. _____

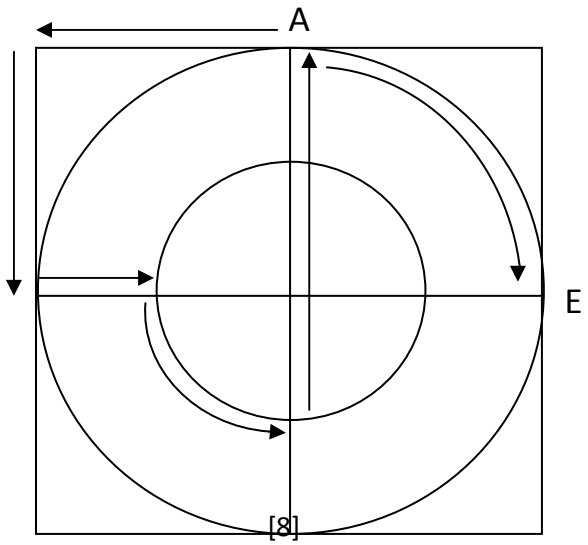
Q11. A 2cm by 3cm rectangle and 3cm by 4cm rectangle are contained within a square without overlapping and the sides of the square are parallel to the sides of the given two rectangles. The smallest possible area of this square is _____.
(2)

Q12. Eight small cubes each with an edge of 2cm are glued together to form a bigger cube as shown. Another small cube with an edge of 2cm is glued at the centre on top of the bigger cube. If the cost of painting is Rs 6/sq.cm, then the cost of painting this new shape would be _____ (3)



Q13. A rectangular fish tank has a base that measures 100cm by 40cm, and has a height of 50cm. It is filled with water to a depth of 37cm. If a rock with a volume of 1000cu.cm is placed in the tank, the water level will rise by _____cm
(3)

Q14. Two circles that share the same centre have radii 14cm and 28cm. A rabbit runs along the path starting from point A and finishing at point E. the distance covered by the rabbit is _____. (3)



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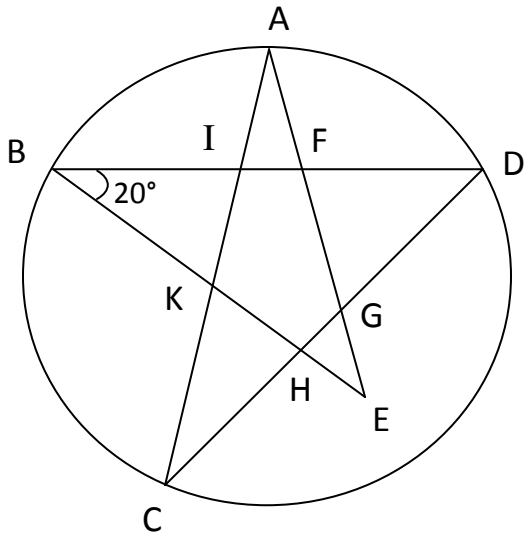
ROLL NO. _____

Q15. Look at the given figure and answer the following questions:



a) If BI = BK, then ∠ IAF +∠GEH = _____.
b) No. of chords = _____.
c) A linear pair of angles is _____ and _____.
d) ∠IBK +∠FGH +∠CKH +∠IFG +∠KCH +∠EKA +∠BKA = _____.
e) Shade a major segment.

(5)