Satyasachi

GYAN BHARATI SCHOOL

HAILF YEARLY EMAMINATION (2017- 2018)

CLASS M3

TIME : 3 Hrs | SUBJECT : MATHEMATICS | M. M : 80

Genaral Instructions :

1. There are three printed sides and 30 questions in this paper.
2. All questions are compulsory.
3. Do not copy questions on your answer sheet.
4. Write steps wherever required.
5. Make appropriate diagrams wherever required.

SECTION A

1. Find two rational numbers between $\frac{1}{2}$ and $\frac{3}{4}$. [1]
2. Write the digit at units place in 37^2 . [1]
3. Write the cube of 89. (DOUBT) [1]
4. Add $3ab - 2bc + 3ca$ and $3bc - 2ab + 2ca$. [1]
5. Using Euler's formula, find the number of faces, if number of vertices is 6 and number of edges is 12. [1]
6. Simplify : $(x+4)(x-5)$. [1]

SECTION B

7. What should be added to $\frac{7}{15}$ to get -2 . [2]
8. Factorise: $4p^2 - 9q^2$. [2]
9. How many natural numbers lie between squares of the numbers 12 and 13. [2]
10. Simplfy : $\{ (\frac{1}{3})^{-2} - (\frac{1}{2})^{-3} \} \div (\frac{1}{4})^{-2}$ [2]
11. Is a square prism same as a cube? Explain. [2]
12. Solve $5x + \frac{7}{2} = \frac{3}{2}x - 14$. [2]

SECTION C

13. Represent $\frac{-3}{5}$ and $\frac{2}{3}$ on a number line. [3]

14. Simplify $(1.5x - 4y)(1.5x + 4y + 3) - 4.5x + 12y$. [3]

15. Factorise the expression and divide them as directed:
$44(x^4 - 5x^3 - 24x^2)$ by $11x(x - 8)$. [3]

16. Find the least number by which 23064 should be divided so that the resulting number becomes a perfect square. Also find its square root. [3]

17. The volume of a cube is 512 cubic metres. Find the length of the side of the cube. [3]

18. $(\frac{-5}{6})^{3/4}$ when divided by $(\frac{-5}{6})^{7/6}$ becomes $(\frac{-5}{6})^{7-x}$. Find the value of x. [3]

19. The lateral surface area of a hollow cylinder is 4224 cm^2. It is cut along its height and forms a rectangular sheet of width 33 cm. Fine the perimeter of rectangular sheet? [3]

20. A cuboid is of dimensions 60 cm × 54 cm × 30 cm. How many small cubes with side 6 cm can be placed in the given cuboid? [3]

21. Solve $\frac{3t-2}{4} - \frac{2t+3}{3} = \frac{2}{3} - t$ [3]

22. One of the two digits of a two digit number is three times the other digit. If you interchange the digits of this two-digit number and add the resulting number to the original number, you get 88. What can be the original numbers. [3]

SECTION D

23. If quotient = $3x^2 - 2x + 1$, remainder = $2x - 5$ and divisor = $x + 2$ then find the dividend. [4]

24. A mother and her two daughters got a room constructed for Rs. 1,72,000. The elder daughter contributes $\frac{3}{8}$ of her mother's share, younger daughter, contributes $\frac{5}{12}$ of her mother's share. Hoe much do the three contributed individually. [4]

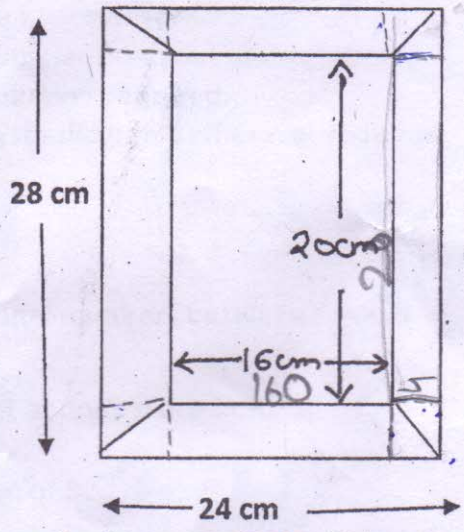
25. Factorise: $x^4y^4 - 16c^4$. [4]

26. There are 500 children in a school. For a P.T. drill they have to stand in such a manner that the number of rows is equal to number of columns. How many children would be

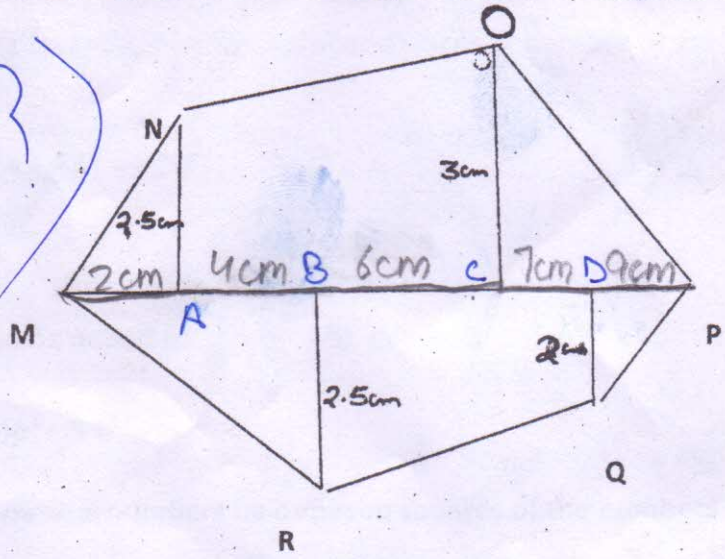
left out of this arrangement? What are the benefits of doing P.T. at school? [4]

27. Divide the sum of $\frac{-13}{5}$ and $\frac{12}{7}$ by the product of $\frac{-31}{7}$ and $\frac{-1}{2}$. [4]

28. Diagram of the picture frame has outer dimensions 28 cm× 24 cm and inner dimensions 20 cm × 16 cm. Find the area of each section of the frame, if the width of each section is same. [4]



29. Find the area of polygon MNOPQR if MP = 9 cm, MD = 7 cm, MC = 6 cm, MB = 4 cm MA = 2 cm, NA, OC, QD and RB are perpendiculars to diagonal MP. [4]



30. The ages of Hari and harry are in the ratio 5 :7. Four years from now the ratio of their ages will be 3 : 4. Find their present ages. [4]