ASSOCIATION OF MATHEMATICS TEACHRS OF INDIA

Screening Test – Gauss Contest

(NMTC PRIMARY LEVEL—V and VI Grades)

Saturday, the 15th October 2022

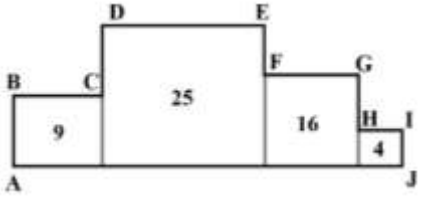
Note:

1. **Fill in the Response Sheet with your Name, Class and the Institution through which you appear, in the specified places.**
2. **Diagrams given are only Visual aids; they are not drawn to scale.**
3. **You may use separate sheets to do rough work.**
4. **Use of Electronic gadgets such as Calculator, Mobile Phone or Computer is not permitted.**
5. **Duration of the Test: 2 pm to 4 pm (2 hours).**

01. In the year 2021, the ratio of A's income to B's income is 5:8. In the next year 2022, if A's income increases by 20% and B's income increases by 15%, what is the ratio of their incomes now?

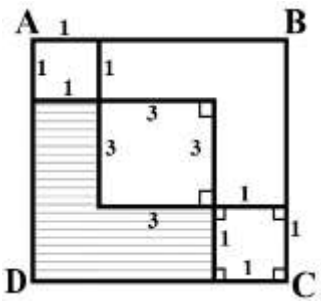
a) 5:6 **b)** 7:23 **c)** 15:23 **d)** 9:11

02. Four squares are placed as shown in the figure.
The areas of the squares are marked in the respective squares.
The perimeter *ABCDEFGHIJA* is …



a) 34 **b)** 38 **c)** 36 **d) 40**

03. In the adjoining figure *ABCD* is a square and there are two unit squares and a square of side 3 *cm.*
The area of the shaded region (when given in cm^2) is …



a) 5 **b)** 6 **c)** 7 **d)** 8

04. The price of an article is reduced by 25%. In order to restore the original price, the new price must be increased by …

a) 25 % **b)** 28 % **c)** 20 % **d)** 33⅓ %

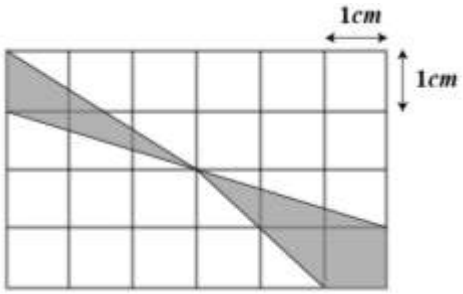
05. The number of three-digit numbers that are multiples of 11 is …

a) 80 **b)** 81 **c)** 79 **d)** 83

06. For any natural number n, $2n\left[3n+\{7(n+3)-(n+1)-2\}\right]$ is divisible by

a) 7 **b)** 3 **c)** 11 **d)** 13

07. In the adjoining figure, the grid consists of Unit squares. The area of the shaded region (in cm^2) is …



a) 3 **b)** 4 **c)** 3.5 **d)** 4.5

08. Three-digit numbers are formed using the digits 1,3,5,9. The difference between the greatest and smallest numbers thus formed is …

a) 888 **b)** 798 **c)** 879 **d)** 789

09. $a\ b\ c\ 6\ 5\ 1$ is exactly divisible by 5423. Then $a + b + c$ is equal to …2

a) 3 **b)** 6 **c)** 9 **d)** None of these

10. If 12% of a number is 120, then 120% of that number is …1200

OMIT **a)** 20 **b)** 480 **c)** 120 **d)** 720

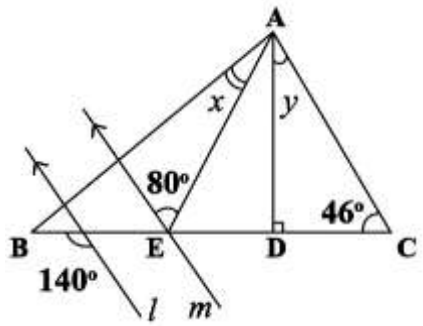
PART B: Fill in the blanks.

11. Three natural numbers which are co-prime to one another are such that the product of the first two is 779 and the product of the next two is 1107. The sum of the three numbers is ___87___.

12. The HCF of two natural numbers is 33. The sum of the numbers is 528. The number of such pairs of natural numbers is ___4___.

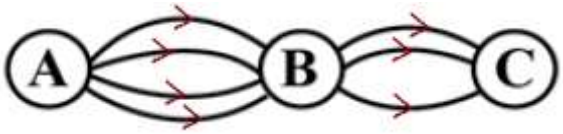
13. If $\left(1\frac{1}{2}\right)\times\left(1\frac{1}{3}\right)\times\left(1\frac{1}{4}\right)\times.....\times\left(1\frac{1}{n}\right)=\frac{121}{2}$, then the value of n is 120.

14. In the adjoining figure, AE is the bisector of $\angle BAD$. The lines ℓ, m are parallel. The degree measure of $(x + y)$ is 74



15. There are 8 boxes placed in a line. We have 1824 balls to be put in the boxes. Each box has to receive 2 balls more than the previous box. The largest number of balls put in a box is 235.

16. In the adjoining figure, A is your house, B is your friend's house and C is your School. There are 4 paths from A to B and 3 paths from B to C. You want to go to school, picking up your friend. The number of ways you can thus go by different routes is 12.



17. Mrs Sweety had money to buy just 6 Gulabjamoons and 7 Samosas. The sweetshop vendor told her that may also get 8 Gulabjamoons and 4 Samosas, for the same amount. Since Mrs Sweety is a diabetic patient, as per her doctor's advice, she decided not to buy any sweets; so with *all* the money she had, she bought only Samosas. Thus she got 16 Samosas.

18. In a playing Die, the dots represent values (numbers) from 1 to 6. The opposite 'faces' of a Die add up to 7. In the figure A is a sharing 'vertex' and is given a value 6 (=1×2×3, namely the product of the numbers on faces shared by it). Similar values are given to the other 7 vertices. Then the total value of all the vertices is 343.

19. A careless Secretary was asked to send 4 letters to 4 different persons. There are 4 envelopes on which separate addresses of the 4 persons were written. The number of ways the Secretary might put wrong letters in all the envelopes is _____9_____.

20. The largest prime factor of the sum of the prime factors of 2022 is ____19____.

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