CDC 10 2022 QA

Q 1. A milkman, buys pure milk and adds some water before selling. He sells the mixture at a price 10% less than the price of pure milk and makes a profit of 10%. Find the quantity (in litres) of water that he adds to every 9 litres of pure milk.

1) 1

2) 2

3) 3

4) 4

Q 2. The average of five natural numbers is 100. The largest number among these exceeds the smallest number by 60. The rest of the three numbers lie between these two numbers and are all equal. How many sets of the five numbers is possible?

1) 99

2) 98

3) 11

4) 12

Q 3. A school having 450 students provides facilities for playing four games – Cricket, Football, Tennis and Badminton. There are a few students in the school who do not play any of the four games. It is known that for every student in the school who plays at least N games, there are two students who play at least (N – 1) games, for N = 2, 3 and 4. If the number of students who play all the four games is equal to the number of students who play none, then how many students in the school play exactly two of the four games?

Q 4. A 240 ml flask contains 30% acid solution. What quantity (in ml) of the solution should be replaced with 12% acid solution so that the resultant solution contains 18% acid?

Q 5. One day each member of Ram's family consumed some milk and some water. Though the quantities of milk and water varied for the family members, the total consumption of the two liquids was exactly 7 litres for each family member. If Ram had one-fourth of the total milk consumed and onesixth of the total water consumed, then what was the ratio of the quantity of milk to that of water consumed by Ram on that day?

1) 3 : 2

2) 1 : 1

3) 2 : 3

4) Cannot be determined

Q 6. Find the minimum possible value of 'y' if 9/25 < x/y < 17/43, where x and y are natural numbers.

1) 3

2) 4

3) 7

4) 8

Q 7. If a girl has coins of denominations Re. 1, Rs. 2 and Rs. 5, in how many ways can she make a payment of exactly Rs. 11?

1) 9

2) 10

3) 11

4) 12

Q 8. For how many values of 'k' are log a, log ka and log (4a) are in an arithmetic progression?

Q 9. A boat travels 60 km upstream and 100 km downstream in 8 hours and then travels 75 km upstream and 175 km downstream in 12 hours. What is the speed (in km/h) of the boat in still water?

1) 36

2) 30

3) 24

4) 20

Q 10.

How many terms in the expansion of $\left(3^{\frac{1}{5}}+13^{\frac{1}{8}}\right)^{1000}$ are integers?

1) 201

2) 126

3) 25

4) 26

Q 11. The 23rd term and the 32nd term of a geometric progression are the number of factors of 54 and 72 respectively. What is the geometric mean of the first 54 terms of the progression?

1) $4\sqrt{3}$

2) $6\sqrt{2}$

3) $8\sqrt{3}$

4) $4\sqrt{6}$

Q 12. How many ordered pairs (a, b) are there for which the system of equations $3x + ay = b$ and $ax + 12y = 48$ will have infinite solutions?

Q 13. Raju bought 6 oranges, 8 apples and 10 bananas for Rs. 124 and his sister Pinki bought 8 oranges, 10 apples and 8 bananas for Rs. 144, then what amount (in Rs.) did Billu pay for 1 orange, 2 apples and 7 bananas?

1) 42

2) 44

3) 54

4) Cannot be determined

Q 14. Hasan writes down 10 consecutive integers and then Kishan erases one of the them. If the sum of the remaining 9 numbers is 2022, what number did Kishan erase?

Q 15. How many distinct regular polygons can be constructed by using all of 36 sticks, each of length 6 cm, ensuring that there is no two sticks overlap?

1) 6

2) 7

3) 8

4) 9

Q 16. P, Q and R can together earn Rs. 7,350 in 10 days. Q and R together can earn Rs.3,630 in 6 days. P and R together can earn Rs.2,250 in 5 days. Find the daily wage (in Rs.) of R.

Q 17. A natural number consists of only 0's and 1's. If the number is divisible by 375, then what is the least possible number of 0's and 1's together in the number?

1) 3

2) 6

3) 7

4) 9

Q 18. The numerical values of the surface area and the volume of a cuboid are equal. If the edge lengths are $\log_2 x$, $\log_3 x$, $\log_5 x$, then the value of 'x' is

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Q 19. Points A(−2, 9) and B(6, 3) lie on the circumference of a circle whose radius is an integer. Which of the following cannot be the length of the radius?

1) 3

2) 5

3) 6

4) 9

Q 20. Binu takes 210 strides to cross a slowly moving metro train while moving in the same direction as the train. If he was moving in the opposite direction it takes him only 70 strides. If the train was stationary on the platform, how many strides would he take to stride from the front to the back of the train?

Q 21. ABCD is a square. E and F are points on CD and AD respectively. Lines CF and BE intersect at G at 90°. If GF = 12 and GC = 8, the area of the square is

1) 196

2) 320

3) 400

4) 576

Q 22. A cat chases a mouse on ground which has grid lines like the coordinate plane. The mouse starts at (2, 3) and wants to get to the mouse hole at (7, 8). The cat starts at (−3, 5). The mouse and the cat can only travel along the grid lines at 1 unit/sec and 2 units/sec respectively. If the cat decides to catch the mouse at the mouse hole, how long would it have to wait there? (to the nearest half a second)

1) 3.5 seconds

2) 0.5 Second

3) 6.5 Seconds

4) The mouse reaches the hole 3 seconds before the cat.
