CAT 2020 Question Paper Slot 1 | CAT Quants

Q.1 How many 3-digit numbers are there, for which the product of their digits is more than 2 but less than 7?
1: 21

Q.2 If f(5 + x) = f(5 - x) for every real x and f(x) = 0 has four distinct real roots, then the sum of the roots is

A. 0
B. 40
C. 10
D. 20

2: D

Q.3 Veeru invested Rs 10000 at 5% simple annual interest, and exactly after two years, Joy invested Rs 8000 at 10% simple annual interest. How many years after Veeru's investment, will their balances, i.e., principal plus accumulated interest, be equal?
3: 12

Q.4 A train travelled at one-thirds of its usual speed, and hence reached the destination 30 minutes after the scheduled time. On its return journey, the train initially travelled at its usual speed for 5 minutes but then stopped for 4 minutes for an emergency. The percentage by which the train must now increase its usual speed so as to reach the destination at the scheduled time, is nearest to

A. 58
B. 67
C. 50
D. 61

4: B

Q.5 A straight road connects points A and B. Car 1 travels from A to B and Car 2 travels from B to A, both leaving at the same time. After meeting each other, they take 45 minutes and 20 minutes, respectively, to complete their journeys. If Car 1 travels at the speed of 60 km/hr, then the speed of Car 2, in km/hr, is

A. 90
B. 80
C. 70
D. 100

5: A

Q.6 Let A, B and C be three positive integers such that the sum of A and the mean of B and C is 5. In addition, the sum of B and the mean of A and C is 7. Then the sum of A and B is

A. 6
B. 4
C. 7
D. 5

6: A

Q.7 If $x = (4096)^{7+4\sqrt{3}}$, then which of the following equals 64?

A. $(x^{7/2})/x^{4/\sqrt{3}}$
B. $(x^{7})/x^{4\sqrt{3}}$
C. $(x^{7/_2})/x^{2\sqrt{3}}$
D. $(x^{7})/x^{2\sqrt{3}}$

7: C

Q.8 The mean of all 4 digit even natural numbers of the form 'aabb', where a>0, is

A. 5544
B. 4466
C. 4864
D. 5050

8: A

Q.9 The number of distinct real roots of the equation $(x + 1/x)^2 - 3(x + 1/x) + 2 = 0$ equals:

9: 1

Q.10 A person spent Rs 50000 to purchase a desktop computer and a laptop computer. He sold the desktop at 20% profit and the laptop at 10% loss. If overall he made a 2% profit then the purchase price, in rupees, of the desktop is

10: 20000

Q.11 Among 100 students, x1 have birthdays in January, x2 have birthdays in February, and so on. If x0 = max(x1, x2, ..., x12), then the smallest possible value of x0 is

A. 8
B. 10
C. 12
D. 9

11: D

Q.12 Among 100 students, x1 have birthdays in January, x2 have birthdays in February, and so on. If x0 = max(x1, x2, ..., x12), then the smallest possible value of x0 is

A. 8
B. 10
C. 12
D. 9

12:D

Q.13 How many distinct positive integer-valued solutions exist to the equation $(x2 - 7x + 11)^{(x2 - 13x + 42)} = 1$?

A. 6
B. 2
C. 4
D. 8

13: A

Q.14 The area of the region satisfying the inequalities $|x| - y \leq 1$, $y \geq 0$, and $y \leq 1$ is

14: 3

Q.15 A solid right circular cone of height 27 cm is cut into 2 pieces along a plane parallel to it's base at a height of 18 cm from the base. If the difference in the volume of the two pieces is 225 cc, the volume, in cc, of the original cone is

A. 264
B. 232
C. 243
D. 256

15: C

Q.16 A circle is inscribed in a rhombus with diagonals 12 cm and 16 cm. The ratio of the area of the circle to the area of the rhombus is

A. $2\pi/15$
B. $6\pi/25$
C. $3\pi/25$
D. $5\pi/18$

16: B

Q.17 Leaving home at the same time, Amal reaches office at 10:15 am if he travels at 8kmph, and at 9:40 am if he travels at 15kmph. Leaving home at 9:10 am, at what speed, in kmph, must he travel so as to reach office exactly at 10:00 am?

A. 12
B. 11
C. 13
D. 14

17: A

Q.18 If a, b and c are positive integers such that $ab = 432$, $bc = 96$ and $c < 9$, then the smallest possible value of $a + b + c$ is

A. 56
B. 49
C. 46
D. 59

18: C

Q.19 If y is a negative number such that 2y2log35 = 5log23, then y equals

A. log2 (1/3)
B. log2 (1/5)
C. −log2 (1/3)
D. −log2 (1/5)

19: A

Q.20 On a rectangular metal sheet of area 135 sq in, a circle is painted such that the circle touches opposite two sides. If the area of the sheet left unpainted is two-thirds of the painted area then the perimeter of the rectangle in inches is

20: $3\sqrt{\pi}(5 + 12/\pi)$

Q.21 An alloy is prepared by mixing metals A, B, C in the proportion 3 : 4 : 7 by volume. Weights of the same volume of metals A, B, C are in the ratio 5 : 2 : 6. In 130 kg of the alloy, the weight, in kg, of the metal C is

A. 84
B. 48
C. 96
D. 70

21: A

Q.22 In 130 kg of the alloy, the weight, in kg, of the metal C is

A. 84
B. 48
C. 96
D. 70

22: A

Q.23 A solution, of volume 40 litres, has dye and water in the proportion 2 : 3. Water is added to the solution to change this proportion to 2 : 5. If one-fourths of this diluted solution is taken out, how many litres of dye must be added to the remaining solution to bring the proportion back to 2 : 3?

23: 8

Q.24 The number of real-valued solutions of the equation $2^x + 2^{-x} = 2 - (x - 2)^2$ is

A. infinite
B. 0
C. 1
D. 2

24: B

Q.25 If $\log_4 5 = (\log_4 y)(\log_6 \sqrt{5})$, then y equals
25: 36

Q.26 In a group of people, 28% of the members are young while the rest are old. If 65% of the members are literates, and 25% of the literates are young, then the percentage of old people among the illiterates is nearest to

A. 59
B. 62
C. 66
D. 55

26: C