

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, x_1 have birthdays in January, x_2 have birthdays in February, and so on. If $x_0 = \max(x_1, x_2, \dots, x_{12})$, then the smallest possible value of x_0 is

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

11: D

Q.12 Among 100 students, x_1 have birthdays in January, x_2 have birthdays in February, and so on. If $x_0 = \max(x_1, x_2, \dots, x_{12})$, then the smallest possible value of x_0 is

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

12: D

Q.13 How many distinct positive integer-valued solutions exist to the equation $(x^2 - 7x + 11)^{x^2 - 13x + 42} = 1$?

- 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 its 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 8 kmph, and at 9:40 am if he travels at 15 kmph. 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 $2y \log_2 35 = 5 \log_2 3$, then y equals

- A. $\log_2 (1/3)$
- B. $\log_2 (1/5)$
- C. $-\log_2 (1/3)$
- D. $-\log_2 (1/5)$

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