Case-based Questions

CHAPTER 1

A. In a mall there are three elevators, A, B and C for different sections. At some point in time, elevator A is at $-20\frac{1}{2}$ feet, elevator B is at $-5\frac{1}{3}$ feet and elevator C is at $12\frac{3}{4}$ feet.

1. The distance between elevator A and elevator C is

   a. $10\frac{1}{4}$ feet. b. $33\frac{1}{4}$ feet. c. $3\frac{1}{4}$ feet. d. 8 feet.

2. Which elevator is at the lowest point?

   a. B b. C c. A d. None of these

3. If elevator C goes down by $5\frac{1}{2}$ feet, what will be its new position?

   a. At $7\frac{1}{4}$ feet b. At $8\frac{1}{4}$ feet c. At $6\frac{1}{4}$ feet d. At $7\frac{1}{2}$ feet

4. $-20\frac{1}{2} - 5\frac{1}{3} + 12\frac{3}{4} =$

   a. 13 b. $\frac{-157}{12}$ c. $\frac{463}{12}$ d. $\frac{153}{12}$

B. Diya earns 18 lacs per annum. Out of her earnings, she spends $\frac{1}{10}$th on groceries, $\frac{1}{6}$th on rent, $\frac{1}{5}$th on kid's education and rest is her savings.

1. How much did she spend on groceries?

   a. ₹1,00,000 b. ₹1,80,000 c. ₹1,08,000 d. ₹8,00,000

2. How much did she spend on rent and the kid's education?

   a. ₹3,00,000 b. ₹3,60,000 c. ₹6,60,000 d. ₹8,40,000

3. Calculate the total expenditure during the year.

   a. ₹9,00,000 b. ₹4,80,000 c. ₹6,60,000 d. ₹8,40,000

4. Calculate her savings in the year.

   a. ₹9,00,000 b. ₹6,60,000 c. ₹9,60,000 d. ₹8,40,000

CHAPTER 2

A. The present age of the grandmother is five times the age of her granddaughter. After 15 years, the age of the grandmother will be three times the age of her granddaughter.

1. Which equation represents the above situation?

   a. $5x + 15 = 3x + 15$ b. $5x + 15 = 3(x + 15)$

   c. $3x + 15 = 5(x + 15)$ d. $5x + 15 = 3x$

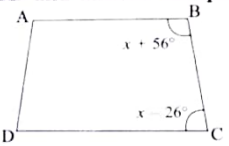
2. What is the present age of the granddaughter?
   a. 15 years b. 30 years c. 12 years d. 90 years
3. What will be the age of the grandmother after 15 years?
   a. 15 years b. 75 years c. 12 years d. 90 years
4. Find the sum of their ages after 15 years.
   a. 75 years b. 90 years c. 120 years d. 105 years

B. The difference between the two numbers is 56. The ratio of the numbers is 9:2.

1. Which equation represent the above situation?
   a. $9x + 2x = 56$ b. $8x - x = 56$ c. $9x - 2x = 56$ d. $10x - 2x = 64$
2. The larger number is
   a. 56. b. 16. c. 88. d. 72.
3. The smaller number is
   a. 6. b. 56. c. 16. d. 88.
4. Find the sum of the two numbers if the ratio remains the same.
   a. 8 b. 88 c. 80 d. 72

CHAPTER 3

A. Look at the given trapezium ABCD in which AB||CD and answer the questions.



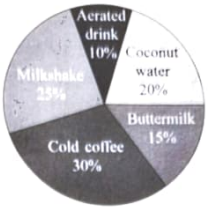
1. Find the value of x in the trapezium.
   a. 75° b. 80°
   c. 70° d. 56°
2. What is the sum of ∠A and ∠D?
   a. 90° b. 180° c. 270° d. 360°
3. Find the measure of ∠ABC.
   a. 56° b. 130° c. 49° d. 131°
4. Which of the following is true about a trapezium.
   a. It is not a quadrilateral. b. All the interior angles are equal.
   c. Sum of the interior angles is 360°. d. Opposite sides are parallel and equal.

B. ABCD is a parallelogram in which ∠D:∠A :: 7:11. Now, answer the questions.

1. ∠B:∠C =
   a. 11:7 b. 4:7 c. 7:11 d. 7:3
2. Find the measure of ∠A and ∠C.
   a. 110° each b. 110° and 70° respectively
   c. 180° and 70° respectively d. 180° each
3. Find the sum of measures of ∠A and ∠B.
   a. 110° b. 180° c. 70° d. 360°
4. The measure of side AB =
   a. BC. b. AC. c. AD. d. CD.

CHAPTER 4

A. A survey was conducted in which some people were asked about their favourite drinks. The following pie chart shows the data. Look at the pie chart and answer the questions.



1. How many people were surveyed if the favourite drink of 900 people is Cold coffee?
   a. 1000 b. 3000 c. 300 d. 300
2. How many more people like Milkshakes than Coconut water?
   a. 750 b. 1500 c. 150 d. 600
3. Find the total number of people who like Aerated drink and Buttermilk.
   a. 750 b. 450 c. 300 d. 600
4. Find the central angle in the pie chart for the people who like Buttermilk.
   a. 72° b. 36° c. 18° d. 54°

B. A glass jar contains 6 red, 8 green, 4 blue, 7 orange, 9 purple and 5 yellow marbles o the same size. Akshat takes out a marble from the jar at random.

1. Which colour marble has the highest probability of being picked up?
   a. Red b. Blue c. Purple d. Green
2. What is the probability that the chosen marble is red?
   a. $\frac{5}{39}$ b. $\frac{3}{13}$ c. $\frac{7}{39}$ d. $\frac{2}{13}$
3. Which colour marble can be picked with a probability of $\frac{4}{39}$?
   a. Red b. Blue c. Green d. Yellow
4. What is the probability of picking up a yellow marble?
   a. $\frac{5}{34}$ b. $\frac{8}{39}$ c. $\frac{6}{39}$ d. $\frac{5}{39}$

CHAPTER 5

A. The sum of the first n odd natural numbers is n^2. Based on it, answer the question

1. The sum of $1 + 3 + 5 + 7 + 9$ will be
   a. 36. b. 25. c. 24. d. 81.
2. 36 as the sum of the first n odd natural numbers can be expressed as
   a. $1 + 3 + 5 + 7$. b. $1 + 3 + 5 + 7 + 9 + 11$.
   c. $2 + 4 + 6 + 10 + 14$. d. $1 + 3 + 5 + 7 + 9$.

3. 144 is the sum of the first n odd numbers, where n is

a. 13. b. 14. c. 12. d. 17.

4. A natural number which cannot be expressed as the sum of first n odd natural numbers is not a perfect square.

a. The statement is true. b. The statement is false.

c. A natural number can never be a perfect square. d. None of these

B. The areas of two square fields are 289 and 121 sq. units respectively.

1. Perimeters of the two fields are

a. 289 units and 44 units. b. 68 units and 48 units

c. 68 units and 44 units. d. 68 units and 121 units

2. The length of the diagonals of two squares are

a. $17\sqrt{2}$ units and 22 units. b. 34 units and 22 units.

c. 34 units and $11\sqrt{2}$ units. d. $17\sqrt{2}$ units and $11\sqrt{2}$ units.

3. The area of the field being formed by joining the two square fields is

a. 410 units. b. 112 sq. units. c. 410 sq. units. d. 112 units.

CHAPTER 6

A. The cube root of a negative perfect cube is the negative of the cube root of its absolute value. Thus, to find the cube root of a negative perfect cube, we need to find the cube root of its absolute value and multiply the result by –1.

1. The cube root of -35937 is

a. -1089. b. 33. c. -33. d. $\sqrt{33}$.

2. The cube root of -68921×343 is

a. -287. b. -217. c. 287. d. 217.

3. The cube root of $-15625 \times (-1000)$ is

a. -25. b. -35. c. 250. d. -250.

4. The cube root of $\frac{-2197}{-3375}$ is

a. $\frac{-13}{15}$. b. $\frac{13}{15}$. c. $\frac{15}{13}$. d. $\frac{-15}{13}$.

B. A school held Olympiads for students in three subjects – Maths, Science and English. The number of students who get medals in these three subjects is in the ratio 2:3:4. The product of the such students is 192.

1. Find the number of students getting medals in Maths.

a. 4 b. 12 c. 3 d. 8

2. Find the number of students getting medals in English.

a. 4 b. 6 c. 3 d. 8

3. If the value of each medal is ₹15000, find the total amount of all the medals.

a. ₹105000 b. ₹255000 c. ₹270000 d. ₹380000