Maths Questions for CLAT Exam

CLAT Maths Quiz 15

Directions: Kindly study the following Questions carefully and choose the right answer:

1. Of three numbers, the sum of the first two is 45, the sum of the second and the third is 55, and the sum of the third and thrice the first is 90. Find the third number.

A. 20

B. 25

C. 30

D. 15

2. A social group named BACHPAN offers fruit to the orphans. Every orphan receives orange, Litchi and apple in the ratio 6 : 4 : 14 in terms of dozen but the weight of one Apple is 640 grams and weight of orange and Litchi is in the ratio of 2 : 6. The weight of one Orange is 160 grams. Find the ratio of the percentage contribution of all the fruits in terms of weight?

A. 8.1 : 16.2 : 75.7

B. 9.3 : 18.6 : 76.7

C. 10 : 41 : 45

D. 13 : 58 : 20

3. Two trains of same length are running in parallel tracks in the same direction with speed 60 km/hr and 90 km/hr respectively. The latter completely crosses the former in 30 seconds. The length of each train (in metres) is

A. 125

B. 150

C. 100

D. 115

4. The ratio of milk to water in three containers of equal capacity is 3 : 2, 7 : 3 and 11 : 4 respectively. The three containers are mixed together. What is the ratio of milk to water after mixing?

A. 21 : 9

B. 41 : 18

C. 61 : 29

D. 38 : 8

5. A box contains 21 balls numbered 1 to 21. A ball is drawn and then another ball is drawn without replacement. What is the probability that both balls are even numbered?

A. 2/7

B. 8/21

C. 3/14

D. 5/21

6. Nitin and Nirdosh together can complete a piece of work in 6 days. If Nitin alone can complete the same work in 24 days; in how many days can Nirdosh alone complete that work?

A. 8 B. 12

C. 14 D. 15

7. A man can row 15/2 kmph in still water, if the river is running at 1.5 km an hour. It takes him 50 mins to row to a place and back, how far off is the place?

A. 1 km B. 2 km

C. 3 km D. 4 km

8. The average age of a group of 15 employees is 24 years. If 5 more employees join the group, the average age increases by 2 years. Find the average age of the new employees.

A. 35 B. 30

C. 24 D. 32

9. If the marked price of an article is Rs. 380 and a discount of 5% is given on it, what is the selling price?

A. 261 B. 361

C. 371 D. 431

10. When the price of a product was decreased by 10%, then the number of sell increased by 30%. What was the effect on the total revenue?

A. 5% B. 10%

C. 12% D. 17%

Correct Answers:

1	2	3	4	5	6	7	8	9	10
C	A	A	C	C	A	C	D	B	D

Explanations:

1. Let the number be x, y and z.

Then $x + y = 45$ ....(i) $y + z = 55$ ....(ii) $z + 3x = 90$ .... (iii)

Now, from (i)

$y = 45 - x$

And from (ii) $z = 55 - y$

$\therefore \quad z = 55 - (45 - x)$

$z = 10 + x$

Putting the value of z in eqn. (iii) , we have

$3x + 10 + x = 90$

$\therefore \quad x = 20$

$y = 45 - 20 = 25$ and $z = 10 + 20 = 30$.

Hence, option C is correct.

2. Ratio of fruits in terms of dozen = Orange: Litchi: Apple = 6 : 4 : 14

Ratio of per fruit in terms of weight = Orange: Litchi: Apple = 160 : 480 : 640

$\therefore$ Ratio of fruits (combined) in terms of weight $(6 \times 160) : (4 \times 480) : (14 \times 64)$

$\Rightarrow 960 : 1920 : 8960$

$$\% \text{ contribution of Orange} = \frac{960}{11840} \times 100 = 8.1\%$$

$$\% \text{ contribution of Litchi} = \frac{1920}{11840} \times 100 = 16.2\%$$

% contribution of Apple = $\frac{8960}{11840} \times 100 = 75.7\%$

Hence correct option (A) is correct.

3. When two trains cross each other, they cover distance equal to the sum of their lengths with relative speed.

Let's take length of each train = x, total length of both trains = 2x, Crossing time = 30 sec.

Relative speed = 90 – 60 = 30 km/hr

$= \frac{30 \times 5}{18} = \frac{25}{3}$ m/sec.

$\therefore$ Total length = Time × Relative speed

$\Rightarrow 2x = \frac{30 \times 25}{3} \Rightarrow \frac{10 \times 25}{2} = 125$ m.

Hence, option A is correct.

4. Let the capacity of each be 'a' litre

Then quantity of milk in container after mixing is

$(\frac{3}{5} + \frac{7}{10} + \frac{11}{15})a$

$= (\frac{3 \times 6 + 7 \times 3 + 11 \times 2}{30})a$

$= (\frac{61}{30})a$

And quantity of water in container after mixing is

$(\frac{2}{5} + \frac{3}{10} + \frac{4}{15})a$

$= (\frac{29}{30})a$

$\Rightarrow$ required ratio of milk to water after mixing

$$= \frac{\left(\frac{61}{30}\right)^a}{\left(\frac{29}{30}\right)^a} = 61:29$$

Hence option C is correct.

5. There are 10 even numbers in the group 1-21.

∴ The probability that the first ball is even numbered = $\frac{10}{21}$

Since the ball is not replaced there are now 20 balls left, of which 9 are even numbered.

∴ The probability that the second ball is even numbered = $\frac{9}{20}$

∴ Required probability = $\frac{10}{21} \times \frac{9}{20} = \frac{9}{42} = \frac{3}{14}$

Hence, option C is correct.

6. (Nitin + Nirdosh)'s 1 day's work = $\frac{1}{6}$

Nitin's 1 day's work = $\frac{1}{24}$

∴ Nirdosh's 1 day's work = $\left[\frac{1}{6} - \frac{1}{24}\right] \Rightarrow \frac{3}{24} \Rightarrow \frac{1}{8}$.

Hence, Nirdosh can complete the work in 8 days.

Hence, option A is correct.

7. Speed downstream = $\left(\frac{15}{2} + 1.5\right)$ kmph

= (7.5 + 1.5) kmph = 9 kmph;

Speed upstream = $\left(\frac{15}{2} - 1.5\right)$ kmph

= (7.5 – 1.5) kmph = 6 kmph.

Let the required distance be x km. Then,

$\frac{x}{9} + \frac{x}{6} = \frac{50}{60}$

$\Leftrightarrow$ 2x + 3x = $\left(\frac{5}{6} \times 18\right)$

$\Leftrightarrow$ 5x = 15 $\Leftrightarrow$ x = 3

Hence, the required distance is 3 km.

Hence, option C is correct.

8. **Method I:** Total age of 15 employees = 15 × 24 = 360

Total age of 20 employees = 20 × 26 = 520

Let the average age of 5 new employees be x.

Therefore, the total age of the new employees = 5x

Hence, the total age of 20 employees = 360 + 5x

∴ 520 = 360 + 5x
∴ 160 = 5x
∴ x = 32

The average age of the new employees = 32

Hence, option D is correct.

Method II: Average age increased by 2 years i.e. 24 + 2 = 26 years

Total increment in Group's age (15 + 5) × 2 = 40 years

Now, avg age of new employees = $24 + \frac{40}{5} = 32$ years

Hence, option D is correct.

9. S.P = 95% of Rs 380 = Rs$\left(\frac{95}{100} \times 380\right)$ = Rs 361.

Hence, option B is correct.

10. To solve this question, we can apply a short trick approach;

Net% effect = $\left(x + y + \frac{xy}{100}\right)$**%.**

Increase or decrease, according to the + ve or – ve sign respectively.

Given;

Price Increased = x = 30%
Price Decreased = y = – 10%
By the short trick approach, we get

$= \left(30 - 10 - \frac{30 \times 10}{100}\right) = 17\%.$

Hence, option (D) is correct.