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SSC CGL Maths Repeated Questions PDF

Instructions

For the following questions answer them individually

Question 1

If the cost prices of articles A and B are in the ratio 3:4 and the selling prices are in the ratio 5:6 and the profit obtained on selling both of them is the same. What is the profit percentage on selling article B?

A   66.67%

B   33.33%

C   50%

D   25%

   Answer: C

Explanation:
Let the cost price of A and B be 3x and 4x respectively.
Let the selling price of A and B be 5y and 6y respectively.
5y-3x = 6y-4x
x= y
Hence profit on selling B = 6y-4x = 2x
Profit % = $\frac{2x}{4x} \times 100$ = 50%

Question 2

If a trader sold two articles each for Rs.3600/- with no profit or loss. If the first article is sold at 20 %profit, at what loss is the second one sold?

A   20%

B   14.29%

C   16.52%

D   21.32%

   Answer: B

Explanation:
Given that the first article is sold at Rs.3600/- with 20% profit.
Let x,y be the cost prices of first and second articles respectively.
1.2x = 3600
x = 3000
Profit on first article = Loss on second article
3600-3000 =y-3600
y = Rs.4200/-
Loss % = $\frac{600*100}{4200}$ = 14.2857%
Hence, option B is the correct answer.

Question 3

The price of an item was increased by 10%. This reduced the monthly total sales by 20%. The overall effect on the value of monthly sales is a

A   10% increase

B   10% decrease

C   12% increase

Answer: D

Explanation:

Let us assume the price of the article to be Rs. 100. Let the number of articles sold be 100.

Total sales = 100*100 = 10,000

Now, the price increases by 10% => New cost = Rs. 110

Sales decrease by 20% => New sales = 80 units.

Now, new sales value = 80*110 = Rs. 8800

%age change =(10000 - 8800) / 10000 = 1200/10000 = 12% decrease.

Option D is the right answer.

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Question 4

A shopkeeper bought 30 kg of rice at the rate of Rs. 70 per kg and 20 kg of rice at the rate of Rs. 70.75 per kg. If he mixed the two brands of rice and sold the mixture at Rs. 80.50 per kg, his gain is

A Rs. 450

B Rs. 510

C Rs. 525

D Rs. 485

Answer: B

Explanation:

The shopkeeper bought 30 kg rice at Rs. 70/kg

C.P. = 70*30 = Rs. 2100

Similarly, C.P. for second type of rice = 70.75*20 = Rs. 1415

=> Total C.P. = 2100+1415 = Rs. 3515

He sold these two brands at Rs. 80.50/kg

=> Total S.P. = 80.50*50 = Rs. 4025

Profit = 4025-3515 = Rs. 510

Question 5

Two numbers are in the ratio 3:4. Their L.C.M. is 84. The greater number is

A 21

B 24

C 28

D 84

Answer: C

Explanation:

Let the numbers be 3x, 4x
LCM of 3x and 4x is = 12x
So the number 84 is divisible by 12

$\frac{84}{12} = 7$

The numbers are 7x3 = 21 , 7x 4 = 28

The greatest number is 28

Question 6

The sum of two numbers is 36 and their H.C.F and L.C.M. are 3 and 105 respectively. The sum of the reciprocals of two numbers is

A   2/35

B   3/25

C   4/35

D   2/25

   Answer: C

Explanation:

let's say numbers are x and y

hence sum of the reciprocals will be $\frac{1}{x} + \frac{1}{y}$

or $\frac{x+y}{xy}$

as $x + y = 36$ (given)

and $xy = HCF \times LCM$

$= 3 \times 105 = 315$

after putting the values we will get summation of reciprocals equals to $\frac{4}{35}$

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Question 7

What is the HCF (highest common factor) of 57 and 513?

A   10

B   57

C   3

D   27

   Answer: B

Explanation:

Factors of 57 = 1 , 3 , 19 , 57

Factors of 513 = 1 , 3 , 9 , 19 , 27 , 57 , 171 , 513

The common factors are = 1 , 3 , 19 , 57

=> Highest common factor = 57

=> Ans - (B)

Question 8

The amount received at 10% per annum Compound interest after 3 yrs is Rs 5324. What was the principal (in Rs)?

A   4100

B   4200

C 4000

D 4300

Answer: C

Explanation:

Total time = $P \times (1 + \frac{R}{100})^n$

$\Rightarrow 5324 = P \times (1 + \frac{10}{100})^3$

$\Rightarrow 5324 = P \times (1 + \frac{1}{10})^3$

$\Rightarrow 5324 = P \times (\frac{11}{10})^3$

$\Rightarrow 5324 = P \times \frac{11}{10} \times \frac{11}{10} \times \frac{11}{10}$

$\Rightarrow P = 4000$

So the answer is option C.

Question 9

At what rate of compound interest (in %) per annum will a sum of Rs. 15,000 become Rs. 18,150 in 2 years?

A 11

B 10

C 9

D 12

Answer: B

Explanation:

Amount received at the end of 2nd yr = $P(1 + \frac{R}{100})^2$

$18150 = 15000(1 + \frac{R}{100})^2$

$1.21 = (1 + \frac{R}{100})^2$

$1.1 = 1 + \frac{R}{100}$

$0.1 = \frac{R}{100}$

$R = 10\%$

So the answer is option B.

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Question 10

If the amount received at the end of 2nd and 3rd year at Compound Interest on a certain Principal is Rs 1,800, and Rs 1,926 respectively, what is the rate of interest?

A 7.5%

B 7%

C 6%

D 6.5%

Answer: B

Explanation:

Amount received at the end of 2nd yr = $P\left(1 + \frac{R}{100}\right)^2 = 1800$ -------(1)

Amount received at the end of 3rd yr = $P\left(1 + \frac{R}{100}\right)^3 = 1926$ -------(2)

divide (2) with (1)

$\Rightarrow \frac{P\left(1 + \frac{R}{100}\right)^3}{P\left(1 + \frac{R}{100}\right)^2} = \frac{1926}{1800}$

$\Rightarrow 1 + \frac{R}{100} = \frac{1926}{1800}$

$\Rightarrow \frac{R}{100} = \frac{1926}{1800} - 1$

$\Rightarrow \frac{R}{100} = \frac{1926 - 1800}{1800}$

$\Rightarrow \frac{R}{100} = \frac{126}{1800}$

$\Rightarrow \frac{R}{100} = \frac{7}{100}$

$\Rightarrow R = 7\%$

So the answer is option B.

Question 11

A sum of ₹ 3000 yields an interest of ₹ 1080 at 12% per annum simple interest in how many years ?

A   4 Years

B   3 Years

C   5 years

D   2½ Years

Answer: B

Explanation:

Principal sum = P = Rs. 3000

Let time period = t years and rate of interest = 12%

Simple interest = $\frac{P \times r \times t}{100}$

=> $\frac{3000 \times 12 \times t}{100} = 1080$

=> $360t = 1080$

=> $t = \frac{1080}{360} = 3$ years

=> Ans - (B)

Question 12

The simplest form of 3774/2958 is

A   43/19

B   37/29

C   31/13

D   31/23

Answer: B

Explanation:

Expression : $\frac{3774}{2958}$

Both are multiples of 2, thus dividing numerator and denominator by 2

$= \frac{1887}{1479}$

Now, dividing by 51, $= \frac{37}{29}$

=> Ans - (B)

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Question 13

Two fractions are such that their product is 4 and sum is 68/15. Find the two fractions.

A 6/15, 10/3

B 6/5, 10/3

C 7/2, 8/7

D 10/7, 14/5

Answer: B

Explanation:

Let the two numbers be x and y

$=> x + y = \frac{68}{15}$ and $x.y = 4$

$=> x(\frac{68}{15} - x) = 4$

$=> x(\frac{68-15x}{15}) = 4$

$=> 68x - 15x^2 = 60$

$=> 15x^2 - 68x + 60 = 0$

$=> 15x^2 - 50x - 18x + 60 = 0$

$=> 5x(3x - 10) - 6(3x - 10) = 0$

$=> (5x - 6)(3x - 10) = 0$

$=> x = \frac{6}{5}, \frac{10}{3}$

Question 14

The simplest form of 3565/1495 is

A 31/13

B 43/19

C 23/13

D 31/23

Answer: A

Explanation:

Expression : $\frac{3565}{1495}$

Both are multiples of 5, thus dividing numerator and denominator by 5

$= \frac{713}{299}$

Now, dividing by 23, $= \frac{31}{13}$

=> Ans - (A)

Question 15

The reciprocal of the sum of the reciprocals of 8/7 and 5/6 is:

A 83/40

B 42/83

C 83/42

D 40/83

   Answer: D

Explanation:
Sum of the reciprocals of 8/7 and 5/6

$= \frac{7}{8} + \frac{6}{5}$

$= \frac{7(5)+6(8)}{40} = \frac{35+48}{40}$

$= \frac{83}{40}$

=> Reciprocal of 83/40 $= \frac{40}{83}$

=> Ans - (D)

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Question 16

The average age of a husband and is wife was 23 years at the time of their marriage. After five years they have a one year old child. The average age of the family now is

A 29.3 years

B 19 years

C 23 years

D 28.5 years

   Answer: B

Explanation:
Sum of ages of husband and wife at the time of their marriage $= 23 \times 2 = 46$ years

Sum of the family after 5 years = 5 years of husband + 5 years of wife + 1 year of child

=> Total age $= 46 + 5 + 5 + 1 = 57$ years

=> Required average $= \frac{57}{3} = 19$ years

=> Ans - (B)

Question 17

The average weight of 8 persons increases by 2.5 kg when a new persons comes in place of one of them weighing 65 kg. The weight of the new person is

A 84 kg

B 85 kg

C 76 kg

D 76.5 kg

   Answer: B

Explanation:

Let average weight of 8 persons = x kg and weight of new person = y kg

=> Sum of weights of persons = $8x$ kg

According to ques,

=> $\frac{8x-65+y}{8} = x + 2.5$

=> $8x - 65 + y = 8x + 20$

=> $y = 20 + 65 = 85$

$\therefore$ The weight of the new person = **85 kg**

=> Ans - (B)

Question 18

The cost price of an article is Rs.100. A discount series of 5%, 10% successively reduces the price of a article by

A Rs 4.5

B Rs 14.5

C Rs 24.5

D None of the above

   Answer: B

Explanation:

Cost price = Rs. 100

Selling price after first discount of 5% = $100 - (\frac{5}{100} \times 100)$

$= 100 - 5 = Rs.\ 95$

Similarly, selling price after second discount of 10% = $95 - (\frac{10}{100} \times 95)$

$= 95 - 9.5 = Rs.\ 85.5$

$\therefore$ Amount is reduced by $= 100 - 85.5 = Rs.\ 14.5$

=> Ans - (B)

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Question 19

A container containing 400 litres of oil lost 8% by leakage. Oil left in the container is

A 320 litres

B 368 litres

C 332 litres

D 32 litres

    Answer: B

Explanation:

Quantity of oil originally in the container = 400 litres

Quantity of oil left = $400 - (\frac{8}{100} \times 400)$

$= 400 - 32 = 368$ litres

=> Ans - (B)

Question 20

The first and last terms of an arithmetic progression are 29 and -49. If the sum of the series is -140, then it has how many terms?

A 13

B 14

C 12

D 11

    Answer: B

Explanation:

In an arithmetic progression with first term, $a = 29$, last term, $l = -49$

Let number of terms $= n$

$\therefore$ Sum of A.P. $= \frac{n}{2}(a+l) = -140$

$=> \frac{n}{2}(29 - 49) = -140$

$=> \frac{-20n}{2} = -140$

$=> n = \frac{(-140) \times 2}{-20} = 7 \times 2$

$=> n = 14$

=> Ans - (B)

Question 21

The first and last terms of an arithmetic progression are -23 and 42. What is the sum of the series if it has 14 terms?

A 91

B 133

C 93

D -133

    Answer: B

Explanation:

In an arithmetic progression with first term, $a = -23$, last term, $l = 42$

Number of terms $= n = 14$

$\therefore$ Sum of A.P. $= \frac{n}{2}(a+l)$

$$= \overset{14}{\underset{2}{}}(-23 + 42)$$

$= 7 \times 19 = 133$

=> Ans - (B)

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Question 22

The first and last terms of an arithmetic progression are 33 and -57. What is the sum of the series if it has 16 terms?

A   -135

B   -192

C   -207

D   -165

   Answer: B

Explanation:

In an arithmetic progression with first term, $a = 33$, last term, $l = -57$

Number of terms = $n = 16$

$\therefore$ Sum of A.P. = $\frac{n}{2}(a + l)$

$= \frac{16}{2}(33 - 57)$

$= 8 \times (-24) = -192$

=> Ans - (B)

Question 23

The first and last terms of an arithmetic progression are 25 and -52. What is the sum of the series if it has 12 terms?

A   -162

B   -110

C   162

D   110

   Answer: A

Explanation:

In an arithmetic progression with first term, $a = 25$, last term, $l = -52$

Number of terms = $n = 12$

$\therefore$ Sum of A.P. = $\frac{n}{2}(a + l)$

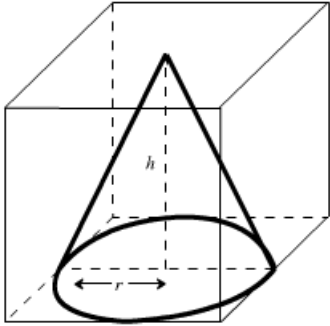$= \frac{12}{2}(25 - 52)$

$= 6 \times (-27) = -162$

=> Ans - (A)

Question 24

The volume of the largest right circular cone that can be cut out of a cube of edge 7cm ? $\left(Use\ \pi = \frac{22}{7}\right)$**.**

A $13.6cm^3$

B $121cm^3$

C $147.68cm^3$

D $89.8cm^3$

Answer: D

Explanation:

Height of largest circular cone = 7 cm and radius = $\frac{7}{2} = 3.5$ cm

Volume of cone = $\frac{1}{3}\pi r^2 h$

$= \frac{1}{3} \times \frac{22}{7} \times (3.5)^2 \times 7$

$= \frac{1}{3} \times 22 \times 12.25$

$= \frac{269.5}{3} = 89.8 \ cm^3$

=> Ans - (D)

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Question 25

The sum of two numbers is 75 and their difference is 25. The product of the two numbers is:

A 1350

B 1250

C 1000

D 125

Answer: B

Explanation:
Let the numbers be x and y

=> Sum = $x + y = 75$ -----------(i)

and difference = $x - y = 25$ -----------(ii)

Adding both equations, we get : $2x = 75 + 25 = 100$

=> $x = \frac{100}{2} = 50$

Substituting it in equation (i), => $y = 75 - 50 = 25$

$\therefore$ Product = $50 \times 25 = 1250$

=> Ans - (B)

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