SSC GD Constable Maths Questions PDF

Instructions
For the following questions answer them individually

Question 1

A man spends 75% of his income. His income increases by 20% and his expenditure also increases by 10%. The percentage of increase in his savings is

A 40%

B 30%

C 50%

D 25%

Answer: C

Explanation:
let the income of person be Rs y

So his expenditure be 75% of income which is = 0.75y

Saving = y- 0.75y = 0.25y

Now after increment of 20 % in income the new income becomes = 1.2y

Given that bew expenditure is 10% more than previous one.So , new expenditure is = 1.1 × 0.75y = 0.825y

New savings = 1.2y - 0.825y = 0.375y

Percentage increase in savings = $\frac{0.375y-0.25y}{0.25y}$ ×100 = 50%

Question 2

A fruit-seller buys some oranges and by selling 40% of them he realises the cost price of all the oranges. As the oranges being to grow over-ripe, he reduces the price and sells 80% of the remaining oranges at half the previous rate of profit. The rest of the oranges being rotten are thrown away. The overall percentage of profit is

A 80

B 84

C 94

D 96

Answer: B

Explanation:
Let us assume that the fruit seller buys 100 oranges for Rs. 100
He sells 40 oranges for Rs. 100
Profit obtained = 100 - 40 = Rs. 60

% Profit = $\frac{60}{40} \times 100 = 150\%$
Now, he sells 80% of the remaining oranges at half the profit
i.e., he sells 48 oranges at 75% profit.
Selling Price of 48 oranges = 48 + 75% of 48 = Rs. 84
Rest of them are thrown away.
Total SP = 100 + 84 = 184
Profit = 184 - 100 = 84
% Profit = 84%

Question 3

A dishonest dealer professes to sell his goods at the cost price but uses a false weight of 850 g instead of 1 kg. His gain percent is

A $17\frac{12}{7}\%$

B $17\frac{11}{17}\%$

C $71\frac{11}{17}\%$

D $11\frac{11}{17}\%$

Answer: B

Explanation:
Let assume that he buys 1000 gram of quantity at 1000 Rs

So, Cost Price of 1 gram = 1 Rs

Now as it is mentioned that he is selling only 850 gram in 1000 Rs

So , selling Price of 1 gram = $\frac{1000}{850}$ = Rs 1.1764

So profit percentage = $\frac{SellingPrice - CostPrice}{CostPrice}$ = $\frac{1.1764-1}{1} \times 100$

= 17.64 % = $17\frac{11}{17}\%$

Question 4

The ratio of present ages of Golu and Polu is 17 : 19. After 5 years the age of Polu will be 81 years. What is the present age of Golu?

A 56 years

B 68 years

C 52 years

D 74 years

Answer: B

Explanation:
Let the present age of Golu and Polu be ‘x’ and ‘y’ years
Thus, $\frac{x}{y} = \frac{17}{19}$
After 5 years the age of Polu will be 81 years.
So, y+5 = 81
y = 76
So, x = $\frac{17*76}{19}$ = 68 years
Hence, option B is the right answer.

Question 5

The ratio of present ages of Y and Z is 5 : 8. 9 years ago, the age of Y was 7/13th the age of Z. What is the present age of Z?

A 46years

B 52 years

C 48 years

D 40 years

Answer: C

Explanation:
Let the present age of Y and Z be y and z respectively.
So, y:z = 5:8
Also,
y-9 = 7*(z-9)/13
13y-117 = 7z - 63
13y-7z = 54
13*5z/8 - 7z = 54
9z/8 = 54
z = 48 years
Hence, option C is the right answer.

Question 6

The ratio of the present age of Monu and Sonu is 13:11. The ratio of the age of Monu 4 years from now and the age of Sonu 4 years earlier is 5:3. What is the difference between the ages of Sonu and Monu?

A 4 years

B 6 years

C 8 years

D 10 years

Answer: A

Explanation:
Let the present age of Monu and Sonu be ‘x’ and ‘y’ respectively.
So, x:y = 13:11
It is given that,
$\frac{x+4}{y-4} = \frac{5}{3}$
3x + 12 = 5y - 20
3x-5y = -32
3*$\frac{13y}{11}$ - 5y = -32
-16y = -32*11
y = 22
So, x = 26
Thus, y-x = - 22 + 26 = 4 years
Hence, option A is the right answer.

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Question 7

Two successive price increase of 10% and 10% of an article are equivalent to a single price increase of

A 19%

B 20%

C 21%

D 22%

Answer: C

Explanation:
Let's say price of article is 100
After first increase its price will be 100(1+ $\frac{10}{100}$) = 110
Now second increment will be applied on 110
Hence new price will be 110(1+ $\frac{10}{100}$) = 121
Which is 21 more than before any increment
Hence total percentage increment = 21

Question 8

If each side of a square is increased by 10%. its area will be increased by:

A 10%

B 21%

C 44%

D 100%

Answer: B

Explanation:
Let's say side of square is 100 unit
its area will be $10^4 unit^2$
after 10% increment its value will be 110 unit
and area will become $1.21 \times 10^4 unit^2$
change in area $.21 \times 10^4 unit^2$
percentage change will be 21

Question 9

The marked price of an item is Rs. 480. The shopkeeper allows a discount at 10% and gains 8%. If no discount is allowed, his gain percent would be

A 18%

B 18.5%

C 20.5%

D 20%

Answer: D

Explanation:
Marked price = 480
discount = 10%
Selling price = 480 - $\frac{480 \times 10}{100}$ = 432
Gain = 8%
Cost price = $432 \times (\frac{100}{108})$ = 400
After no discount ,gain will be = 480-400 = 80
Percentage gain = $\frac{80}{400} \times 100$ = 20%

Question 10

The sum of a fraction and its reciprocal is $\frac{113}{56}$. Find the fraction.

A $\frac{7}{8}$

B $\frac{5}{8}$

C $\frac{8}{9}$

D $\frac{3}{7}$

Answer: A

Explanation:
Let the fraction be x

According to ques,

=> $x + \frac{1}{x} = \frac{113}{56}$

=> $\frac{x^2+1}{x} = \frac{113}{56}$

=> $56x^2 - 113x + 56 = 0$

=> $56x^2 - 49x - 64x + 56 = 0$

=> $7x(8x - 7) - 8(8x - 7) = 0$

=> $(7x - 8)(8x - 7) = 0$

=> $x = \frac{8}{7}, \frac{7}{8}$

=> Ans - (A)

Question 11

Arrange the fractions $\frac{3}{4}, \frac{5}{12}, \frac{13}{16}, \frac{16}{29}, \frac{3}{8}$ in their descending order of magnitude.

A $\frac{3}{4} > \frac{3}{8} > \frac{13}{16} > \frac{16}{29} > \frac{5}{12}$

B $\frac{3}{8} > \frac{5}{12} > \frac{16}{29} > \frac{3}{4} > \frac{13}{16}$

C $\frac{13}{16} > \frac{3}{4} > \frac{16}{29} > \frac{5}{12} > \frac{3}{8}$

D $\frac{13}{16} > \frac{16}{29} > \frac{3}{4} > \frac{5}{12} > \frac{3}{8}$

Answer: C

Explanation:
$\frac{3}{4} = 0.75$

$\frac{5}{12} = 0.42$

$\frac{13}{16} = 0.81$

$\frac{16}{29} = 0.55$

$\frac{3}{8} = 0.37$

Descending order = $\frac{13}{16} > \frac{3}{4} > \frac{16}{29} > \frac{5}{12} > \frac{3}{8}$

=> Ans - (C)

Question 12

Manish can complete a work in 21 days and Karan can complete the same work in 28 days. If both together work for 7 days, then what fraction of total work is left?

A $\frac{3}{5}$

B $\frac{2}{3}$

C $\frac{7}{12}$

D $\frac{5}{12}$

Answer: D

Explanation:
Let total work to be done = L.C.M. (21,28) = 84

Manish can complete the work in 21 days, => Manish's efficiency = $\frac{84}{21} = 4$ units/day

Similarly, Karan's efficiency = $\frac{84}{28} = 3$ units/day

Now, (Manish+Karan)'s 7 day's work = $(4+3)7 = 49$ units

Fraction of work that is left = $\frac{(84-49)}{84} = \frac{35}{84} = \frac{5}{12}$

=> Ans - (D)

Question 13

Arrangement of the factions $\frac{4}{3}, -\frac{2}{9}, -\frac{7}{8}, \frac{5}{12}$ into ascending order are

A $-\frac{7}{8}, -\frac{2}{9}, \frac{5}{12}, \frac{4}{3}$

B $-\frac{2}{9}, -\frac{7}{8}, \frac{5}{12}, \frac{4}{3}$

C $-\frac{2}{9}, -\frac{7}{8}, \frac{4}{3}, \frac{5}{12}$

D $-\frac{7}{8}, -\frac{2}{9}, \frac{4}{3}, \frac{5}{12}$

Answer: A

Explanation:
Given factions $\frac{4}{3}, -\frac{2}{9}, -\frac{7}{8}, \frac{5}{12}$

Multiply 72(LCM) with each fraction, then we get

96, -16, -63, 30

Arrange them in ascending order i.e $-63 < -16 < 30 < 96$ (or) $-\frac{7}{8} < -\frac{2}{9} < \frac{5}{12} < \frac{4}{3}$

Hence, option A is the correct answer.

Question 14

If a sum of money doubles itself in 8 yrs, then the interest rate in percentage is ?

A 8 ½%

B 10%

C 10 ½ %

D 12 ½ %

Answer: D

Explanation:
Let the sum = $Rs.\ x$ and rate of interest = $r\%$

=> Amount after 8 years = $Rs.\ 2x$

=> Simple interest = $(2x - x) = Rs.\ x$

Also, SI = $\frac{P \times r \times t}{100}$

=> $\frac{x \times r \times 8}{100} = x$

=> $r = \frac{100}{8} = 12\frac{1}{2}\%$

=> Ans - (D)

Question 15

A certain principal is invested in a scheme of compound interest. The amount obtained after 1 year is Rs 2400 and the amount obtained after 2 years is Rs 2880. What is the rate of interest (in percentage)?

A 20

B 15

C 25

D 10

Answer: A

Explanation:
Amount obtained after 1 year = Rs. 2400

Amount obtained after 2 years = Rs. 2880

=> Rate of interest = $\frac{(2880-2400)}{2400} \times 100$

= $\frac{480}{24} = 20\%$

=> Ans - (A)

Question 16

A person borrows some money for 8 years at a rate of simple interest. If the ratio of principal and total interest is 5: 8, then what is the rate (in percentage) of interest?

A 10

B 20

C 25

D 30

Answer: B

Explanation:
Let Principal amount = Rs. $5x$ and interest = Rs. $8x$

Let rate of interest = $r\%$ and time period = 8 years

=> Simple interest = $\frac{P \times R \times T}{100}$

=> $\frac{5x \times r \times 8}{100} = 8x$

=> $\frac{5r}{100} = 1$

=> $r = \frac{100}{5} = 20\%$

=> Ans - (B)

Question 17

The marked price of a pen is Rs 3000. The shopkeeper gives two successive discounts of 15% and a% to the customer. If the customer pays Rs 2142 for the pen, then what is the value (in percentage) of a?

A 16

B 14

C 18

D 17

Answer: A

Explanation:
Marked price = Rs. 3000

After first discount of 15%, price of pen = $3000 - (\frac{15}{100} \times 3000)$

= $3000 - 450 = Rs.\ 2550$

After 2nd discount of $a\%$, price = $2550 - (\frac{a}{100} \times 2550) = 2142$

=> $25.5a = 2550 - 2142$

=> $25.5a = 408$

=> $a = \frac{408}{25.5} = 16\%$

=> Ans - (A)

Question 18

The marked price of a book is Rs 4200. The shopkeeper gives two successive discounts of 25% and y% to the customer. If the customer pays Rs 2898 for the book, then what is the value (in percentage) of y?

A 7

B 8

C 6

D 5

Answer: B

Explanation:
Marked price = Rs. 4200

After first discount of 25%, price of pen = $4200 - (\frac{25}{100} \times 4200)$

= $4200 - 1050 = Rs.\ 3150$

After 2nd discount of $y\%$, price = $3150 - (\frac{y}{100} \times 3150) = 2898$

=> $31.5y = 3150 - 2898$

=> $31.5y = 252$

=> $y = \frac{252}{31.5} = 8\%$

=> Ans - (B)

Question 19

A man purchased an article for ₹1500 and sold it at 25% above the cost price. If he has to pay ₹75 as tax on it, his net profit percentage will be:

A 25%

B 30%

C 15%

D 20%

Answer: D

Explanation:
Cost price = Rs. 1500

Markup % = 25%

=> Selling price = $1500 + (\frac{25}{100} \times 1500)$

= $1500 + 375 = Rs.\ 1875$

Total cost price (including tax) = $1500 + 75 = Rs.\ 1575$

$\therefore$ Profit % = $\frac{(1875-1575)}{1575} \times 100$

= $\frac{300}{15.75} \approx 20\%$

=> Ans - (D)

Question 20

A shopkeeper marks his goods 20% higher than the cost price and allows a discount of 5%. The percentage of his profit is.

A 14%

B 15%

C 10%

D 20%

Answer: A

Explanation:
Let cost price = Rs. 100

Markup % = 20%

=> Marked price = $100 + (\frac{20}{100} \times 100)$

= $100 + 20 = Rs.\ 120$

After allowing discount of 5%, => Selling price = $120 - (\frac{5}{100} \times 120)$

= $120 - 6 = Rs.\ 114$

$\therefore$ Profit % = $\frac{(114-100)}{100} \times 100 = 14\%$

=> Ans - (A)