Q.1) Max Marks: 1

Some amount was lent at 6% per annum simple interest. After one year, ₹ 6,800 is repaid and the rest of the amount is repaid at 5% per annum. If the second year's interest is half of the first year's interest, find what amount money was lent out.

A ₹ 17,000 Correct Option

Solution: (A)

Solution: It can be seen that for ₹ 17,000, the first year interest would be ₹ 1,020, while the second year interest after a repayment of ₹ 6,800 would be on ₹ 10,200 @ 5% per annum. The interest in the second year would thus be ₹ 510 which is exactly half the interest of the first year. Thus, option (a) is correct.

B ₹ 16,800

C ₹ 16,500

D ₹ 17,500

Q.2) Max Marks: 1

A's salary is first increased by 25% and then decreased by 20%. The result is the same as B's salary increased by 20% and then reduced by 25%. Find the ratio of B's salary to that of A's.

A **4:3**

B **11:10**

C **10:9** Correct Option

Solution: (C)

Solution: Option(c) fits the situation as if the ratio is 10:9, the value of B's salary would first go up from 10 to 12 and then come down from 12 to 9 (after a 25% decrease). On the other hand, the value of A's salary would go up from 9 to 11.25 and then come back to 9(Note that a 25% increase followed by a 20% decrease gets one back to the starting value.)

D **12:11**

Q.3) Max Marks: 1

A tradesman fixes his selling price of goods at 20% above the cost price. He sells half the stock at this price. One fourth of the stock at a discount of 15% on the selling price and rest at a discount of 20% on the selling price. Find the gain percentage altogether.

A **8.5%**

B **10%**

C **7.5%**

D **9.5%** Correct Option

Solution: (D)

Solution: Let the cost price of 100 articles be ₹100

Market price of the 100 articles = ₹ 120

Selling price of 50 articles = ₹ 60

Selling price of 25 articles = ₹ $30 * 0.85$

= ₹ 25.50

Selling price of rest 25 articles = ₹ $30 * 0.8$

= ₹ 24.00

Selling price of all the 100 articles = ₹ 109.50

Profit = ₹ 9.50

Profit Percentage = 9.5%

Q.4) Max Marks: 1

J started a business and he invested ₹ 38000. After few months, A joined him and invested ₹ 28500. At the end of the year the total profit was divided among them in the ratio of $16:8$. Find after how many months did A joined the business?

A 6

B 4 Correct Option

Solution: (B)

Solution: We assume that A joined the company after x months. So the money invested by A was for $(12-x)$ months.
Ratio of Profit Sharing between J and A is : $(38000*12):(28500*(12-x))$
So we can say that, $(38000*12):(28500*(12-x)) = 16:8$
$\Rightarrow \frac{456000}{342000-28500x} = \frac{16}{8}$
$\Rightarrow 3648000 = 5472000 - 456000x$
$\Rightarrow x = \frac{1824000}{456000}$
$\Rightarrow x = 4$ months

C 8

D 3

Q.5) Max Marks: 1

At what rate percent will the compound interest on ₹ 2500 amount to ₹ 477.54 in 3 *years*?

A 6% Correct Option

Solution: (A)

Solution: Compound Interest $(CI) =$ ₹ 477.54
Amount $(A) =$ ₹ 2500 + ₹ 477.54
= ₹ 2977.54
Principal $= P$
Rate $= R\%$ per annum
Time $= n$ *year*
$A = P(1+\frac{R}{100})^n$
$\Rightarrow \frac{2977.54}{2500} = (1+\frac{R}{100})^3$
$\Rightarrow \frac{148877}{125000} = (1+\frac{R}{100})^3$
$\Rightarrow \frac{53}{50} = (1+\frac{R}{100})$
$\Rightarrow R = 6\%$

B 4%

C 5%

D None of these

Q.6) Max Marks: 1

In an examination, 35% candidates failed in one subject and 42%failed in another subject while 15%failed in both the subjects. If 2500candidates appeared in the examination, how many passed in either subject but not in both?

A 325

B 1175 Correct Option

Solution: (B)

Solution: Failed in first subject $= 2500*\frac{35}{100} = 875$
Failed in second subject $= 2500*\frac{42}{100} = 1050$
Failed in both the subjects $= 2500*\frac{15}{100} = 375$
Failed in first subject only = Passed in second subject only
$= (875-375)$
$= 500$
Failed in second subject only = Passed in first subject only
$= (1050-375)$
$= 675$
Therefore, passed in either subjects but not in both $= (500+675) = 1175$

C 2125

D None of these

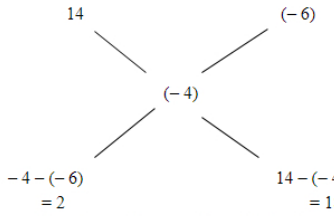
Q.7) Max Marks: 1

A trader has 50kg of rice, a part of which he sells at 14% profit and rest at 6% loss. On the whole his loss is 4%. What is the quantity sold at 14% profit and that at 6% loss?

A **5kg , 45kg** — Correct Option

Solution: (A)

Solution: Ist Part IInd Part



$(-ve)$ sign shows the quantity sold at a loss.

Therefore, Ratio of quantities sold at 14% profit and 6% loss = 2 : 18 = 1 : 9

Therefore, Quantity sold at 14% profit $= \frac{50}{1+9} * 1 = 5kg$ and quantity sold at 6% loss $= \frac{50}{1+9} * 9 = 45kg$.

B **10kg , 40kg**

C **8kg , 32kg**

D **None of these**

Q.8) Max Marks: 1

A man earns $x\%$ on the first income of ₹ 2000 and $y\%$ on the rest of his income.
If he earns ₹ 700 from ₹ 4000 and ₹ 900 from ₹ 5000 of income, find $x\%$

A **20%**

B **15%** — Correct Option

Solution: (B)

Solution: Income from ₹ 4000 $= \frac{2000*x}{100} + \frac{2000*y}{100}$

$= 20(x+y)$

$\Rightarrow 20(x+y) = 700$

$\Rightarrow x+y = 35$ ....(i)

Income from ₹ 5000 $= \frac{2000*x}{100} + \frac{3000*y}{100}$

$= 20x + 30y$

$\Rightarrow 20x + 30y = 900$

$\Rightarrow 2x + 3y = 90$ ....(ii)

By solving equations (i) and (ii), we get,

$x = 15$ *and* $y = 20$

C **25%**

D **None of the above**

Q.9) Max Marks: 1

A container is full of a mixture of kerosene and petrol in which there is 18% kerosene. Eight litres are drawn off and then the vessel is filled with petrol. If the kerosene is now 15%, how much does the container hold?

A **40 litres**

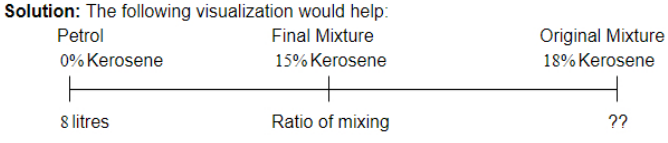
B **32 litres**

C **36 litres**

D **48 litres** — Correct Option

Solution: (D)

Solution: The following visualization would help:



$= 3 : 15$

$= 1 : 5$

From the figure we can see that the original mixture would be 40 litres and petrol being mixed is 8 litres. Thus the container capacity is 48 litres.

Short-Cut Method (Direct Formula)

$Left\% = Initial\% * (1 - \frac{replacement}{total})$

$\Rightarrow 15 = 18 * (1 - \frac{8}{x})$

$\Rightarrow 15x = 18 * (x - 8)$

$\Rightarrow 18x - 15x = 144$

$\Rightarrow x = 48$ litres.

Q.10) Max Marks: 1

A, B and C are partners. A receives $\frac{2}{3}$ of profits, B and C dividing the remainder equally. A's income is increased by ₹ 200 when the rate to profit rises from 5 to 7 percent. Find the profit of B?

A ₹ 2450

B ₹ 3600

C ₹ 2500 Correct Option

Solution: (C)

Solution: Profit Sharing Ratio of A,B and C is : $\frac{2}{3} : \frac{1}{6} : \frac{1}{6} = 4 : 1 : 1$

Let the total profit be ₹ x

So we can say that, $x * \frac{2}{100} * \frac{3}{4} = 200$

$\Rightarrow x = \frac{200*100*3}{4}$

$\Rightarrow x =$ ₹ 15000

Profit of B $= 15000 * \frac{1}{6} =$ ₹ 2500

D ₹ 3100

Q.11) Max Marks: 2

.A 10% gain is made by selling the mixture of two types of milk at ₹ $48/kg$. If the type costing ₹ $61/kg$ was mixed with $100kg$ of the other, how many kilograms of the former was mixed?

A **38kg**

B **30.5kg**

C **38kg or 30.5kg**

D **Cannot be determined** Correct Option

Solution: (D)

Solution: We cannot determine the answer to this question as we do not know the price per kg of the other type of milk. Hence, we cannot find the ratio of mixing which would be required in order to move further in this question.

Q.12) Max Marks: 2

A dealer marks articles at a price that gives him a profit of 30%. 6% of the consignment of goods was lost in a fire in his premises, 24% was spoiled and had to be sold at half the cost price. If the remainder was sold at the marked price, what percentage profit or loss did the dealer make on that consignment?

A **3% Loss**

B **2.5% Profit**

C **3% Profit** Correct Option

Solution: (C)

Solution: Assume that for 100 items the cost price is ₹ 100, then the selling price is ₹ 130. Since 24 is sold at half the price, he would recover $24 * \frac{1}{2} =$ ₹ 12 (since it is sold at half the cost price)

The remaining 70 would be sold at $70 * 130\% =$ ₹ 91.

Total revenue $= 91 + 12 =$ ₹ 103

So we can say that it is a 3% profit.

D **2.5% Loss**

Q.13) Max Marks: 2

A sum of ₹ 8,000 is borrowed at 5% p.a. compound interest and paid back in 3 equal installments. What is the amount of each installment?

A ₹ 2,739.67

B ₹ 3,000

C ₹ 2,037.67

D ₹ 2,937.67 Correct Option

Solution: (D)

Solution: Let the repayment annually be x. Then:
$8000 * (1 + \frac{5}{100})^3 = \{x * (1 + \frac{5}{100})^2\} + \{x * (1 + \frac{5}{100})^1\} + x$
$\Rightarrow 8000 * 1.157625 = 1.1025x + 1.05x + x$
$\Rightarrow 9261 = 3.1525x$
$\Rightarrow x = ₹ 2,937.67$

Q.14) Max Marks: 2

Two friends R and S invest in a grocery shop. S invests Rs. 25000 while R invests Rs. 35000 monthly. Third friend T joins them with the condition that all of them must get an equal share of profit. To do so, he gives Rs. 400000 to R and S to share between themselves. Find the ratio in which R and S should share the money given by T?

A **5:7**

B **7:5**

C **7:13** Correct Option

Solution: (C)

Solution: Total value of investment of R and S after 12 months will be,
R's investment = ₹ $35000 * 12 months$ = ₹ 420000
S's investment = ₹ $25000 * 12 months$ = ₹ 300000
Profits need to be same so investment share must be the same too.
Now ₹ 400000 given by T needs to be shared by R and S so that their investment value becomes the same.
Therefore, If ₹ x must be given to R, then ₹ $420000 + ₹ x = ₹ 300000 + (₹ 400000 - ₹ x)$
$\Rightarrow x = ₹ 140000$ (Money received by R)
So the money received by S = ₹ 400000 – ₹ 140000 = ₹ 260000
Hence the ratio in which R and S share the money given by T = 140000 : 260000 = 7 : 13

D **13:7**

Q.15) Max Marks: 2

A dealer buys 30 rickshaws for ₹ 4,725. Of these, 8 are four-seaters and the rest are two-seaters. At what price must he sell the four-seaters so that if he sells the two-seaters at $\frac{3}{4}th$ of this price, he makes a profit of 40% on his outlay?

A ₹ 180

B ₹ 270 Correct Option

Solution: (B)

Solution: Let the price at which the four seaters are sold is ₹ x.
Hence the price at which the two seaters are sold is ₹ $0.75x$.
So according to the question the equation is
$\Rightarrow x * 8 + 0.75x * 22 = 140\% * 4725$
$\Rightarrow 8x + 16.5x = 6615$
$\Rightarrow 24.5x = 6615$
$\Rightarrow x = 270$

C ₹ 360

D ₹ 450

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