MBA PIONEER 2024

QUANTITATIVE APTITUDE

DPP: 9

Profit and Loss - 2

Q1 Rabin marked a scooter at 50% above his cost price. What is the maximum number of successive discounts each being 5%, he can give such that he does not make a loss?

(A) 7 (B) 9
(C) 8 (D) 11

Q2 A machine manufactures earphones at the rate of 60 units per hour. The earphones are sold for $100 each and the cost of production is $70 each. However, 15% of the earphones have some defect and thus cannot be sold. The production rate of machine can be increased, but every increase of x units/hour would increase the production cost by 2.5x% and the number of defective earphones would become (15 + 2x) %. Then find the maximum increase in production of earphones that can be undertaken without incurring losses.

(A) 3 (B) 4
(C) 5 (D) 7

Q3 Raju bought a headphone from Baburaj at a certain price. Raju sold the headphone to Shyam at a profit of $33\frac{1}{3}\%$. Had he bought the headphone from Baburaj at Rs.1500 more and sold it to Shyam at Rs.1600 more, the profit would have been 25%. Find the price at which Raju bought the headphone from Baburaj.

(A) Rs. 3300 (B) Rs. 6000
(C) Rs. 4500 (D) Rs. 6300

Q4 Tyrion is a rice trader who makes a profit of 20% by selling rice. On a certain day, he adds 2 kg of freely available crushed stones to p-kg of rice and sells it at the usual price. If the profit he makes on selling this rice is 25%, then what is the value of p?

(A) 48 (B) 42
(C) 45 (D) 40

Q5 A shop sold Apples, Guavas and Pineapples at Rs. 40, Rs. 24 and Rs. 60 per piece respectively. Maithili spent a total of Rs. 1064 buying these fruits. The number of guavas she bought was equal to the sum of twice the number of pineapples and half the number of apples she purchased. How many guavas did Maithili purchase?

(A) 11 (B) 19
(C) 16 (D) 14

Q6 A particular amount of pink candies, which cost Rs. 60 per kg, was combined with 27 kg of blue candies, which cost Rs. 80 per kg. What was the quantity of pink candies put in the mixture if a shopkeeper sold the mixture for Rs. 97.5 per kg and made a profit of 25%?

(A) 3 kg (B) 6 kg
(C) 12 kg (D) 13 kg

Q7 Surya buys a few bananas at 15 for a rupee and the same number of bananas at 20 a rupee. He combines the two lots together and sells them at 35 for 2 rupees. What is his gain or loss percentage?

(A) Loss 1.04% (B) Gain 1.94%
(C) Loss 2.04% (D) Gain 2.94%

Q8 A sunglass company bears an expense of Rs. 240 for producing every sunglass. Also, they have to pay an additional cost of Rs. 25,000, which does not depend on the number of sunglasses produced. If they are able to sell a sunglass during the summer season, they sell it for Rs. 340. If they fail to do so, they have to sell each sunglass for Rs. 200. If they are able to sell

only 1,400 out of 1,700 sunglasses, they have made in the summer season, then they have made a profit of:

(A) ₹ 103000 (B) ₹ 90000
(C) ₹ 77000 (D) ₹ 64000

Q9 A shop owner promises to provide a discount off the cost price, with a 20% discount off wheat flour and a 25% discount off corn flour, even though the cost prices for both flours are the identical. What is the shop owner's profit % if he uses a false weight of 750 gm for per kg of wheat flour and 800 gm for per kg of corn flour when a customer purchases two times as much wheat flour as corn flour?

(A) $6\frac{7}{23}\%$
(B) $8\frac{7}{23}\%$
(C) $2\frac{4}{23}\%$
(D) $2\frac{17}{23}\%$

Q10 If a manufacturer sells a product to a wholesaler with a 16.66% profit margin, the wholesaler then sells to a dealer with a 9.09% profit margin, the dealer sells to a retailer with a 10% profit margin, and the retailer sells to a customer at an 8.33% profit margin for a final price of Rs. 4680, what is the approximate initial manufacturing cost (in Rs.) of the product?

(A) 3309 (B) 3086
(C) 3479 (D) 3025

Q11 After selling a laptop at a loss of 15%, the seller came to the conclusion that had he sold it for Rs. 30000 more, he would have gained a profit of 5%. Then the actual initial loss was what percentage of the markup done by the seller, if the discount offered is 20%, that results in no profit and no loss to the seller?

(A) 75% (B) 60%
(C) 50% (D) 25%

Q12 A shopkeeper bought 60 kg of apples at the rate of Rs 30 per kg. After 2 days, he found that the weight of apples reduced by 15%. He immediately sold half of the apples at the rate of Rs 45 per kg. The next day he found the weight of the remaining apples reduced by 8% again. Now he sold all remaining apples at the rate of Rs 50 per kg. Find his profit or loss percentage.

(A) 29% profit (B) 29% loss
(C) 28% profit (D) 28% loss

Q13 Virat bought two apartments, apartment A and apartment B, at Marina Beach in Chennai. The price of apartment A decreases by 25% every year concerning the previous year. The price of apartment B increases 25% every year concerning the previous year. If the price of both the apartments were equal at the end of 2041 and the price of both the apartments together at the end of 2042 will be 42 crores. What will be the price of apartment 'A' at the end of 2040?

(A) 24 crores (B) 28 crores
(C) 25 crores (D) 22 crores

Q14 A government of a certain country has two types of missiles of the same cost price. One missile sold at 10% profit and another sold at 5% loss. They get a total profit of 2.56 million. Find the total profit percentage earned.

(A) 1.5% (B) 2.15%
(C) 1.25% (D) 2.5%

Q15 Virat buys some affordable LED bulbs from China for $7 apiece. He hires a fixed-wage engineer to brand and customize the LED bulbs. Then he sells 100 LED bulbs at $11 each. He gets a net profit of $200 if the remaining LED bulbs are sold at $10 each, and a net loss of $200 if the remaining LED bulbs are sold at $8 each. The engineer's pay (in dollars) is:

(A) 500 (B) 600
(C) 700 (D) 800

Q16 A Shopkeeper buys some color pencils of different colors - 6 dark blue, 16 violet and 8 queen blue from a dealer where the cost of 5 dark blue pencils is the same as that of 20

violet pencils or 7 queen blue pencils. They mix all the three types of pencils and mark a price for the mixture in order to make a profit of Rs. 1695. He sells 6 pencils from the combined set of pencils at this marked price and the remaining at a 16.66% discount on the marked price, thus making a total profit of Rs. 1117. Then the amount, in rupees, that they had spent in buying dark blue pencils is:

(A) 1005 (B) 1006
(C) 1007 (D) 1008

Q17 A shop owner sells loose mustard oil from oil containers of fixed volumes. From a new oil container, he sold $\frac{3}{5}^{th}$ of the oil at 45% profit, $\frac{1}{3}^{rd}$ of the oil at 18% profit, and the remaining part of the oil at 15% profit. If in the entire transaction he gained Rs. 272, then what is the cost price (in Rs.) of the container filled with oil?

(A) 1000 (B) 900
(C) 800 (D) 700

Q18 A seller marks up the price of the article by n and then offers a discount of n, he ends up making a loss of Rs. 100. Had he marked up the price of article 3n and provided a discount of 2n, he would have made a loss of Rs. 300. How much profit will he earn if he marks up articles by 2n and provides a discount of n?

(A) Rs. 100 (B) Rs. 200
(C) Rs. 300 (D) Rs. 400

Q19 Rohit buys two kinds of loose chocolates, the first of which costs twice as much as the second. He combines the two varieties of chocolates and makes a 25% profit by selling for Rs. 28 per kg. If the ratio of the first to the second type of chocolates in the mixture is 2:3, then the price of the more expensive variety is:

(A) Rs. 8 /kg (B) Rs. 16 /kg
(C) Rs. 32 /kg (D) Rs. 64 /kg

Q20 Saner purchased a copy and an eraser from a shop. The price of the eraser was less than 15% of that of a copy. Had the cost of the copy been increased by Rs. 10 then cost of the eraser would have been more than 10% of the new cost of the copy. What can be the minimum possible cost of the copy? (Cost of the eraser and the cost of the copy are integer values.)

(A) Rs. 27 (B) Rs. 30
(C) Rs. 17 (D) Rs. 7

Q21 A wholesaler offers 5 candies at the list price of 4 candies and on purchasing 19 such candies, give one candies absolutely free. A retailer gets 20 candies in the offer and sells each at its list price. What is the net profit of the retailer?

(A) 24% (B) 31.58%
(C) 35% (D) 53.75%

Q22 Manik spent Rs. 4500 on two LED lights A and B. If he sold A for 20% profit and B for 50% profit, the selling price of both lights is the same. But if he sells A at 50% profit and B at 20% loss, what is his total loss or profit (in Rs.)?

Q23 A jewelry shop sells a gold item of 65% purity. The jewelry shop owner charges an additional 10.25% as the making charge of 100% pure gold. Find the approximate percentage profit of the jewelry shop owner.(rounded off answer)

Q24 Sonakshi spends Rs. 5680 on two sorts of apples, A and B. Sonakshi purchased weights in kg of A and B in the ratio 7:9, however, the cost per kg of A is 25% more than that of B. Sonakshi sells A and B for 30% and 15% profit, respectively. What is the total profit in INR?

Q25 Rocky sells oranges beside Mumbai Road. Due to a recent shortage in orange supply, he increased his selling price four times, despite the fact that his cost price remained the same due to a fixed-price agreement. He realizes that he is getting 6 times the earlier profit. Determine the initial profit percentage.(in %) ?

Q26 Shreya spent some of her earnings to buy a Bluetooth speaker. She priced the Bluetooth speaker more than its cost. Shreya made a

profit of Rs. 1540 by selling the Bluetooth speaker to her friend Priya at a 5% discount off the listed price. Shreya gains 33% profit if she does not provide a discount and sells the Bluetooth speaker at its listed price. Then, how much does the Bluetooth speaker cost (in rupees) to Shreya? (approximate to the nearest integer)

Q27 Mr. Kabir can buy Cadbury chocolates at the rate of Rs. 60 per candy. He sells the first candy for Rs. 6, second one for Rs. 12, third for Rs. 18... and so on. If he wants to make an overall profit of at least 40%, what is the minimum number of Cadbury chocolates he should sell?
[Note-Sum of n consecutive natural numbers = $\frac{n(n+1)}{2}$]

Q28 A seller bought few cube-shaped burfi at the rate of 20 per Rupee and the same number at the rate of 12 per Rupee. He put both types of Burfi's together in a cuboid shape container in such a way that there is no empty space inside it (i.e volume of cuboid shaped container = volume of all the burfi taken together) and sold at the rate of 36 for Rs 2. As of total, he experienced a loss of Rs 9. If the volume of cuboid shaped container is 3240 cm^3,then what is the volume of (in cm^3) each barfi?

Q29 A corrupt trader claims to sell paddy at its cost price. He uses a faulty weight that is 15% less than the actual weight. Additionally, he mixes impurities which is 15% of the initial total paddy. Find the net profit percentage of the trader?

(A) 34.85% (B) 35.29%
(C) 36.85% (D) 38.45%

Q30 A shopkeeper marked coffee at 60% above its cost price and then allowed a discount of 25% on its marked price. Also, he uses a ***false weight*** of 800 grams instead of 1 kg. Calculate his total gain%.

(A) 45.5% (B) 50%
(C) 51.25% (D) 48%

Answer Key

Q1	(A)
Q2	(B)
Q3	(A)
Q4	(A)
Q5	(C)
Q6	(A)
Q7	(C)
Q8	(A)
Q9	(C)
Q10	(B)
Q11	(B)
Q12	(A)
Q13	(B)
Q14	(D)
Q15	(D)
Q16	(D)
Q17	(C)
Q18	(A)
Q19	(C)
Q20	(A)
Q21	(B)
Q22	850
Q23	70
Q24	1272
Q25	150
Q26	5844
Q27	27
Q28	4
Q29	(B)
Q30	(B)

Hints & Solutions

Q1 Text Solution:

Let the cost price be Rs.100

M.P-100+(100 x (50/100))

M.P=100+50= Rs. 150

Now,

After first discount

S.P.=(150-(150 x (5/100))

S.P. = Rs. 142.5

After second discount

S.P. =(142.5-(142.5 x (5/100))

S.P. = Rs. 135.375

After third discount

SP =(135.375-(135.375 x (5/100))

=> S.P=Rs. 128.60625

After fourth discount

SP =(128.60625 -(128.60625 x (5/100))

SP=Rs 122.1759375

After fifth discount,

SP = (122.1759375 - 122.1759375 × 5/100)

SP = 116.0671406 ≈ 116

After sixth discount,

SP = (116-116 × 5/100)

SP = 110.2

After seventh discount,

SP = (110.2 -110.2 × 5/100)

SP = 104.69

After the seventh discount ,if further discount is given then Rabin makes a loss.

So, total number of discounts = 7

Q2 Text Solution:

Revenue in 1 hr = 100(60+x) × (100-15-2x)/100

Cost = 70(60+x) (100+2.5x)/100

Profit = 900-3.75x^2 -210x

Now, 900-3.75x^2 -210x $\geq$0

$-3.75x(x+56)+900 \geq 0$

At x = 4,$-3.75x(x+56)+900=0$

For x > 4, loss incur

So, answer is 4

Q3 Text Solution:

Let, $33\frac{1}{3}\% = \frac{1}{3} = \frac{\text{Profit}}{\text{Cost}} = \frac{x}{3x}$ { let cp be 3x and profit be x }

Now, CP will be = 3x

And,

SP = 3x + x = 4x

$25\% = \frac{1}{4} = \frac{\text{New Profit}}{\text{New Cost}}$

According to the question:

- $\frac{(4x+1600)-(3x+1500)}{3x+1500} = \frac{1}{4}$
- $\frac{x+100}{3x+1500} = \frac{1}{4}$
- x = 1100

Therefore, cost price for Raju = 3x = Rs. 3300

Hence option (A) is the correct answer.

Q4 Text Solution:

Let CP/kg = Rs. 10

Let SP/kg = Rs. 12 [As, Profit = 10 × 1.2 = 2]

On a particular day, he adds stones (p) to the rice.

CP of 1 kg = Rs. 10p

SP of 1 kg = Rs. 12(p+2) [Adding 2 kg of stones]

$\frac{SP}{CP} = 1 + Profit\%$

$\Rightarrow \frac{12(p+2)}{10p} = 1.25$

$\Rightarrow \frac{6(p+2)}{5p} = \frac{5}{4}$

$\Rightarrow 24p + 48 = 25p$

$\Rightarrow p = 48$

Q5 Text Solution:

Let a, b & c be the quantity of apples, guavas and pineapples purchased.

b = 2c+0.5a

40a +24b+ 60c = 1064

52a+108c = 1064.

13a+27c = 266

=> $a = \frac{266-27c}{13}$

=> c = 6, a = 8, b = 16{use by hit and trial method}

Hence, Maithili purchased 16 guavas.

Q6 Text Solution:

Let x kg of pink candies be mixed.

The mixture was sold at Rs. 97.5 per kg and 25% profit was earned.

(125/100)× CP = 97.5
=> CP = (97.5 × 100)/125
=> CP = Rs. 78 per kg
So, (27 × 80 + x × 60)/(27 + x) = 78
=> 2160 + 60x = 2106+ 78x
=> 18x = 54
=> x = 3

Q7 **Text Solution:**

Number of bananas for a rupee = 15
Number of bananas for a rupee = 20
Mixes the two lots and sell them 35 for 2 rupees.
Let the number of bananas be 'x'
So, cost of x bananas would be x/15
cost of another x bananas would be x/20
total cost price would be:
x/15+x/20=(4x+3x)/60=7x/60
Selling price for 2x bananas would be
(2x×2)/35=4x/35
So, loss = cost price – selling price
=7x/60-4x/35=(49x-48x)/420=x/420
Thus, the loss% =(x/420)/(7x/60)×100=(x×60)/(420×7x)×100=2.04%
Hence, the correct option is (C).

Q8 **Text Solution:**

Since, they made 1700 sunglasses costing ₹ 240 each and an additional ₹ 25000 expense on them.
Thus, total Cost = (1700×240) + 25000
= ₹ 433000
Now we will calculate the revenue they earned from selling them. As, they are able to sell 1400 sunglasses in the summer season at ₹340 each.
So, the revenue earned by them during the summer season = ₹340 × 1400
= ₹ 476000
Also, the left over 300 pieces of sunglasses would have been sold by the company in off season 200 each.
Revenue earned through these 300 sunglasses = 300×200
= ₹ 60000
Total Revenue = ₹ 476000 + ₹60000 = ₹536000
Profit = Revenue – Cost
= ₹ 536000 – 433000
= ₹ 103000

Q9 **Text Solution:**

Let the C.P of wheat flour or corn flour for the shopkeeper be Rs. 'K' per kg.
S.P of wheat flour = 80K/100 = Rs. 4K/5 per kg
S.P of corn flour = 75K/100 = Rs. 3K/4 per kg
Let the customer buys 2 kg wheat flour and 1 kg corn flour
So, the customer will pay 2 × (4K/5) + (3K/4) = Rs. 47K/20
Since faulty weights are used, the customer actually buys
2 × 750 gm of wheat flour or (3/2) kg wheat flour and 800 gm of corn flour or (4/5) kg corn flour
Actual C.P of the items sold = (3/2)× K + (4/5) x K = Rs. 23K/10
percentage profit = ((47K/20 - 23K/10) / (23K/10)) × 100% = $2\frac{4}{23}\%$

Q10 **Text Solution:**

We will work backwards from the customer's price to find the initial manufacturing cost.
Retailer's cost:
The customer paid Rs. 4680, which includes an 8.33% profit for the retailer. We will find the cost at which the retailer bought the product.
Let's denote the retailer's cost as 'R'.
R + 8.33% of R = Rs. 4680
R × (1 + 0.0833) = Rs. 4680
R = Rs. 4680 / 1.0833 ≈ Rs. 4320
Dealer's cost:
The retailer bought the product with a 10% profit for the dealer. We will find the cost at which the dealer bought the product.
Let's denote the dealer's cost as 'D'.
D + 10% of D = Rs. 4320
D × (1 + 0.10) = Rs. 4320
D = Rs. 4320 / 1.10 ≈ Rs. 3927.27
Wholesaler's cost:
The dealer bought the product with a 9.09% profit for the wholesaler. We will find the cost at which the wholesaler bought the product.
Let's denote the wholesaler's cost as 'W'.

W + 9.09% of W = Rs. 3927.27
W × (1 + 0.0909) = Rs. 3927.27
W = Rs. 3927.27 / 1.0909 ≈ Rs. 3600
Manufacturer's cost:
The wholesaler bought the product with a 16.66% profit for the manufacturer. We will find the initial manufacturing cost.
Let's denote the manufacturer's cost as 'M'.
M + 16.66% of M = Rs. 3600
M × (1 + 0.1666) = Rs. 3600
M = Rs. 3600 / 1.1666 ≈ Rs. 3086

Q11 Text Solution:

Let's break down the given information and solve the problem step by step.

- The seller sold the laptop at a loss of 15%.
- If he had sold it for Rs. 30000 more, he would have made a profit of 5%.
- We need to find the actual initial loss as a percentage of the markup done by the seller if the discount offered is 20%, resulting in no profit and no loss.

Let's denote the cost price (CP) of the laptop as 'C' and the selling price (SP) of the laptop as 'S'.
From the given information, we can write the following equations:
S = C × (1 - 0.15) = C × 0.85
S + 30000 = C × (1 + 0.05) = C × 1.05
We can solve these two equations to find the cost price 'C':
C × 0.85 + 30000 = C × 1.05
30000 = C × 1.05 - C × 0.85
30000 = C × 0.2
C = $\frac{30000}{0.2}$
C = 150000
Now that we have the cost price, we can find the actual selling price 'S':
S = C × 0.85 = 150000 × 0.85 = 127500
Next, let's find the markup price (MP) at which the seller would neither make a profit nor a loss, given a discount of 20%.
Since a discount of 20% results in no profit and no loss, we can write:
MP × (1 - 0.20) = C
MP × 0.80 = 150000
MP = $\frac{150000}{0.80}$
MP = 187500
Now, we can find the actual initial loss as a percentage of the markup price:
Actual Initial Loss = C - S = 150000 - 127500 = 22500
Now, let's find the markup done by the seller:
Markup = MP - C = 187500 - 150000 = 37500
Finally, we can find the actual initial loss as a percentage of the markup:
Actual Initial Loss Percentage = ($\frac{\text{Actual Initial Loss}}{\text{Markup}}$) × 100
= ($\frac{22500}{37500}$) × 100
= 0.6 × 100
= 60%
Therefore, the actual initial loss was 60% of the markup done by the seller.

Q12 Text Solution:

Cost price = 60 × 30 = 1800
After two days weight of apples = 85% of 60 = 51 kg
Selling price of 25.5 kg apples = 25.5 × 45 = 1147.5
Third day weight of apples = 92% of 25.5 = 23.46 kg
Selling price of 23.46 kg apples = 23.46 × 50 = 1173
Total selling price of apples = 1147.5 + 1173 = 2320.5
Profit percentage = (2320.5 - 1800) / 1800 × 100
= 520.5 / 1800 × 100
= 29% (approx.)

Q13 Text Solution:

At the end of 2040, let the price of apartment 'A' be ₹ m. At the end of 2040, let the price of apartment 'B' be ₹n.
m × 75% = n × 125%
m × 3/4 = n × 5/4
3m = 5n .....(1)
Again, according to the condition given in the question,
m × 3/4 × 3/4 + n × 5/4 × 5/4 = 42 crores

9m + 25n = 42 × 16 crores

9m + 25n = 672 .....(2)

Put equation (1) in (2)

3 × 3m + 25n = 672 crores

3 × 5n + 25n = 672

40n = 672 crores

n = 672/40 = 16.8 crores

Since 3m = 5n

3m = 5 × 16.8 = 84

m = 84/3 = 28 crores

Hence, option (B) is the correct answer.

Q14 Text Solution:

Let the cost price of a missile be Rs. x.

Therefore, the selling price of one missile = x × $\frac{110}{100}$ = Rs. $\frac{11x}{10}$

Selling price of another missile =x × $\frac{95}{100}$ = Rs. $\frac{19x}{20}$

($\frac{11x}{10}$ + $\frac{19x}{20}$) - 2x = 2560000

$\frac{x}{20}$ = 2560000

x = 51200000

Total cost price of two missiles = 51200000 × 2 = Rs. 102400000

Thus, the required percentage = $\frac{2560000}{102400000}$ × 100 = 2.5%

Thus, option (D) is the correct answer.

Q15 Text Solution:

Let the number of LED bulbs purchased be n. Then the cost price is 7n. The total expenses incurred would be 7n + W, where W refers to the wage.

Then SP in the first case = 11 × 100 + 10 × (n – 100)

Given profit is $200.

In this case:

1100 + 10n – 1000 - 7n - W = 200

=> 3n – W = 100

In second case:

1100 + 8n – 800 - 7n - W = -200 (Loss).

=> W-n = 500.

Adding the two equations: 2n = 600

n = 300.

Thus, W = 500 + 300 = $800

Q16 Text Solution:

It is given, 5D = 20V = 7Q and he bought 6D, 16V and 8Q.

Let, 5D = 20V = 7Q = 140k

D = 28k, V = 7k, and Q = 20k

Cost price of 6D, 16V and 8Q = 6(28k) + 16(7k) + 8(20k) = 440k

Marked up price = 440k + 1695

S.P. = $\frac{6}{30}$ × (440k + 1695) + (1 - $\frac{6}{30}$) (440k + 1695) (1 - $\frac{50}{3}$%) [Since, 16.66% = $\frac{50}{3}$ %]

= $\frac{1}{5}$(440k + 1695) + $\frac{4}{5}$ × $\frac{5}{6}$ × (440k + 1695)

= $\frac{13}{15}$ (440k + 1695)

So, the profit = S.P. – C.P.

= $\frac{13}{15}$ (440k + 1695) - 440k

= 1469 – $\frac{176k}{3}$

Therefore, by the condition,

1469 – $\frac{176k}{3}$ = 1117

$\frac{176k}{3}$ = 1469 – 1117

$\frac{176k}{3}$ = 352

k = 6

Then, the cost of dark blue pencils = 6D = 6 × 28 × 6 = Rs. 1008

Q17 Text Solution:

Let the cost price of the container filled with oil = Rs. x.

SP of the container filled with oil = 145% of ($\frac{3x}{5}$) + 118% of ($\frac{x}{3}$) + 115% of (1 - $\frac{3}{5}$ – $\frac{1}{3}$)x

= $\frac{87x}{100}$ + $\frac{118x}{300}$ + $\frac{23x}{300}$

= $\frac{402x}{300}$

Profit = SP – CP

=> 272 = $\frac{402x}{300}$ – x

=> $\frac{102x}{300}$ = 272

=> x = Rs. 800

Q18 Text Solution:

Let the cost price of the article be 'x'.

When the seller marks up the price of the article by n and offers a discount of n, he incurs a loss of Rs. 100.

(1 + n)(1 – n)x = x – 100

Solving this we get, xn^2 = 100 ..... (1)

When the seller marks up the price by 3n and offers a discount of 2n, the selling price of the article will be (1 + 3n)(1 – 2n)x = x – 300

$x + nx - 6n^2x = x - 300$ ..... (2)

substituting (1) in, we get

$n = \frac{1}{3}$ and $x = 900$

When the seller marks up the price by 2n and offers a discount of n, the selling price of the article will be $(1 + 2n)(1 - n)x$.

Substituting the values of x and n we get SP = Rs. 1000

Hence, profit will be Rs. 1000 – Rs. 900 = Rs. 100

Q19 **Text Solution:**

As Rohit makes profit of 25%, cost price of mixture = $\frac{28}{1.25}$ = Rs.22.4

As the ratio of first kind to second kind of chocolates is 2:3, in 1 kg of mixture the quantities of first and second kind are $\frac{2}{5}$ kg and $\frac{3}{5}$ kg respectively.

Let P be the price of the expensive chocolate.

$P \times \frac{2}{5} + \frac{P}{2} \times \frac{3}{5} = 22.4$

P = Rs 32.

Q20 **Text Solution:**

Let the cost of the copy be Rs. b and that of the eraser be Rs. a.

By the given conditions,

(i) $a < 0.15b$

(ii) $(b + 10) \times 0.1 < a$

From (i) and (ii), we get

$0.1b + 1 < a < 0.15b$

$\therefore 1 < 0.05b$

$\therefore 20 < b$

$\therefore 0.1 \times 20 + 1 < 0.1b + 1 < a \Rightarrow 3 < a$

As b > 20, options [C] and [D] can be eliminated.

For b = 27, we get $0.1b + 1 < a < 0.15b$

$\Rightarrow 3.7 < a < 4.05$

$\Rightarrow$ value of a = 4

For b = 30, we get $0.1b + 1 < a < 0.15b$

$\Rightarrow 4 < a < 4.5$

$\Rightarrow$ No integer value for a is possible.so option (a) is answer

Q21 **Text Solution:**

Let the list price of 4 candies be 100, so the retailer gets 5 candies for 100, which means the cost of each candy for the retailer is 20. When he purchases 19 candies it will cost him 380 but he will get 20, so absolute cost per candy for the retailer is $\frac{380}{20}$ = 19.

He sells each candy at a list price which is 25.

Therefore, profit % = $\frac{25-19}{19} \times 100$= 31.58%

Q22 **Text Solution:**

Let the CP of lamps A and B be x and y respectively

Therefore, 120% of x = 150% of y

$\Rightarrow \frac{6x}{5} = \frac{3y}{2}$

$\Rightarrow \frac{x}{y} = \frac{5}{4}$

So, the cost price of lamp A = $\frac{5}{9} \times 4500 = 2500$

And cost price of lamp B = $2500 \times \frac{4}{5} = 2000$

Overall Profit when he sells A at 50% profit and B at 20% loss

= 50% of 2500 – 20% of 2000

= 1250 – 400

= 850

Q23 **Text Solution:**

Let the price of 100% pure gold = Rs. P

But, at the price of Rs P, the shop owner gives 65% of gold.

So, the cost of 65% gold = $\frac{65P}{100} = \frac{13P}{20}$

The jewelry shop owner also charges an additional 10.25% as the making charge of 100% pure gold.

So, the making charge = $P \times \frac{10.25}{100} = \frac{41P}{400}$

So, the selling price of gold item = $P + \frac{41P}{400}$

$= \frac{441P}{400}$

Profit of the jewelry shop owner

$= \frac{441P}{400} - \frac{13P}{20}$

$= \frac{441P}{400} - \frac{260P}{400}$

$= \frac{181P}{400}$

Hence, the required profit%

$= \frac{\frac{181P}{400}}{\frac{13P}{20}} \times 100$

$\approx$ 69.61%

= 70% (approx.)

Q24 **Text Solution:**

It is given that Sonakshi purchases two sorts of Apples - A and B for a total of rupees 5680.

It is also given that the weights are in the ratio 7 : 9.

So, let's suppose that the weight of A and B are '7x' kgs and '9x' kgs respectively.

Given that, the cost per kg of A is 25% more than that of B.

So, the costs are in the ratio of 5: 4.

So let's suppose that the cost per kg of A and B are '5y' and '4y' respectively.

The amount spent on A and B are 35xy and 36xy

We know that the amount spent is Rs. 5680.

Therefore 35xy + 36xy = 5680

71xy = 5680

xy = 80.

Hence A = 35(80) = 2800

B = 36(80) = 2880

Sonakshi sells A with a profit of 30%. So, the selling price of A is Rs. 3640.

Sonakshi sells B with a profit of 15%. So, the selling price of B is Rs. 3312.

Total selling price = (3640 + 3312) = Rs. 6952

Net Profit = Rs. 6952 - 5680 = Rs. 1272

Q25 **Text Solution:**

Let the C.P. be x and S.P. be y.

∴ Given,

6(y-x) = 4y – x

=> 6y – 6x = 4y – x

=> 2y = 5x

$\frac{x}{y} = \frac{2}{5} = k$ (say)

$\frac{x}{2} = \frac{y}{5} = k$

x = 2k, y = 5k

Original profit = Rs. y – x

= Rs. 5k – 2k

= Rs. 3k

∴ Original profit % = $\frac{3k}{2k}$ × 100

= 150 %

Q26 **Text Solution:**

Let CP and MP of the Bluetooth speaker are Rs. C and Rs. M, respectively.

So, SP = 0.95M

So, C = 0.95M - 1540

S.P = Rs. M

Profit = SP – CP = M - 0.95M + 1540

=> Profit = 0.05M + 1540

So, profit % = 33%

=> $\frac{(0.05M + 1540)}{(0.95M - 1540)} = \frac{33}{100}$

=> M ≈Rs. 7773

Hence, CP = 0.95 × 7773 - 1540 = Rs. 5844.35 = Rs. 5844 (approx.)

Q27 **Text Solution:**

Let us assume he buys n Cadbury chocolates.

Total CP = 60n

Total SP = 6 + 12 + 18 + 24+ ....n terms

Total SP should be at least 40% more than total CP

6 + 12 + 18 + 24+ ....n terms ≥ 1.4 × 60 n

6 (1 + 2 + 3 + ...n terms) ≥ 84n

$\frac{n(n+1)}{2}$ ≥ 14n [Since, sum of the n consecutive natural numbers = $\frac{n(n+1)}{2}$]

n^2 + n ≥ 28n

n^2 - 27n ≥ 0

n ≥ 27

If he wants to make an overall profit of at least 40%, he should sell a minimum of 27 Cadbury chocolates.

Q28 **Text Solution:**

Let the seller bought x burfies of both the types.

Amount spent on first type of burfies = x/20

Amount spent on second type of burfies = x/12

Total CP =x/20 + x/12 = 2x/15

Total SP = 2x × 2/36 = x/9

Therefore,

2x/15 -x/9 =9

x=405

Now, volume of the cuboid = 3240 cm^3

Let the volume of each burfi is p cm^3.

Therefore, by the given condition,

2x405 × p = 3240 (multiply by 2 because two types of burfi placed in container so take volume of both)

p = 4

Hence, the volume of each cube shaped burfi = 4 cm^3

Q29 **Text Solution:**

A corrupt trader claims to sell paddy at its cost price.
He uses a counterfeit weight which is 15% less than the actual weight.
Further greed overtook him, and he added 15% impurities to the product.
Let the cost price of 100 kg of pure paddy be Rs. 100.
Now, after adding 15% impurities to the paddy, the total weight becomes:
100 kg + (15% of 100 kg) = 100 kg + 15 kg = 115 kg
Now, due to the false weight, the trader sells only 85% of the actual weight, which is:
115 kg $\times$ 85% = 97.75 kg
The selling price of 97.75 kg (including impurities) is still Rs. 100, as the trader claims to sell at the cost price.
Now, let's find the cost price of 97.75 kg of the mixture. Since the cost price of 100 kg of pure paddy is Rs. 100, the cost price of 1 kg of pure paddy is Rs. 1. The 97.75 kg mixture consists of 85 kg pure paddy and 12.75 kg impurities . So, the cost price of 85 kg of pure paddy in the 97.75 kg mixture is:
85 kg $\times$ Rs. 1 = Rs. 85
Hence, the profit is:
Selling price - Cost price = 115- 85 = Rs. 30
Therefore, the profit percentage is:
$(\frac{\text{Profit}}{\text{Cost price}}) \times 100 = (\frac{30}{85}) \times 100 \approx 35.29\%$

Q30 **Text Solution:**

Let CP of coffee = Rs. a per kg
MP of coffee = (100+60) % of a = 1.6a
SP of coffee = (100-25)% of 1.6a = 1.2a
Then, profit% = $(\frac{(1.2a - a)}{a}) \times 100 = 20\%$
Profit% due to false weight = $(\frac{\text{Error}}{\text{False weight}}) \times 100$
$= (\frac{1000-800}{800}) \times 100$
= 25%
Therefore, total profit% = $(20 + 25 + 20 \times \frac{25}{100})\%$ = 50% { use successive discount farmulae }