Quantitative Aptitude

Profit & Loss & Discount

Level-1

Q1 A sold a watch to B at 8.33% loss, B sold it to C at 12.5% loss, and again C sold it to A at 16.6% profit. How much profit or loss percent is incurred by A ?
(A) 15.67% (B) 13.92%
(C) 18.18% (D) 36.36%
(E) None of these

Q2 The cost price of 30 articles is the same as the selling price of y articles. If the profit is 25%, then find the value of y.
(A) 30 (B) 34
(C) 20 (D) 24
(E) None of these

Q3 1 Man bought some to ees at the rate of 30 to ees per 10 rupees and the same number at the rate of 20 to ees per 10 rupees. He mixes them and sells 30 to ees for 20 rupees. find his profit or loss percent.
(A) 20% (B) 30%
(C) 40% (D) 50%
(E) 60%

Q4 25% of articles were sold at a profit of 75%, while the remaining were sold at x% loss. If the overall loss is 15%, then what is the value of x?
(A) 44.25% (B) 40.25%
(C) 45% (D) 35%
(E) 50%

Q5 **Directions: Study the following question carefully and choose the right answer given beside.**
Mr. Tiwari buys goods at Maharashtra at a discount of 30% on marked price. He has to pay certain kinds of duties of 15% on the net cost he paid for goods bought. He marked a new price and earned a profit of 40% over his total expenses. What is the percentage change in the marked price?
(A) 12% (B) 12.70%
(C) 28.80% (D) 13%
(E) None of these

Q6 The marked price is 40% more than the selling price of an article A and the profit earned on selling is 25%. If the difference between profit and the difference between cost price and marked price is Rs. 400, then find the profit on article A?
(A) 200 (B) 150
(C) 180 (D) 240
(E) 300

Q7 The marked price of a Trouser and a Shirt are in the ratio of 3 : 4. The shopkeeper gives a 50% discount on the trousers. If the total discount on the Trouser and the Shirt is 25% the discount offered on the Shirt is
(A) 12.5% (B) 6.25%
(C) 25% (D) 30%
(E) None of these

Q8 The marked price of a gym-vest and shorts-pants are in the ratio of 3:2. The shopkeeper gives a 20% discount on the Pants. If the total discount on the Pant and the vest is 30%.The discount offered on the vest is?
(A) 6.66% (B) 16.66%
(C) 46.66% (D) 56.66%
(E) 36.66%

Q9 The profit percent earned by Ram for a bed by selling it for Rs.17400 is equal to the loss percent incurred by Shyam by selling the same priced bed for Rs.6600. At what price should the bed be sold to make 80% profit?

(A) Rs. 22600 (B) Rs. 21500
(C) Rs. 21600 (D) Rs. 23600
(E) Rs 25000

Q10 A dealer offers a discount of 10% and still makes a profit of 10% and he further allows 4 articles free on the sale of 12 articles. Find the ratio of cost price to marked price.

(A) 27:44 (B) 9:17
(C) 1:2 (D) 3:2
(E) None of these

Q11 A shopkeeper sells two Television sets, one at a loss of 12.5% and the other at a profit of 11%. If the cost price of the loss and profit Television sets are in the ratio of 3 : 4 respectively. Then find how much profit percentage he made on selling both the Television sets?
(A) 1.97% (B) 0.93%
(C) 0.87% (D) 0.77%
(E) 1.77%

Q12 A shopkeeper is giving a discount of 25%, but a customer bargains such that the shopkeeper sells him at Rs. 300 less than he was supposed to sell. If the profit of the shopkeeper is decreased from 80% to 20%, then find the marked price of the item.
(A) Rs. 2100 (B) Rs. 1700
(C) Rs. 1200 (D) Rs. 1100
(E) Rs. 1500

Q13 The cost price of a jeans is 600 more than the cost price of a shirt. Jeans are sold at 10% profit and shirt is sold at 40% loss and the selling price of jeans and shirt are in the ratio 7: 3. If shirt are sold at 30% loss then what will be the selling price of the shirt?
(A) Rs 1520 (B) Rs 1480
(C) Rs 1660 (D) Rs 1540
(E) Rs 1840

Q14 Profit earned by a company is distributed among permanent employees and Freelancers in the ratio of 3:5 respectively. If the number of permanent employees is 180 and the number of Freelancers is 320 and the amount received by each permanent employee is Rs.100000, what was the total amount of profit earned?
(A) Rs.28000000 (B) Rs.38000000
(C) Rs.48000000 (D) Rs.58000000
(E) None of these

Q15 Of the two varieties of tea available, variety X is bought at Rs.128 per kg. And variety Y at Rs. 320 per kg. Two varieties of tea are mixed together in the respective ratio of 7:5 and the mixture is sold at Rs.288 per kg. What percent of profit approximately the seller receive?
(A) 18.46% (B) 28.46%
(C) 38.46% (D) 48.46%
(E) 58.86%

Q16 Pawan sold a book at 44% profit. If the same book was sold at 22% loss then Pawan would have earned Rs. 396 less. What was the marked price of the book if Pawan marked the book 45% above the cost price?
(A) Rs. 640 (B) Rs. 770
(C) Rs. 870 (D) Rs. 920
(E) None of these

Q17 A shopkeeper gives a discount of 20% on the marked price of every note-book and when he sells 12 notebooks he gives one note book free. What is the approximate real rate of discount offered by the shopkeeper?
(A) 26.15% (B) 36.15%
(C) 46.15% (D) 56.15%
(E) 30%

Q18 A marks an article at 60% above its cost price and sells it to B at 24% discount. B marks it up by 100% and sells it to C at a discount of 30%. If the selling price by B is Rs.1944 more than the selling price by A, find the price at which C buys the article ?
(A) Rs. 2808 (B) Rs. 3808
(C) Rs. 4808 (D) Rs. 5808

(E) Rs. 6808

Q19 A shopkeeper gives a 20% discount on each article. He also gives one article free for every 4 articles he sells and earns 8% profit, if the MRP of each article is Rs. 270 find the cost price of one article when he sells five articles.

(A) Rs 150 (B) Rs 120
(C) Rs 160 (D) Rs 100
(E) None of these

Q20 A shopkeeper buys an article at a discount of 25% on its marked price and marks it at 50% above the marked price. If he allows a 20 % discount on the new list price, then his profit percent is:

(A) 40% (B) 50%
(C) 60% (D) 72%
(E) None of these

Level-2

Q1 A trader sells two paintings for Rs. 4,800 each, neither losing nor gaining in total. If he sold one of the paintings at a gain of 20%, the other is sold at a loss of what percent?
(A) 20% (B) $18\frac{2}{9}\%$
(C) $14\frac{2}{7}\%$ (D) 21%
(E) 18%

Q2 A seller cheated his customer by using a faulty weight of 'x' grams while selling 800 grams. Which of the following can be the possible values of 'x' if he wants to earn profit percent more than 20%?
A: 750 grams
B: 700 grams
C: 650 grams
D: 600 grams
E: 550 grams
(A) All A, B, C, D, and E
(B) Only B, C, D, and E
(C) Only C, D, and E
(D) Only D and E
(E) Only E

Q3 A person bought two pens at Rs.m each.Then he sold one pen at a profit of m% and the other at a loss of m%. Find his overall profit/loss percentage.
Where m is the lowest root of the equation $x^2 - 22x + 120 = 0$.
(A) 5% profit
(B) 5% loss
(C) 1% profit
(D) 1% loss
(E) No profit or No loss

Q4 A shopkeeper falsely weights an article 30% less than actual weight and sells it to customers. If he had used the correct weight the profit would have been 20%. What is the approximate effective profit percentage?
(A) 83% (B) 65%
(C) 71% (D) 60%
(E) 75%

Q5 A loss of 20% is made by selling an article. Had it been sold for Rs. 480 more,there would have been a profit of 10%. what would be the selling price of the article if it is sold at 25% profit?
(A) 1500 (B) 1600
(C) 2000 (D) 1000
(E) None of these

Q6 'A' purchased two beds at the same price. He further sold one bed to 'B' at 60% profit and another bed to 'C' at 20% profit. 'C' further sold the bed to 'D' at 20% less than the average of cost price of the bed for 'B' & 'C'. If D incurred a 25% loss by selling the bed to 'E' at Rs.2100, then find the difference between the cost price of a bed for 'A' and 'D'
(A) Rs.700 (B) Rs.450
(C) Rs.900 (D) Rs.300
(E) Rs.600

Q7 Below are two quantities named A and B. Based on the given information, you have to determine the relation between the two quantities. You should use the given data and your knowledge of Mathematics to choose between the possible answers.
What is the profit percentage?
I. The marked price is 25% above the cost price
II. There is a discount of 5% on the marked price.
III. The difference in selling price and discount is Rs. 2500.
(A) I and II only
(B) II and III only
(C) I and III only
(D) All I, II and III
(E) None of these

Q8 A dishonest shopkeeper wants to earn 30% profit either by cheating his customer or by

cheating the seller or both. If he sells/buys 1.5 kg, then which of the following is the correct scenario?

Scenario 1: He uses a faulty weight of 1200 grams while selling to the customer.

Scenario 2: He uses a faulty weight of 1950 grams while buying from the seller.

Scenario 3: He uses a faulty weight of 1350 grams while selling and 1600 grams while buying.

(A) All 1, 2, and 3
(B) Only 1
(C) Only 2
(D) Only 1 and 2
(E) none of these

Q9 A dishonest seller wants to earn a profit of 45% after cheating his customer by using a faulty weight. Which of the following can be the desired pair of faulty weight and weight that the customer wants in order to allow the seller to gain his desired profit?

A: 400 and 580
B: 900 and 1305
C: 500 and 725

(A) All A, B, and C
(B) None
(C) Only A and B
(D) Only B and C
(E) none of these

Q10 Harshit purchased a scotty and a bike for Rs. 58500 and Rs. 45600 respectively. He sold the scotty at a profit of 36% and the bike at a loss of 62%. Find the overall profit or loss percentage made in the business.(Approximately).

(A) 17% (B) 7%
(C) 0.7% (D) 27%
(E) 10%

Q11 The MP of an article is 30% above its manufacturing cost. The article is sold through a trader, who earns a 9.5% profit on his purchase price. What is the approx. profit percentage for the manufacturer who sells his article to the trader? The retailer gives a 7.5% discount on MP.

(A) 9.81% (B) 8.81%
(C) 7.81% (D) 6.81%
(E) None of these

Q12 The cost price of alcohol in vessel X is Rs.132 per litre and the cost price of alcohol in vessel Y is Rs.102. If alcohol in vessel X and Y are mixed, then the shopkeeper sold 70 litres of this mixture at the cost price of alcohol in vessel X while he gets the profit of 20%. If he sold the same mixture at the cost price of alcohol in vessel Y, then what is the percentage of loss or profit earned by the shopkeeper?

(A) 22.2% (B) 14.8%
(C) 7.4% (D) 3.7%
(E) 5.6%

Q13 Times group launched a new magazine in January 2022. They printed 100000 copies initially for Rs. 500000. It distributed 10% of its stock freely as specimen copy and 30% of the rest of the magazines were sold at 20% discount and the rest at 10% discount. Whose printing price was 15 per copy. What is the overall gain or loss?

(A) 130% (B) 135%
(C) 140% (D) 145%
(E) None of these

Q14 Person A bought a book at 'P' rupees and marked it up 40% above cost price and sold it after giving two successive discounts of ___ rupees and 5% respectively and sold the book at ₹798. Had he offered a single discount of 20% only, he will able to sell the book at ₹840.

The value that can fill the blank is how much more/less than the value of P?

(A) 360 (B) 630
(C) 450 (D) 540
(E) 570

Q15

A family consumes 8 kg tomato and 4.5 kg onion per month and spends Rs.2720. The price of tomato is 20% of the price of the onion, if the price of the onion is increased by 10% while the price of the tomato remains constant. To maintain the budget of the family, they reduce consumption of tomatoes. Then find the approximate cost price of an article whose Marked price is Rs. 700 and discount is 10%, if the profit percentage is equal to the percentage of reduction in consumption of tomato.

(A) Rs.450.60 (B) Rs.550.50
(C) Rs.491.70 (D) Rs.530.55
(E) Rs.430.60

Q16 A person purchased two items P and Q such that the ratio of cost price of P to Q is 3: 2. Both the items are marked 50% above cost price and sold after giving discounts of 20%.
Which if the following can be determined?
A: Profit percent earned on both the items P and Q together.
B: Ratio of selling price of items P and Q.
C: Difference between selling prices of items P and Q.
(A) Only A and B
(B) Only A
(C) Only A and C
(D) All A, B, and C
(E) Only C

Q17 An i-phone costs 6 times the cost of an air-Pod. On selling i-phones there is a profit of 10% while the total profit on selling both air-Pod and i-phone is 20%. If there is a profit of Rs. 2400 on selling air-Pods then find the cost price of an i-phone?

(A) Rs. 9000 (B) Rs. 18000
(C) Rs. 27000 (D) Rs. 36000
(E) None of these

Q18 An Article costs Rs. 23000 and it is marked up 30% by the shopkeeper. A customer walks into the shop and seems really interested in the article. Sensing this, the shopkeeper gets greedy and he raises the markup 30% to 50% and gives a discount of 20% to the customer. How much more/less money would he have made, had he not gotten greedy?

(A) 2400 (B) 2300
(C) 2500 (D) 2600
(E) None of these

Q19 A shopkeeper has 15 kg of rice which costs Rs 35/kg. if he mixes this with _____ kg of another rice costing Rs ___/kg and sells the mixture at Rs 36/kg and earns 20% profit.
Which of the following values can we fill in the same order?
I. 25, 27
II. 20, 26
III. 15, 25
IV. 10, 24
(A) I and III only
(B) I and IV only
(C) III only
(D) I, II and III only
(E) I only

Q20 A shopkeeper brought 80 kg of grapes at the rate of Rs 40 per kg. After 2 days he found that the weight of grapes reduced by 20%. He immediately sold half grapes at the rate of Rs 50 per kg. The next day he found the weight of remaining grapes reduced by 10% again. Now he sold all remaining grapes at the rate of Rs 60 per kg. Find his profit or loss percentage.

(A) 4% profit (B) 4% loss
(C) 5% profit (D) 5% loss
(E) None of these

Level-3

Q1 A shopkeeper marks A% more than CP on goods. He gives $\frac{B}{2}$%Discount and gains B% profit. If he marks his goods as B% more and gives a discount of $\frac{A}{2}$% then the loss will occur at $\frac{A}{4}$%. If he bought the item at ------rupees, and marked 2A% more on it and had to give a discount of B%. ---------- rupees will he benefit?

I- 500, 250
II- 250, 125
III- 300, 150
(A) Only I
(B) Only II
(C) All three condition
(D) Only III
(E) None of these

Q2 A shopkeeper offers X% off on MRP of his articles. In addition he gives one article free for every four articles purchased. Even after all these offers, the shopkeeper manages to get a profit of Y%. By what percent has he marked up his articles?

I. X:Y = 5: 2
II. X -2Y = 6
(A) 100% (B) 80%
(C) 120% (D) 200%
(E) 75%

Q3 A dishonest seller cheated both his customer and supplier such that he buys ___ grams more while buying 800 grams and sells ___ grams less while selling 600 grams. If he earns a total profit percent of 40%, then which of the following values can fill the blank in the same order?

A: 150 and 90
B: 75 and 135
C: 240 and 45
(A) Only A and B (B) Only A and C
(C) Only B and C (D) Only A
(E) none of these

Q4 A shopkeeper bought an article for Rs. 250 and marked it ____ above the cost price and gave a discount of ____ and made profit/loss of Rs. ____.

The values given in which of the following options will fill the blanks in the same order in which is it given to make the above statement true:

A. 20%, 12%, 14
B. 30%, 18%, 16
C. 24%, 20%, 2
(A) Only A (B) Only B
(C) Only A and B (D) Only A and C
(E) All A, B and C

Q5 A shopkeeper bought _____eggs at the rate of Rs. 4/egg. ____ eggs broke during transportation, so the shopkeeper sold the remaining eggs at the rate of Rs. 6/egg. In this transaction shopkeeper earns a profit of Rs. _____.

The values given in which of the following options will fill the blanks in the same order in which is it given to make the above statement true:

A. 168, 26, 180
B. 72, 12, 84
C. 50, 10, 40
(A) Only A (B) Only B and C
(C) Only A and C (D) Only A and B
(E) Only C

Q6 The cost price of a jeans in Rs. 1440 and it is sold at the profit of X%. If the cost price and the selling price of jeans interchange then loss incurred is Y%. Given, Y is 20% less than X.

Which of following statement/s is or are true?

Statement I. If a shopkeeper wants to make a profit of (X + Y) %, then he will sell the jeans at Rs. 2088.

Statement II. If a shopkeeper marked up the jeans is 2X% more than that of its cost price and allow a discount of Y% on it marked price, then selling price of jeans will be Rs. 1728.
Statement III. If the ratio of cost price to selling price of the jeans is 10 : 7, then the loss on the jeans will be (X + 10)%
(A) Only II
(B) Only I
(C) Only I & III
(D) Only I & II
(E) None of these

Q7 Amar purchased 100 books of numerical ability for his book store. He sold 1/5th of total books at a profit of 10%, 3/8th of remaining at a profit of 15%, 4/5th of the remaining at a profit of 8% and remaining at a profit of 20%. If he sold all the books at a profit of 16% he would have gained Rs 1806 more, then the cost price of each book is Rs (x + 150). Find the value of x.
(A) 180 (B) 350
(C) 270 (D) 420
(E) None of these

Q8 A person sells electronic items sold the desktop and touch pad at the profit of (x + 10)% and (x + 5)% respectively and the sum of the cost price of the desktop and touch pad is Rs.18000. If the sum of the selling price of desktop and touch pad is Rs.28000.
From the above which of the following can be determined?
a) Value of x
b) Cost price of desktop
c)If the selling price of the touchpad is increased by 10%, find the new selling price of the touchpad.
d)Selling price of the touchpad.
(A) All A, B, C and D
(B) Only C and D
(C) Only A, B and D
(D) Only B and D
(E) none of these

Q9 A shopkeeper gives a 20% discount on the marked price of a book. He provides 1 pair of books free with the sale of 9 pairs of books. In the whole transaction if he gets the profit of 26%. If the marked price is (2x + 5)% above the cost price, then find the value of x% of 2300.
(A) 690 (B) 736
(C) 805 (D) 920
(E) None of these

Q10 The cost price of an article is Rs.8000. A shopkeeper marked the article 60% above the cost price. Shopkeeper allows two successive discounts of $X\%$ each and sold it for Rs.10368. If he had marked the article $X\%$ above the cost price and allows a 20% discount on marked price, then find the profit/loss $\%$.
(A) 15% (B) 18%
(C) 12% (D) 14%
(E) None of these

Answer Key

Level-1

Q1	(E)	Q11	(B)
Q2	(D)	Q12	(C)
Q3	(E)	Q13	(D)
Q4	(C)	Q14	(B)
Q5	(B)	Q15	(C)
Q6	(A)	Q16	(C)
Q7	(B)	Q17	(A)
Q8	(E)	Q18	(E)
Q9	(C)	Q19	(C)
Q10	(A)	Q20	(C)

Answer Key

Level-2

Q1	(C)	Q11	(A)
Q2	(C)	Q12	(C)
Q3	(E)	Q13	(B)
Q4	(C)	Q14	(D)
Q5	(C)	Q15	(C)
Q6	(D)	Q16	(A)
Q7	(A)	Q17	(B)
Q8	(C)	Q18	(B)
Q9	(A)	Q19	(A)
Q10	(B)	Q20	(A)

Answer Key

Level-3

Q1	(C)
Q2	(A)
Q3	(E)
Q4	(D)
Q5	(C)
Q6	(D)
Q7	(C)
Q8	(E)
Q9	(C)
Q10	(C)

Hints & Solutions

Level-1

Q1 Text Solution:

A to B to C

A to B 8.33% loss, 8.33% = $\frac{8.33}{100} = \frac{1}{12}$

(Let CP = 12,Loss = 1)

So, SP for A = 12 - 1 = 11

B to C 12.5% loss. 12.5% = $\frac{12.5}{100} = \frac{1}{8}$

(Let CP = 8, Loss = 1)

So, SP for B = 8 - 1 = 7

C to A 16.66% profit, 16.66% = $\frac{16.66}{100} = \frac{1}{6}$

(Let CP = 6, Profit = 1)

So, SP for C or CP for A = 1 + 6 = 7

A sold it to B at 11, and he bought it from C at 7,

SO, profit% = $\frac{11-7}{7} \times 100 = 57.14\%$

Q2 Text Solution:

Let C.P. of each article = Rs. y

S.P. of y articles = Rs. 30

Profit = Rs. (30 - y)

Now, use profit% formula,

$Profit\% = \frac{\text{Profit}}{\text{CP}} \times 100$

$\Rightarrow 25 = \frac{30-y}{y} \times 100$

$\Rightarrow 25y = 3000 - 100y$

$\Rightarrow 125y = 3000$

$\Rightarrow y = \frac{3000}{125}$

$\Rightarrow y = 24$

Hence, the correct option is 24.

Q3 Text Solution:

Let he buys 60 to ees

Case 1 : 30 to ees per 10 Rs., So, 60 to ees for Rs. 20

Case 2 : 20 to ees for 10 Rs, So 60 to ees for Rs. 30

Total CP of 120 to ees = 20 + 30 = 50

Now he sells 30 to ees for Rs. 20., So 120 to ees for Rs. 80

Now CP = 50, SP = 80,

So, Profit% = $\frac{80-50}{50} \times 100 = 60\%$

Q4 Text Solution:

let total articles be 100 and their price be Rs100

100

$\times \frac{25}{100} \times \frac{175}{100} + 100 \times \frac{75}{100} \times \frac{100-x}{100} = \frac{100 \times 85}{100}$

4375 + 7500 -75x=8500

x=45

Correct answer is 45%.

Q5 Text Solution:

From the given information,

Let the marked price at Maharashtra be Rs. 100.

∴ Cost price = 100 – 30% of 100 = Rs. 70.

He has to pay duties, then marked price = 70 + 15% of 70 = Rs. 80.5.

Mr. Tiwari earned 40% on Rs. 80.5, thus new marked price

= 140% of 80.5 = Rs. 112.7

Di erence = 112.7-100=12.7

Therefore, percentage change in marked price = 12.70%

Q6 Text Solution:

Let the selling price of article A be Rs 100x

Then Marked price = Rs 140x

By using the formula:

$CP = \frac{SP}{P+100} \times 100$

Cost price$= 100x \times \frac{100}{125} = Rs.\ 80x$

ATQ,

60x - 20x = 400

⇒ x = 10

Required profit $= 20 \times 10 = 200$

Q7 Text Solution:

Let. The marked price of the Trouser is Rs. 300.

The marked price of Shirt will be Rs. 400.

Discounted price of Trouser (at 50% discount) = $\frac{100-50}{100} \times 300$ = Rs. 150

Let the discounted price of Shirt be x.

According to the question,

150 + x = $\frac{100-25}{100} \times \left(300 + 400\right)$

=> 150+x = 525

=> x = 525 - 150 = 375

As, cost of shirt = 400 = MP

And, discounted cost of shirt = 375 = SP

Hence, discount% = $\frac{MP-SP}{MP} \times 100 = 6.25\%$

Q8 Text Solution:

Let, Marked Price of gym-vest = 300

And, Marked price of shorts - pants = 200

Total Marked Price = 300 + 200 = 500

Total Discount = 20%

And, Discount on pants = 20%

So, SP of pants = 20% below MP = (100 - 20)% of 200

= $\frac{80}{100} \times 200 = 160$

Also, SP of both vest & pants together = (30)% below 500

= (100 - 30)% of 500

= $\frac{70}{100} \times 500$

= 350

So, SP of Vest = SP of both vest & pants - SP of pants

=> SP of Vest = 350 - 160

=> SP of Vest = 190

And, MP of vest = 300

So, Discount % =M.P-S.P / M.P $\times 100$

=> Discount % = $\frac{300-190}{300} \times 100$

=> Discount % = $\frac{11}{30} \times 100$

=> Discount % = 36.66

Q9 Text Solution:

Let, CP of bed = x

Then, Case-1

SP = 17400

As, Profit% = $\frac{SP-CP}{\text{CP}} \times 100$

=> Profit% = $\frac{17400-x}{x} \times 100$

And, Case -2

SP = 6600

As, Loss% = $\frac{CP-SP}{\text{CP}} \times 100$

=> Loss% = $\frac{x-6600}{x} \times 100$

Now, According to question,

=> $\frac{17400-x}{x} \times 100 = \frac{x-6600}{x} \times 100$

=> $17400 - x = x - 6600$

=> 2x = 24000

=> x = 12000

Now, As per question Profit has to be 80%

So, Profit% = $\frac{SP-CP}{\text{CP}} \times 100$

=> 80 = $\frac{SP-12000}{12000} \times 100$

=> $\frac{80}{100} \times 12000$ = SP - 12000

=> 9600 = SP - 12000

=> SP = Rs.21600

Q10 Text Solution:

MP(1-d%)=CP(1+p%)

MP$\times \frac{90}{100}$=CP$\times \frac{110}{100}$

CP$\times \frac{1}{MP}$=$\frac{90}{110}$-------(1)

now 16 articles given in the cost of 12 articles

MP of 1 article=$\frac{total}{12}$ $- - - - - - - (2)$

CP of 1 article=$\frac{total}{16}$ $- - - - - - - (3)$

for 1 article=$\frac{CP}{MP} = \frac{\frac{90}{16}}{\frac{110}{12}} = \frac{27}{44}$

Q11 Text Solution:

Cost price of both Television sets is in ratio = 3 : 4

Let the cost price of first Television set = Rs. 300

And the cost price of second Television set = Rs. 400

Then, according to the question,

Selling price of first Television sets = 12.5% below 300

= (100-12.5)% of 300

= $\frac{87.5}{100} \times 300$

= 262.5

Selling price of second Television sets = 11% above 400

= (100 + 11)% of 400

= $\frac{111}{100} \times 400$

= 444

Now, total cost price of both Television sets = 300 + 400 = Rs. 700 And selling price of both Television sets = 262.5 + 444 = Rs. 706.5

Hence, Profit% = $\frac{SP-CP}{CP} \times 100$

=> Profit% = $\frac{706.5-700}{700} \times 100$

=> Profit% = 0.93

Q12 Text Solution:

Let, marked price of the article be Rs. x

And, cost price of the item = Rs. y

According to question,

1.8y = 0.75x --------(i)

And, 1.2y = 0.75x – 300 ----------(ii)

Using both equations, we get,

1.8y = 1.2y + 300

0.6y = 300

y = 300÷0.6

y = Rs. 500

Also, 1.8 × 500 = 0.75x

x = 900÷0.75 = Rs. 1200

So, marked price of the item = Rs. 1200

Hence, option c.

Q13 Text Solution:

Let the CP of a shirt be Rs x.

So, CP of a Jeans= Rs. 600 + x

Using the data provided in the question, we get

$\frac{\frac{110}{100}\times(x+600)}{\frac{60}{100}x} = \frac{7}{3}$

$\Rightarrow \frac{11\times(x+600)}{2x} = \frac{7}{1}$

$x = Rs\ 2200$

If the shirt is sold at a 30% loss then the selling price$= \frac{70}{100} \times 2200 = Rs.\ 1540$

Q14 Text Solution:

Given,

Profit received by each permanent employee = 100000

And, ratio of distribution of profit between permanent employee and

Freelancers = 3 : 5

So, profit received by each freelancer =

Now, Total profit distributed among permanent employee

= 180 = 18000000

And, Total profit distributed among Freelancers

= 320 × 62500

= 20000000

Hence, total profit amount = Rs.38000000

Q15 Text Solution:

Let, 7kg of variety X and 5kg of variety Y is considered

Then,

Variety X's cost = 128 × 7 = Rs. 896

Variety Y's cost = 320 × 5 = Rs. 1600

Total cost (CP) = 896 + 1600 = Rs. 2496

Total variety quantity = 7 + 5 = 12 kg.

=> cost of mixture (SP) = 12 × 288 = 3456

Thus, Profit = SP - CP =3456 - 2496

= 960

Hence, Profit% = $\frac{960}{2496}$ = 38.46%

Q16 Text Solution:

Let, the cost price of the book = Rs. x

ATQ,

1.44x – 0.78x = 396

⇒ 0.66x = 396

⇒ x = 600

Marked price of the book = 145% of 600 = Rs. 870

Q17 Text Solution:

Let, marked price of 1 note-book = x

So, marked price of 12 note-books = 12x

Discount given = 20%

$As,\ Discount\% = \frac{MP-SP}{MP} \times 100$

$20 = \frac{12x-SP}{12x} \times 100$

$\frac{1}{5} = 1 - \frac{SP}{12x}$

$\frac{SP}{12x} = 1 - \frac{1}{5}$

$SP\ of\ 12\ note-books = \frac{48x}{5}$

$Now,\ 13\ notebooks\ is\ sold\ at\ the\ price\ of\ 12$

$So,\ MP\ of\ 13\ notebooks = 13x$

$So,\ Actual\ Discount = 13x - \frac{48x}{5}$

$= \frac{17x}{5}$

$Now,\ Actual-Discount\% = \frac{MP-SP}{MP} \times 100$

$=> Actual-Discount\% = \frac{\frac{17x}{5}}{13x} \times 100$

$=> Actual-Discount\% = 26.15$

Q18 Text Solution:

Let, Initial CP of the article = x

Price marked by A = 60% above x = (100 + 60)% of x = 160% of x

= 1.6x

Now, SP of the article for A = 24% below 1.6x = (100 - 24)% of 1.6x

=1.216x

As, SP of the article for A = CP of the article for B

Then, Price marked by B = 100% above 1.216x

= $\frac{100+100}{100} \times 1.216x = 2.432x$

Now, SP of the article for B = 30% below 2.432x

= $\frac{100-30}{100} \times 2.432x = 1.702x$

Now, According to question

SP of B - SP of A = 1944

=> 1.702x - 1.216x = 1944

=> 0.486x = 1944

=> x = 4000

According to question,SP of the article for B =CP of the article for C

So, CP of the article for C = 1.702x = 1.702(4000)

= Rs. 6808

Q19 Text Solution:

Selling price of one articles = 80% of 270 = 216

The selling price of 5 articles when he gives one article discount at selling 4 articles = $4 \times 216 = 864$

The cost price of 5 articles = $\frac{864}{108} \times 100 = 800$

The cost price of one article = $\frac{800}{5} = Rs\ 160$

Q20 Text Solution:

Let the original marked price =Rs 100

CP for shopkeeper = 100 -25 =Rs 75

New marked price = Rs 150.

Selling price for shopkeeper

Profit = 120 -75 =Rs 45

Profit %= $\frac{45}{75} \times 100 = 60\%$

Hints & Solutions

Level-2

Q1 Text Solution:

Selling price of two painting = 4800 + 4800

= Rs.9600

Cost price of first painting = $\frac{100}{120} \times 4800$

=4000

Cost price of Second painting = 9600 - 4000= 5600

Required % loss = $\frac{5600-4800}{5600} \times 100$

$= \frac{800}{5600} \times 100$

$= \frac{1}{7} \times 100$

$= 14\frac{2}{7}\%$

Q2 Text Solution:

Let cost of 1 gram = 1

Since he sold 'x' grams at the cost of 800 grams.

Cost of 'x' grams = 'x'

Selling price of 'x' grams = 800

Profit percent = $\frac{800-x}{x} \times 100$

$\frac{800-x}{x} \times 100 > 20$

$\frac{800-x}{x} > \frac{1}{5}$

4000 - 5x > x

4000 > 6x

$x < 666.67$

Which means he must give less than 666.67 grams in order to gain more than 20%.

Q3 Text Solution:

$x^2 - 22x + 120 = 0$

$x^2 - 10x - 12x + 120 = 0$

$x(x-10) - 12(x-10) = 0$

$(x-10)(x-12) = 0$

$x = 10 \; or \; x = 12$

The selling price of the first pen = $10 \times 1.10 = 11$

The selling price of the second pen = 90% of 10 = 9

Total selling price = 11 + 9 = Rs 20

Total cost price 10 + 10 = 20

Since, the total cost price = Total selling price

Therefore, there will be no profit or no loss.

Q4 Text Solution:

According to the question,

Let the cost of each unit of the article that shopkeeper sells be Rs x.

If the correct weight of the article was sold, then selling price= 120% of x.

But actually 70% units are sold as 1 unit at a cost of 120% of x.

Cost of 70% of units =70% of x.

Thus effective profit = $\left[\frac{120\% \; of \; x - 70\% \; of \; x}{70}\% \; of \; x\right] \times 100$ = 71%

Hence, answer is option C.

Q5 Text Solution:

Loss = 20% = $\frac{1}{5}$ (let, loss = 1, CP = 5)

CP - Loss = SP

5 - 1 = 4 .....(1)

And, Profit% = 10% = $\frac{1}{10}$ (let,profit = 1, CP = 10)

CP + P = SP

10 + 1 = 11 .....(2)

Make CP same in both the equations, by multiplying the eq.(1) by "2"

So, 10 - 2 = 8

And 10 + 1 = 11

So first, SP was 8, Now it is 11

So (11-8)x = 480 (given)

3x = 480

So 10 CP = $\frac{480}{3} \times$ 10 = 1600

So after 25% profit SP = 1.25 × 1600 = 2000

Q6 Text Solution:

The cost price of one bed for D = $\frac{2100}{0.75} = 2800$

Let the cost price of each bed be Rs x.

The cost price of one bed for B = $160\% \; of \; x = 1.6x$

The cost price of one bed for C = $120\% \; of \; x = 1.2x$

The cost price of one bed for D = $\frac{80}{100} \times \frac{1.6x+1.2x}{2} = \frac{4}{5} \times \frac{2.8x}{2} = 1.12x$

1.12x =2800

x =Rs 2500

Required difference = 2800 - 2500 =Rs 300

Q7 Text Solution:

Let cost price be Rs. 100

Marked price = 100 + 100 × $\frac{25}{100}$ = 125

Selling price = 125 – 125 × $\frac{5}{100}$ = 118.75

Profit percentage = $\frac{118.75-100}{100}$ × 100 = 18.75%

∴ Using statement, I and II, we can answer the question.

Hence, option a

Q8 Text Solution:

Scenario 1: The shopkeeper sells 1200 grams at the cost of 1500 grams.

Cost of 1200 grams = 1200

Selling price of 1200 grams = 1500

Profit percent = $\frac{1500-1200}{1200} \times 100 = 25\%$

Scenario 2: The shopkeeper buys 1950 grams at the cost of 1500 grams.

Cost of 1950 grams = 1500

Selling price of 1950 grams = 1950

Profit percent = $\frac{1950-1500}{1500} \times 100 = 30\%$

Scenario 3: He uses a faulty weight of 1350 grams while selling and 1600 grams while buying.

Selling price of 1350 grams = 1500

Selling price of 1600 grams = $1500 \times \frac{1600}{1350} = \frac{16000}{9}$

Profit percent = $\frac{\frac{16000}{9}-1500}{1500} \times 100 = 18\frac{14}{27}\%$

Hence, only 2 is correct.

Q9 Text Solution:

Let faulty weight and weight that the customer wants is 'x' grams and 'y' grams respectively.

Let cost of 1 gram = 1

Since the seller sold only 'x' grams at the cost of 'y' grams.

Cost of 'x' grams = 'x'

Selling price of 'y' grams = 'y'

Profit amount = y - x

Profit percent = $45 = \frac{y-x}{x} \times 100$

$\frac{9}{20} = \frac{y-x}{x}$

9x = 20y - 20x

29x = 20y

x: y = 20: 29

Hence, all A, B, and C are TRUE.

Q10 Text Solution:

Given, Cost of scotty = Rs. 58500

And, Cost of bike = Rs. 45600

So, total cost = 58500 + 45600 = 104100

Then, SP of bike = 62% below CP = (100 - 62)% of 45600

= $\frac{38}{100} \times 45600$

= 17328

And, SP of Scooty = 36% above CP = (100 + 36)% of 58500

= $\frac{136}{100} \times 58500$

= 79560

So, total SP = 17328 + 79560 = 96888

Thus, Loss = CP - SP = 104100 - 96888

= 7212

Hence, loss% =loss/c.p ×100

=> loss% = $\frac{7212}{10400} \times 100$

=> loss% = 6.92% = 7%

Q11 Text Solution:

The manufacturer sells the product to the trader, and then the trader sells to the customer.

Assume manufacturing cost = 100

And manufacturer profit = x

As Marked Price (MP) of a product is 30% above its manufacturing cost,

MP = 130% of 100 = 130

The trader gives 7.5% discount on MP.

So, the customer price is 92.5% of MP.

Buyer Price = 92.5% of 130 = 120.25

Manufacturer makes x rupees profit, and then the trader makes 9.5% profit.

So, 109.5% of (100 + x) = 120.25

⇒ 109.5 (100 + x) = 12025

⇒ (100 + x) = 109.81

⇒ x = 9.81

So. 9.81 profit om 100

Hence, Manufacturer profit = 9.81%

Q12 Text Solution:

Quantity in vessel Y = a

Quantity in Vessel X = 70 – a

CP of the mixture = 132(70-a) + 102(a) = 9240 – 30a

SP of the mixture = 70(132) = 9240

Profit(given) = 20%

=> $\frac{9240-9240+30a}{9240-30a} = \frac{20}{100}$

a 51

So, CP of mixture = 9240 – 30(51) = 7710

New SP = 70(102) = 7140

Hence, required loss% = $\frac{7710-7140}{7710} \times 100 = 7.4\%$

Q13 Text Solution:

Total cost = Rs. 500000

No. of copies sold at 20% discount = 30% of 90% of 100000 = 27000

No. of copies sold at 10% discount = 90000 – 27000 = 63000

Total sale price = 27000 × 12 + 63000 × 13.5 = 1174500

So, profit = 1174500 – 500000 = 674500

Hence, profit percentage = $\frac{674500}{500000} \times 100$ = 134.9% , approx.=135%

Q14 Text Solution:

Selling price when sold at 20% discount = ₹840

Marked price = $\frac{840}{80} \times 100 = ₹1050$

Cost price = P = $\frac{1050}{140} \times 100 = ₹750$

P = 750

Let the value that can fill the blank = 'x'

Selling price when sold at two successive discounts = 95% of (1050 - x) = 798

1050 - x = 840

x = 210

Required difference = 750 - 210

= 540

Q15 Text Solution:

According to the question,

Let the price be onion be 5x and then Price of tomato will be x

Money spend on tomato = 8×x = 8x

Money spend on onion = 4.5× 5x = 22.5x

Total Money spend = 22.5x + 8x = 30.5x

30.5x = 610

x = 20

Price of onion = 5x = 5×20 = Rs.100

Price of Tomato = x = 20

New price of onion = 100 × $\frac{110}{100}$ = Rs.110

Now, Money spend on Onion = 4.5× 110 = Rs.495

Remaining money = 610 – 495 = Rs.115

Remaining money will be spend on tomato

Quantity of tomato that can be purchased with Rs.140 = $\frac{115}{20}$ = 5.75

Change in quantity of tomato= 8 – 5.75 = 2.25 kg

Percent change in quantity of tomato = $\frac{2.25}{8}$ × 100 = 28.125%

S.P = $\frac{700 \times (100-10)}{100}$ = Rs.630

C.P = $\left[\frac{630}{100+28.125}\right] \times 100 = \left(\frac{630}{128.125}\right) \times 100$ = Rs.491.70

Hence, answer is option C.

Q16 Text Solution:

Let the cost price of items P and Q is 3x and 2x respectively.

Marked price of item P = 150% of 3x = 4.5x

Selling price of item P = 80% of 4.5x = 3.6x

Marked price of item Q = 150% of 2x = 3x

Selling price of item Q = 80% of 3x = 2.4x

A:

Profit percent earned on both the items P and Q together = $\frac{3.6x+2.4x}{3x+2x} \times 100 = 20\%$

B:

Ratio of selling price of items P and Q = 3.6x: 2.4x = 3: 2

C:

Difference between selling prices of items P and Q = 3.6x - 2.4x

= 1.2x

Hence, only A and B can be determined.

Q17 Text Solution:

Let the CP of air-Pod be Rs. x

So, CP of i-phone be Rs.6x

Total SP of air-Pod & i-phone together at 20% profit

$= \frac{100+20}{100} \times (x + 6x) = 8.4x$

SP of i-phone (at 10% profit)

$= \frac{100+10}{100} \times 6x = 6.6x$

So, SP of airpod =(SP of both) -(SP of i-phone)

= 8.4x - 6.6x = 1.8x

So, Profit on selling airpod = 1.8x - x = 0.8x

According to the question,

0.8x = 2400

∴ x = 3000

So, the cost price of i-phone

= Rs. 6x = Rs. (6 × 3000)

= Rs. 18000

Q18 Text Solution:

We can compare Selling Price to get the answer.

First Scenario: When markup was 30%

= 130% of 23000 = 29900

Second Scenario: When there is markup of 50 % and then a discount of 20%

= 80% of 150% of 23000 = 27600

In the second scenario, he is earning Rs. 2300 less.

So we can say that he would have earned Rs. 2300 less, had he not gotten greedy.

Q19 Text Solution:

The resultant rice should cost= $\frac{36}{1.2}$ = Rs 30/kg

I.

Cost of resultant rice = $\frac{15 \times 35 + 25 \times 27}{115 + 25} = \frac{1200}{40}$ = Rs 30/kg

II.

Cost of resultant rice = $\frac{15 \times 35 + 20 \times 26}{15 + 20} = \frac{1045}{35}$ = Rs 29.86/kg

III.

Cost of resultant rice = $\frac{15 \times 35 + 15 \times 25}{15+15} = \frac{900}{30}$ = Rs 30/kg

IV.

Cost of resultant rice = $\frac{15 \times 35 + 10 \times 24}{15 + 10} = \frac{765}{25}$ = RS 30.6/kg

Only I and III satisfy this condition

Q20 Text Solution:

Cost price $= 80 \times 40 = 3200$

After two days weight of grapes =80% of 80=64 kg

Selling price of 32 kg grapes $= 32 \times 50 = 1600$

Third day weight of grapes =90% of 32 =28.8 kg

Selling price of 28.8 kg grapes $= 28.8 \times 60 = 1728$

Total selling price of grapes =1600 +1728 =3328

Profit percentage $= \frac{3328-3200}{3200} \times 100$

$= \frac{128}{3200} \times 100 = 4\%$

Hints & Solutions

Level-3

Q1 Text Solution:

First Condition

Marks A% more than CP on goods. He gives $\frac{B}{2}$% Discount and gains B% profit

$A - \frac{B}{2} - \frac{AB}{200} = B$

$A - \frac{B}{2} - B = \frac{AB}{200}$

$\frac{2A-3B}{2} = \frac{AB}{200}$ -----(1)

Condition- 2

If he marks his goods as B% more and gives a discount of $\frac{A}{2}$% then the loss will occur at $\frac{A}{4}$%.

$B - \frac{A}{2} - \frac{AB}{200} = -\frac{A}{4}$

$B - \frac{A}{2} + \frac{A}{4} = \frac{AB}{200}$

$\frac{4B-2A+A}{4} = \frac{AB}{200}$

$\frac{4B-A}{4} = \frac{AB}{200}$ -----(2)

Compare Both equation

$\frac{2A-3B}{2} = \frac{4B-A}{4}$

$\frac{2A-3B}{1} = \frac{4B-A}{2}$

$4A - 6B = 4B - A$

$5A = 10B$

$\frac{A}{B} = \frac{2}{1}$

Put the value in equation

$\frac{B}{2} = \frac{2B^2}{200}$

$B = 50\%$

$A = 100\%$

2A% Mark-up= 200% mark-up = 1 3

Discount B%= 50%= 2 1

---

2 3

According this condition profit is $\frac{1}{2}$ of Cost Price

There for all three Condition will satisfied

Q2 Text Solution:

Let MRP of his articles is 100 each. So when he sells four articles for 400, the customer will get one more article for free. Also, customer is not to pay a complete 400 but 30% lesser i.e. 400 – 30% of 400 = 280.

It's given that the shopkeeper is still making a profit of 12%

i.e. 280 = CP + Profit = CP + 12% of CP

So CP = 250 i.e. five articles whose MRP was 500 cost him 250 only.

Thus the required markup percentage is $= \frac{500-250}{250} \times 100 = 100\%.$

Q3 Text Solution:

Let the values that can fill the blank are 'a' and 'b' respectively and cost of 1 gram = 1

Since he buys '800 + a' grams at the cost of 800 grams.

Cost price of '800 + a' grams = 800

Since he sold '600 - b' grams at the cost of 600 grams.

Selling price of '600 - b' grams = 600

Selling price of '800 + a' grams = $600 \times \frac{800+a}{600-b}$

Profit amount =

$600 \times \frac{800+a}{600-b} - 800 = \frac{200(3a+4b)}{600-b}$

Profit percent = $40 = \frac{\frac{200(3a+4b)}{600-b}}{800} \times 100$

$\frac{3a+4b}{600-b} = \frac{8}{5}$

$b = \frac{4800-15a}{28}$

When a = 152, b = 90

When a = 68, b = 135

When a = 236, b = 45

Hence, none can fill the blank.

Q4 Text Solution:

For A:

Marked price of the article = 1.2 × 250 = Rs. 300

Selling price of the article = 0.88 × 300 = Rs. 264

Profit = 264 – 250 = Rs. 14

So, A can be the answer.

For B:

Marked price of the article = 1.3 × 250 = Rs. 325

Selling price of the article = 0.82 × 325 = Rs. 266.5

Profit = 266.5 – 250 = Rs. 16.5

So, B can't be the answer.

For C:

Marked price of the article = 1.24 × 250 = Rs. 310

Selling price of the article = 0.80 × 310 = Rs. 248

Loss = 250 – 248 = Rs. 2

So, C can be the answer.

Hence, option D.

Q5 Text Solution:

Option A:

Profit = (168 – 26) × 6 – 168 × 4

= 852 – 672 = 180

So, option A can be the answer.

Option B:

Profit = (72 – 12) × 6 – 72 × 4

= 360 – 288 = 72

So, option B cannot be the answer.

Option C:

Profit = (50 – 10) × 6 – 50 × 4

= 240 – 200 = 40

So, option C can be the answer.

Hence, option c.

Q6 Text Solution:

Given, cost price of jeans = 1440

So, selling price of jeans = $1440\times(100+X)\%$ = (1440+14.4X) Rs.

Profit on jeans = (1440+14.4X) – 1440 = 14.4X

Profit percentage = $\frac{14.4X}{1440}\times100$

After cost price and the selling price of jeans interchange

Cost price of jeans = (1440+14.4X)Rs.

Selling price of jeans = 1440 Rs.

Loss on jeans = (1440+14.4Z) – 1440 = 14.4X Rs.

Loss percentage = $\frac{14.4X}{1440+14.4X}\times100$

Given, ratio of Y to X = 80% : 100% = 4:5

$\frac{\frac{14.4X}{1440+14.4X}\times100}{\frac{14.4X}{1440}\times100}=\frac{4}{5}$

$1440\times5 = 4\times(1440+14.4X)$

7200 = 5760+57.6X

X = 25

For I . A shopkeeper will sell the jeans at Rs.2088, if he wants to make a profit of (X+Y)%

(X+Y)% = (25+20)% =45%

$1440\times\frac{145}{100}$ = 2088

so , statement I is true

For II, if a shopkeeper marked up the jeans is 2X% more than that of its cost price and allow a discount of Y% on its marked price, then selling price of jeans will be Rs.1728

Marked price of jeans = $1440\times\frac{100+2\times5}{100}$ = 2160 Rs.

Selling price of jeans = $2160\times\frac{100-20}{100}$ = 1728 Rs.

So, statement II is true

For III,

If the ratio of cost price to selling price of the jeans is 10:7, then the loss on the jeans will be (X+10)%

Selling price of jeans = $1440\times\frac{10}{7}$ = 1008 Rs.

Loss on jeans = 1440 – 1008 = 432 Rs.

Loss percentage = $\frac{432}{1440}\times100 = 30\%$

So, (X+10)% = 25+10 = 35%

So statement III is not true.

Q7 Text Solution:

Let the cost price of each book be P

Books sold at 10% profit= $20\%\ of\ 100 = 20$

Books sold at 15% profit = $37.50\%\ of\ 80 = 30$

Books sold at 8% profit= $80\%\ of\ 50 = 40$

Books sold at 20% profit $= 100-20-30-40 = 10$

Total SP of books $= [20\times1.1]+[30\times1.15\ P]+[40\times1.08)P + [10\times1.2P]$

$= 22P+34.5P+43.2P+12P = 111.7P$

Total SP when all books are sold at 16% profit $= 116\%\ of\ 100\times P = 116P$

Difference $= 116P-111.7P = 1806$ (Given)

$=> 4.3P = 1806$

$=> P = 420$

Since; CP of each book= $Rs\ 420$

$=> x+150 = 420$

$=> x = 270$

Q8 Text Solution:

Answer: **E**

Solution:-

Let the CP of desktop = y

CP of touchpad = 18000 – y

As per the data given in the question.

$y * \frac{100+(x+10)}{100}$ + (18000 – y)$*\frac{(100+(x+5)}{100}$

=28000

There are two variables and only one equation,
So it is not possible to find the value of any unknown parameter.
So we cannot find the value of x and y.
Hence
Value of x, Cost price of desktop, Selling price of the touchpad and other parameters can not be determined.

Q9 Text Solution:

Let CP of 10 articles be 100y.
So; SP of 10 articles $= 1.26 \times 100y = 126y$
MP of 10 articles $= 100y + (2x + 5) \times 100y/100$
MP of 10 articles $= y(105x + 2x)$
As per ques;
$y(105 + 2x)9/10 \times 80/100 = 126y$
$=> 105 \times 72 + 144\ x = 12600$
$=> 144x = 12600 - 7560$
$=> 144x = 5040/144 = 35$
Therefore;
$x\%\ of\ 2300 = 35\%\ of\ 2300 = 805$

Q10 Text Solution:

$$\text{Marked price} = 8000 \times \frac{160}{100} = \text{Rs. } 12800$$

According to question,

$$12800 \times \left(1 - \frac{X}{100}\right)^2 = 10368$$
$$\left(1 - \frac{X}{100}\right)^2 = \frac{10368}{12800}$$
$$\left(1 - \frac{X}{100}\right)^2 = \frac{81}{100}$$
$$1 - \frac{X}{100} = \frac{9}{10}$$
$$1 - \frac{9}{10} = \frac{X}{100}$$
$$X = 10$$

$$\text{New marked price} = 8000 \times \frac{110}{100}$$
$$= \text{Rs. } 8800$$
$$\text{New selling price} = 8800 \times \frac{80}{100} = 7040$$
$$\text{Req. loss } \% = \frac{8000 - 7040}{8000} \times 100 = 12\%$$