



gradeup

Sahi Prep Hai Toh Life Set Hai

PROFIT & LOSS

Part 3

Agenda

Theory \rightarrow Concept
With 10 examples
on Market Price

\rightarrow (50 min - 55 min)

5 Questions

Homework \rightarrow (37-38 Q)

CONCEPT OF MARKED PRICE

CP

(MP) →

Marked Price

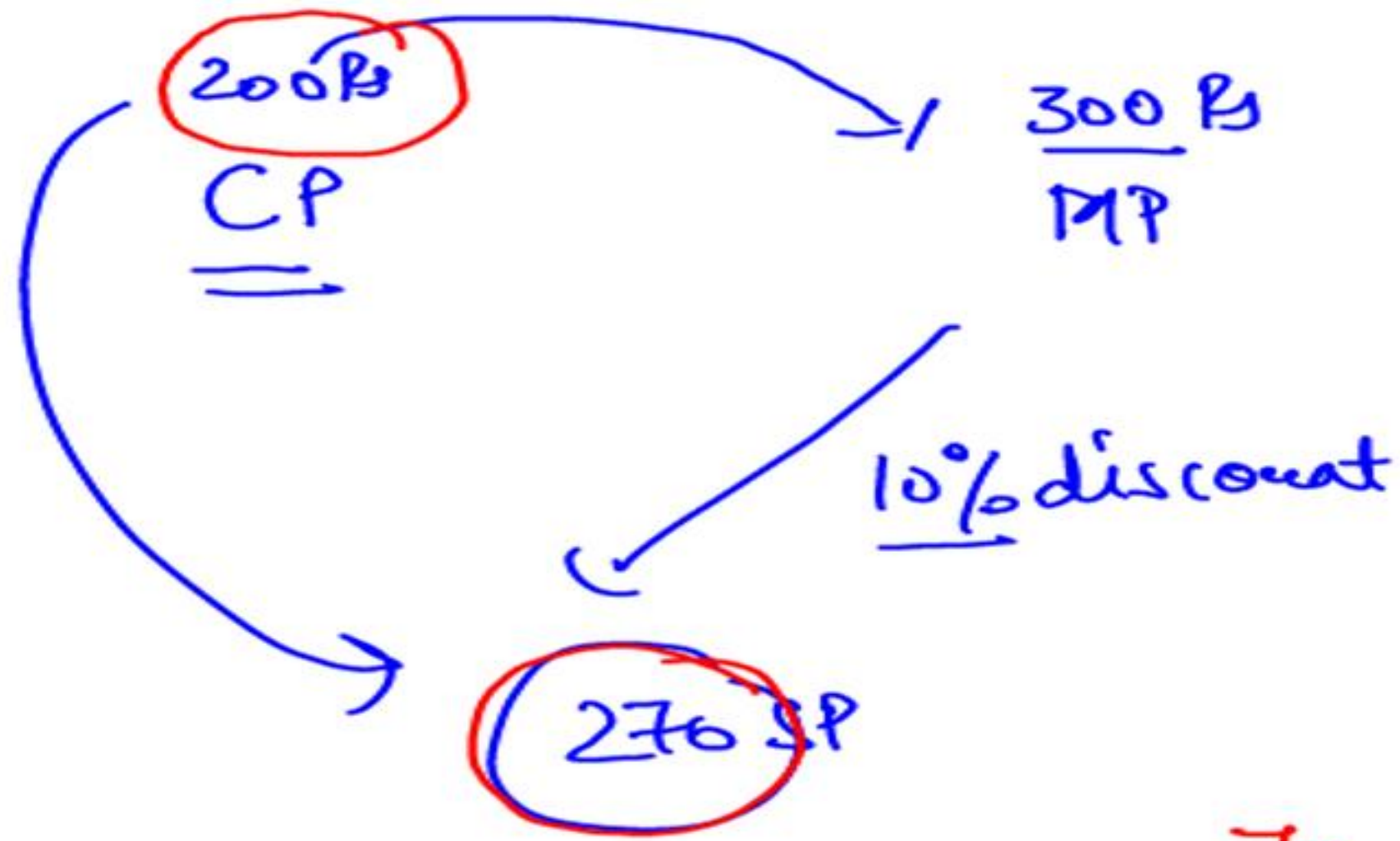
List Price

Tag Price

SP

Note :

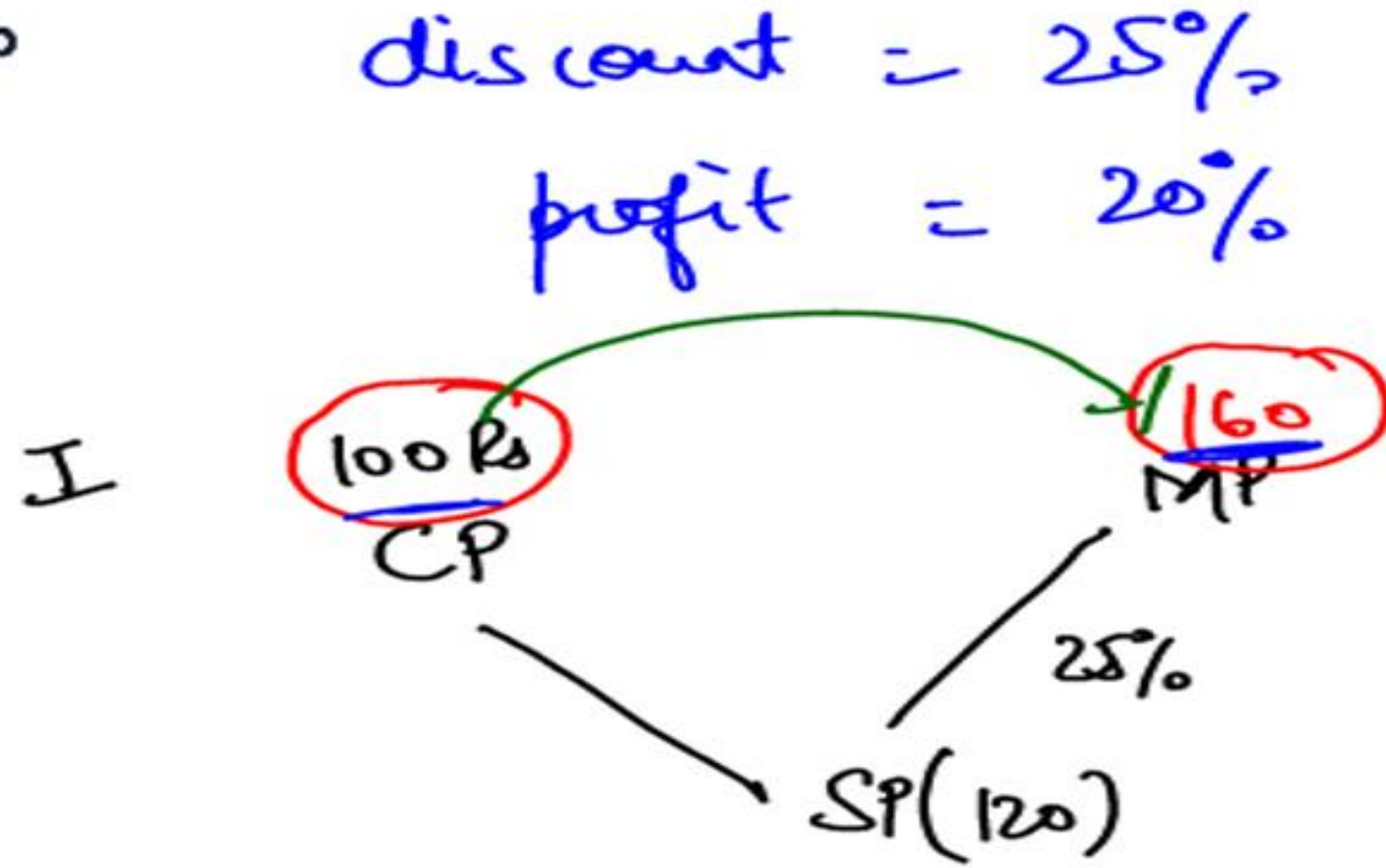
By default discount is always
calculated on MP



Profit $\rightarrow 70$

$$\frac{70}{200} \cdot 100$$

$$= \underline{\underline{35\%}}$$



Q13 (a). A shopkeeper wants to give a discount 25% to his customers and still wants to earn a profit of 20%. Find marked price is what % more than cost price.

$$MP - 25\% \text{ of } MP = 120$$

$$75\% \text{ of } MP = 120$$

$$MP = 160$$

MP is 60% more than CP

Ans. 60%

CP

MP

SP

Profit $\rightarrow p\%$

discount $\rightarrow d\%$

$$SP = CP + p\% \text{ of } CP$$

$$SP = MP - d\% \text{ of } MP$$

$$CP + p\% \text{ of } CP = MP - d\% \text{ of } MP$$

$$CP \left[1 + \frac{p}{100} \right] = MP \left[1 - \frac{d}{100} \right]$$

$$CP \left(\frac{100+p}{100} \right) = MP \left(\frac{100-d}{100} \right)$$

$$\boxed{\frac{MP}{CP} = \frac{100+p}{100-d}}$$

If profit% & discount%
are used in fractions

$$\boxed{\frac{MP}{CP} = \frac{1 + p}{1 - d}}$$

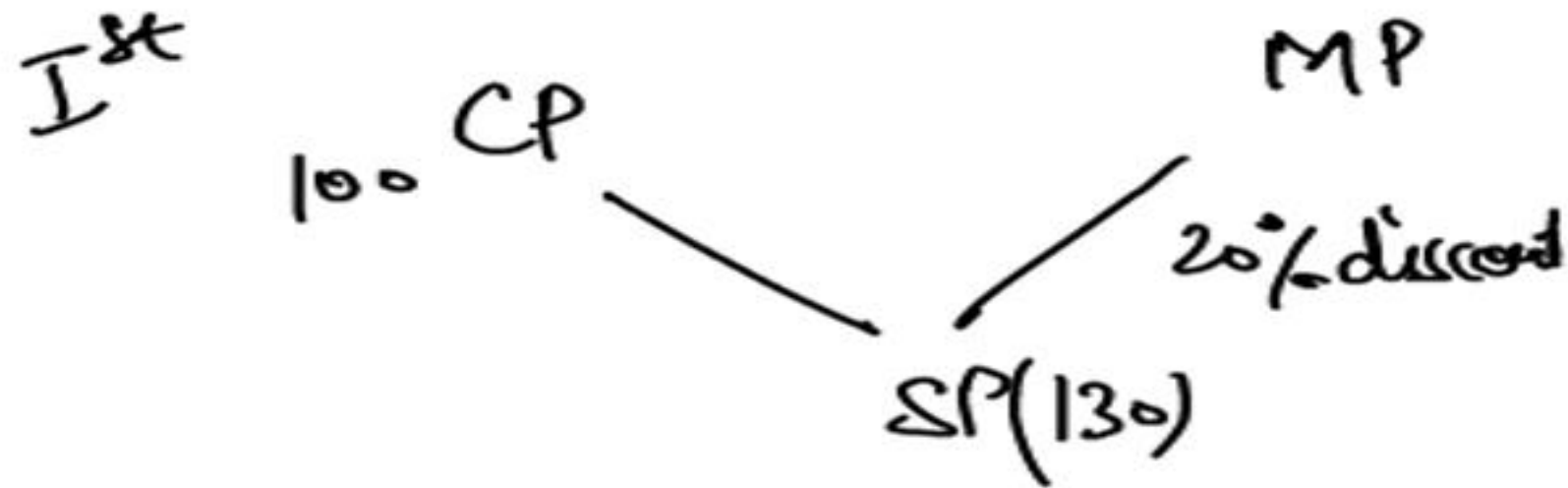
$$\frac{MP}{CP} = \frac{100 + p}{100 - d}$$

p = Profit %

d = Discount %

discount = 20%

profit = 30%



$$MP - 20\% \text{ of } MP = 130$$

$$80\% MP = 130$$

$$MP = 162.5$$

62.5% ✓

Q13 (b). A shopkeeper wants to give a discount 20% to his customers and still wants to earn a profit of 30%. Find marked price is what % more than cost price.

2nd

$$\frac{MP}{CP} = \frac{100+p}{100-d}$$

$$\frac{MP}{CP} = \frac{130}{80}$$

$$\frac{5}{8} \times 100 = \underline{\underline{62.5\%}}$$

Ans. $62\frac{1}{2}\%$

$$\text{discount} = 16\frac{2}{3}\% \left(\frac{1}{6}\right)$$

$$\text{profit} = 12\frac{1}{2}\% \left(\frac{1}{8}\right)$$

If profit% & discount%
are in fraction

$$\frac{\text{MP}}{\text{CP}} = \frac{1 + \frac{1}{8}}{1 - \frac{1}{6}}$$

\Rightarrow

$$\frac{9}{8} \times \frac{6}{5} = \frac{9 \times 6}{8 \times 5} = \frac{27}{20}$$

$$\frac{\text{MP}}{\text{CP}} = \frac{27}{20}$$

$$\frac{7}{20} \times 100 \rightarrow 35\% \checkmark$$

Q13 (c). A shopkeeper wants to give a discount $16\frac{2}{3}\%$ to his customers and still wants to earn a profit of $12\frac{1}{2}\%$. Find marked price is what % more than cost price.

Ans. 35%

MP \rightarrow 480 \rightarrow not relevant

If $d = 10\%$
 $p = 8\%$

$d = 0\%$
 $p = ?\%$

$$\frac{MP}{CP} = \frac{100 + p}{100 - d}$$

$$\frac{1200}{920} = \frac{100 + p}{100}$$

$$1200 = 100 + p$$

$$\boxed{p = 20\%}$$

Q13 (d). Marked price of a radio is Rs. 480. Shopkeeper gains 8% profit after giving 10% discount. If no discount is given then what is his profit percent?

- (a) 10% (b) 15%
(c) 20% (d) 35%

Ans. (c)



$$d = 20\%$$

$$p = 60\%$$

$$\frac{100 + p}{100 - d}$$

$$\frac{160^2}{80}$$

$$d = 30\%$$

$$p = 40\%$$

$$\frac{140^2}{70}$$

$$d = 50\%$$

$$p = 0\%$$

$$\frac{100^2}{50}$$

$$d = 60\%$$

$$100 - 20\%$$

$$\frac{80^2}{40}$$

$$\text{If } d = 10\%$$

$$p = 30\%$$

$$d = 5\%$$

$$p = ?\%$$

$$\frac{130}{97} = \frac{100 + p}{95}$$

$$\frac{95 \cdot 13}{9} - 100 = p$$

$$\frac{1235 - 900}{9} = p$$

Q13 (e). By selling an article for Rs. 1170 a man allow 10% discount and earn 30% profit. If the article is sold at 5% discount what should be the profit percent?

(a) 37%

(b) 40%

(c) $27\frac{2}{9}\%$

☒ (d) $37\frac{2}{9}\%$

$$p = \frac{335}{9} \Rightarrow 37\frac{2}{9}\%$$

Ans. (d)

$$\frac{CP}{MP} = \frac{2}{3}$$

$$\frac{p}{d} = \frac{3x}{2x}$$

$p \rightarrow$ profit%, $d \rightarrow$ discount%

$$\frac{MP}{CP} = \frac{100+p}{100-d}$$

$$\frac{3}{2} = \frac{100+3x}{100-2x}$$

$$300 - 6x = 200 + 6x$$

$$12x = 100$$

Ans

Q13 (f). The ratio of cost price and marked price of an article is 2 : 3 and ratio of percentage profit and percentage discount is 3 : 2. What is the discount percentage?

(a) $8\frac{1}{3}\%$

(b) $33\frac{1}{3}\%$

(c) 25%

☒ (d) $16\frac{2}{3}\%$

$$\begin{array}{l} 12x \rightarrow 100 \\ \curvearrowright \quad 2x \rightarrow \frac{100}{6} \end{array}$$

Ans. (b)

$$\frac{4}{12} CP = \frac{3}{9} SP \quad \bigg| \quad \frac{2}{10} dis = \frac{1}{5} profit$$

$$CP = 3 \times 2$$

$$SP = 4 \times 2$$

$$Profit = 1 \times 2$$

$$discount = 1$$

$$profit = 2$$

Q13 (g). Cost price of 12 articles is equal to Selling Price of 9 articles. While the discount on 10 articles is equal to the profit earned on 5 articles. Find the difference between Profit Percent and Discount Percent?

(a) 33.33%

(c) 44.44%

☒ (b) 22.22%

(d) 11.11%

$$p - d = ??$$

$$\underline{discount = 1}$$

$$\underline{SP = 8}$$

$$\underline{MP = 9}$$

$$p = \frac{1}{3} \times 100 \Rightarrow \underline{\underline{33.33\%}}$$

$$d = \frac{1}{9} \times 100 \Rightarrow \underline{\underline{11.11\%}}$$

Ans. (b)

$$1 SP = 5 \text{ discount}$$

$$d = p$$

$$SP = \underline{S} \times 7$$

$$\text{profit} = 1 \times 5$$

$$\text{discount} = 1 \times 7$$

$$CP = 6 \times 5$$

$$MP = 6 \times 7$$

$$SP = \underline{7} \times 5$$

$$7 : 30$$

Q13 (h). If S.P. of a book is 5 times to the discount offered and discount % is equal to the profit % then find ratio of discount offered to C.P. ?

(a) 6 : 25

~~(b) 7 : 30~~

(c) 8 : 35

(d) 9 : 40

$$\text{discount \%} \rightarrow d$$

$$\text{profit \%} \rightarrow p$$

$$\frac{\text{discount}}{MP} \cdot 100 = \left\{ \frac{\text{profit} \cdot 100}{CP} \right\}$$

Ans. (b)

PRACTICE QUESTIONS

Q. A person bought 60 books for Rs.60 each. He sold 50 of them at a loss of 4%. At what per cent profit should he sell the remaining books so that he gains 5% in the entire transaction?

A. 30%

B. 60%

C. 40%

D. 50%

Ans. (d)

Q. The profit made by selling an article for Rs.8,800 is equal to the amount of loss incurred on selling the same article for Rs.7,200. What will be the profit percent, if it was sold for Rs.9,600?

- | | |
|---------------|---------------|
| A. 20% | B. 25% |
| C. 18% | D. 15% |

Ans. (a)

$$88\% \text{ of MP} = 369.6$$

$$\text{MP} = \frac{369.6 \times 100}{88}$$

$$88\%$$

$$\text{MP} = 420$$

$$20\% \text{ profit} \left(\frac{1}{5} \right)$$

$$6 \rightarrow 420$$

$$1 \rightarrow 70$$

$$\text{CP} = 350$$

Q. Amit sold an article for Rs. 369.60 after allowing 12% discount on the marked price. Had he not allowed any discount he would have earned a profit of 20%. What is the cost price of the article?

A. Rs. 350

B. Rs. 400

C. Rs. 380

D. Rs. 320

Ans. (a)

$$SP \rightarrow \underline{369.6}$$

12% discount

If no discount

profit = 20%

$$CP = ??$$

$$\frac{MP}{CP} = \frac{100 + p}{100 - d}$$

$$\Rightarrow \frac{369.6}{CP} = \frac{100}{100 - 12}$$

$$\underline{CP = 350}$$



SP \rightarrow same

loss $(16\frac{2}{3}\%)$
 $(\frac{1}{6})$

$$CP = 6$$

$$\text{loss} = 1$$

$$SP = 5$$

$$CP = 4$$

$$\text{Profit} = 1$$

$$SP = 5$$

Q. Shashi sells two articles for Rs. 5,000 each with no loss and no profit in the overall transaction. If one article is sold at $16\frac{2}{3}\%$ loss, then the other is sold at a profit of:

- A. 25% B. 24% C. $16\frac{2}{3}\%$ D. $18\frac{1}{3}\%$

$$\frac{1}{4} \cdot 100 = 25\%$$

Ans. (a)

Q. If the cost price of 25 articles is equal to the selling price of 35 articles find the profit/loss percentage.

A. Loss – 28.57%

B. Profit – 28.57%

C. Profit – 18.93%

D. Loss – 18.93%

Ans. (a)

$$\begin{aligned} \text{MP} &\rightarrow x \\ \text{discount} &\rightarrow (x-40)\% \\ \text{SP} &\rightarrow x-32 \end{aligned}$$

$$\frac{32}{x} \cdot 100 = (x-40)$$

$$x^2 - 40x - 3200 = 0$$

$$(x-80)(x+40) = 0$$

$$x = 80$$

Q. An article was marked at Rs x and sold at discount of $(x-40)\%$. If the customer paid Rs $(x-32)$, then find the marked price of the article.

A. Rs. 60

B. Rs. 50

C. Rs. 75

D. Rs. 80

Ans. (d)

Q. A single discount equivalent to the discount series of 25%, 15%, and 10% is:

- A. 25%**
- B. 30%**
- C. 40.2%**
- D. 42.6%**

Ans. (d)

Q. Anil bought two articles A and B at a total cost of Rs. 10,000. He sold the article A at 15% profit and the article B at 10% loss. In the whole deal, he made no profit or no loss. Find the selling price of the article A.

A. Rs. 4,600

B. Rs. 5,400

C. Rs. 4,200

D. Rs. 4,500

Ans. (a)

Q. On selling 38 balls at Rs. 2,240, there is a loss equal to the cost price of 6 balls. The cost price of a ball is equal to:

A. Rs. 60

B. Rs. 70

C. Rs. 50

D. Rs. 80

Ans. (b)

Q. A person purchased 40 items at some price. He sold some items at profit 30% by selling them at a price equal to the cost price of 26 items. The remaining items are sold at 18% profit. The total profit percentage is:

A. 27% B. 28% C. 24% D. 25%

Ans. (c)

Q. A trader sells rice at a profit of 20% and uses a 10% less weight for measurement. What will be his total profit per cent?

- A. 25**
- B. 66.66**
- C. 33.33**
- D. 30**

Ans. (c)

Q. If a woman purchases 14 apples for Rs 13 and sells 13 apples for Rs 14, then what will be her profit or loss percentage?

A. 13.77% profit

B. 15.97 %profit

C. 14.28% loss

D. 12.5% loss

Ans. (b)

Q. A man buys a refrigerator at Rs. 22,000 and pays an additional Rs. 1,000 for transport and Rs. 2,000 for installation. What should be the selling price to get a profit of 15% on the whole transaction?

A. Rs. 27,250

B. Rs. 28,500

C. Rs. 28,750

D. Rs. 29,250

Ans. (c)

Q. Two varieties of salt, T and S, costing Rs. 25 and Rs. 35 per kg respectively are mixed in the ratio of 4 : 6. The mixed variety is sold at Rs. 37 per kg. What is the approximate profit percentage?

25 Rs/kg
35 Rs/kg
2 kg : 3 kg

CP = 155
SP = 185

A. 20%

B. 33%

C. 25%

D. 38%

$$\frac{20}{155} \cdot 100 \approx 20\%$$

Ans. (a)

Q. The cost price of an article 1 is six times of the profit earned by selling it at SP1. Cost price of article 2 is three times the loss incurred by selling it at SP2. If the cost prices of the articles are the same, then what is the ratio of SP1 and SP2?

- A. 7 : 4 B. 6 : 5 C. 7 : 5 D. 4 : 3**

Ans. (a)

Q. The difference in selling price of article for selling at 25% profit and 37.5% loss is Rs.1250. What will be the selling price when it is sold at 12.5% profit?

A. Rs.1800

B. Rs.2400

C. Rs.2250

D. Rs.2500

Ans. (c)

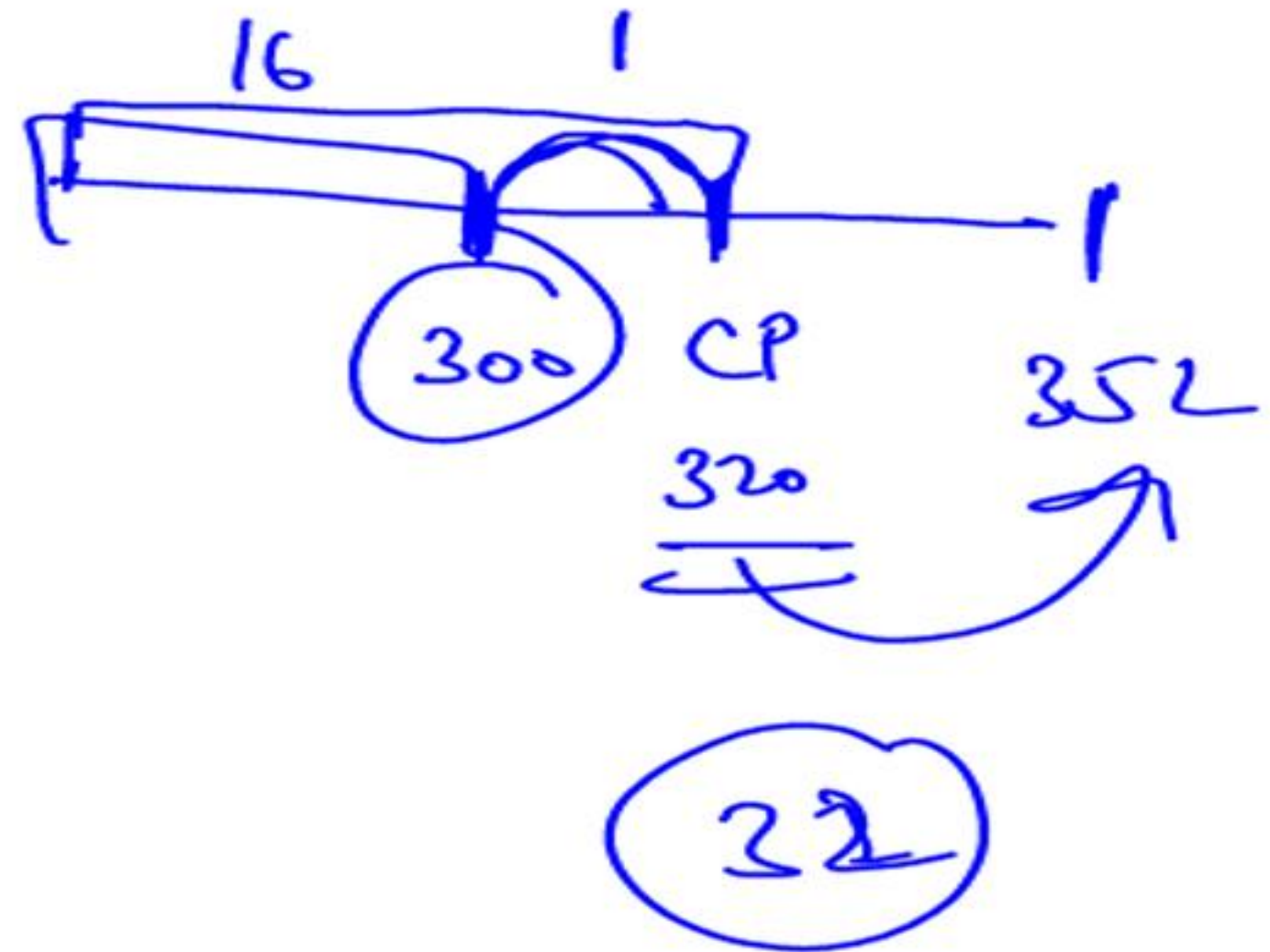
Q. By selling an article for Rs.300, a person incurred a loss of 6.25%. What is his profit, if it is sold for Rs.352?

A. 38

B. 42

☒ C. 32

D. 28



Ans. (c)

Q. A shopkeeper wrongly calculates his profit on the selling price of an article and finds it to be 40%. What is his actual profit percentage?

A. $64\frac{1}{3}$

B. $56\frac{1}{3}$

C. $66\frac{2}{3}$

D. $60\frac{2}{3}$

Ans. (c)

Q. A sells an articles to B at a loss of 20%, B sells it to C at a profit of 12.5% and C sells it to D at a loss, of 8%. If D buys it for 248.40, then what is the difference between the loss incurred by A and C?

A. 36.80

B. 38.40

C. 42.60

D. 39.20

Ans. (b)

Q. A shopkeeper normally allows a discount of 10% on the marked price of each article. During a sale season, he decides to give two more discounts. The first being at a rate of 50% of the original and the second at a rate of 40% of the first. What is the percentage rate of the equivalent single discount (correct up to two decimal places)?

A. 11.25

B. 16.21

C. 14.85

D. 13.27

Ans. (b)

Q. The marked price of an article is 50% above cost price. When marked price is increased by 20% and selling price is increased by 20%, the profit doubles. If original marked price is Rs. 300, then original selling price is

- | | |
|--------------------|--------------------|
| (a) Rs. 200 | (b) Rs. 250 |
| (c) Rs. 340 | (d) Rs. 275 |

Ans. (b)

Q. A shopkeeper gives 25% discount to his customer but he sells only smuggled goods and as a bribe he pays 10% on the cost price. Find what should be the marked price if he desires to make a profit of $9\frac{1}{11}\%$ and the cost price of article is Rs. 2500.

(a) 4000

(b) 4200

(c) 3750

(d) 5000

Ans. (a)

Q. A milkman professes to sell the milk at cost price but he mixes milk and water in the ratio 4 : 1. If the cost of water is $\frac{1}{3}^{\text{rd}}$ the cost of pure milk. Find his profit %.

a $13\frac{5}{13}\%$

b $14\frac{5}{13}\%$

c $15\frac{5}{13}\%$

d $16\frac{5}{13}\%$

Ans. (c)

Q. A man buys 200 oranges for Rs. 1000. How many oranges for Rs. 100 can he sell so that his profit percentage is 25%?

(a) 10

(b) 14

(c) 16

(d) 20

Ans. (c)

Q. Sudhir purchased a chair with three consecutive discounts of 20%, 12.5% and 5%. The actual deduction will be:

(a) 33.5%

(b) 30%

(c) 32%

(d) 35%

Ans. (a)

Q. An article is sold at a profit of 32%. If the cost price is increased by 20% and the sale price remains the same, then the profit percentage becomes:

- | | |
|----------------|----------------|
| (a) 10% | (b) 12% |
| (c) 15% | (d) 20% |

Ans. (a)

Q. A person selling an article for Rs. 96 finds that his loss percent is one-fourth of the amount of rupees that he paid for the article. What can be the cost price?

- (a) Rs. 160 only**
- (b) Rs. 240 only**
- (c) Rs. 160 or Rs. 240**
- (d) Neither Rs. 160 nor Rs. 240**

Ans. (c)

Q. After selling an article in Rs. 1470, a merchant earns $16\frac{2}{3}\%$ profit. What is the cost price of that article?

- (a) Rs. 1260**
- (b) Rs. 1165**
- (c) Rs. 1254**
- (d) Rs. 1261**

Ans. (a)

Q. By selling 33 meters of cloth, a shopkeeper gains a profit of cost price of 11 meters cloth. What is his profit percent?

(a) $33\frac{1}{3}\%$

(b) $30\frac{1}{3}\%$

(c) 38%

(d) 29%

Ans. (a)

Q. A house and a shop, each was sold at 1 lakh. There was 20% loss on house and 20% profit on shop. The overall result will be?

- (a) Neither profit nor loss**
- (b) Rs. $\frac{1}{24}$ Lakh profit**
- (c) Rs. $\frac{1}{12}$ Lakh loss**
- (d) Rs. $\frac{1}{18}$ Lakh loss**

Ans. (c)

Q. A man bought two goats for 1008. He sold one at a profit of 44% and the other at a loss of 20%. If each goat is sold for the same price then find the cost price of the goat which was sold at loss was:

(a) 648

(b) 360

(c) 568

(d) 440

Ans. (a)

Q. Two horses were bought at Rs. 1600. First was sold at 10% profit and second at 20% profit. If first were sold at 20% profit and second at 10% profit he would get Rs. 5 more. Find the difference between the cost price of both the horses.

(a) 50

(b) 500

(c) 100

(d) 1000

Ans. (a)

Q. Medicine manufacturer gives one dozen extra bottle on the order of every 12 dozen. A discount of 25% is offered on the marked price. If the marked price of a bottle is Rs. 117. Find the lowest price at which bottle can be sold without any loss ?

(a) 72

(b) 81

(c) 108

(d) None of these

Ans. (b)

Q. A trader marked his goods at 20% above the cost price. He sold half the stock at the marked price, one quarter at a discount of 20% on the marked price and the rest at a discount of 40% on the marked price. His total gain is

(a) 2%

(b) 8%

(c) 14%

(d) 18%

Ans. (a)

Q. A person sells two articles in Rs. 1710. On first he suffers 10% loss and on second he gains 25% profit. If cost price of first article is equal to selling price of second article then find the profit or loss percent?

- (a) Profit Rs. 90**
- (b) Loss Rs. 90**
- (c) Profit Rs. 60**
- (d) Loss Rs. 60**

Ans. (a)

Ans. (d)

Q. A person bought some articles. He sold $\frac{1}{3}$ articles at profit of 14%, $\frac{3}{5}$ articles at profit of $17\frac{1}{2}\%$ and rest at profit of 20%. Find his total profit%.

(a) $15\frac{1}{2}\%$

(b) $16\frac{1}{2}\%$

(c) $17\frac{1}{2}\%$

(d) $18\frac{1}{2}\%$

Ans. (b)

Q. The ratio of selling price of 3 articles A, B, C is $8 : 9 : 5$ and ratio of their profits is $8 : 7 : 14$. If profit % of A is 14.28% and CP of B is Rs. 400. Find overall profit %.

(a) 15.7% (b) 19.7% (c) 23.7% (d) 25.7%

Ans. (b)

Q. Meerut Sweets sells Jalebi at Rs. 150/kg. Jalebi is made of flour and sugar in the ratio 5 : 3. The ratio of price of flour and sugar is 3 : 7 (per kg). Thus he earns % profit. What is the cost price of sugar.

(a) Rs. 140/kg

(b) Rs. 120/kg

(c) Rs. 130/kg

(d) Rs. 135/kg

Ans. (a)

Q. Anand marks up the price of an article by 40% and then allows a discount of $14\frac{2}{7}\%$ and sells it to Ganeshi Lal. Ganeshi Lal sells it for Rs. 20 more than. What he purchased for, this SP is 30% more than the original CP of the articles. Find Ganeshi Lal's profit%.

- | | |
|------------------|------------------|
| (a) 7.5% | (b) 6.66% |
| (c) 8.33% | (d) 9% |

Ans. (c)

Ans. (b)

Q. When an article is sold at 20% discount, the selling price is Rs. 24. What will be the selling price when the discount is 30%?

- | | |
|---------------|---------------|
| (a) 25 | (b) 23 |
| (c) 21 | (d) 20 |

Ans. (c)

Q. A shopkeeper sells his articles at their cost price but uses a faulty balance which reads 1000g for 800g. What is his actual profit percentage?

- | | |
|----------------|----------------|
| (a) 25% | (b) 20% |
| (c) 40% | (d) 30% |

Ans. (a)

Q. Ram buys 4 chairs and 9 stools for Rs.1,340. If he sells chairs at 10% profit and stools at 20% profit, he earns a total profit of Rs.188. How much money did he have to pay for the chairs?

(a) Rs.200

(b) Rs.400

(c) Rs.800

(d) Rs.1,600

Ans. (c)

Q. An article is sold at a profit of 32%. If the cost price is increased by 20% and the sale price remains the same, then the profit percentage becomes:

(a) 10%

(b) 12%

(c) 15%

(d) 20%

Ans. (a)

Q. A milkman claims to sell milk at its cost price only, but he is making a profit of 20% since he has mixed some amount of water in the milk. What is the percentage of milk in the mixture?

(a) 80%

(b) $\frac{250}{3}\%$

(c) 75%

(d) $\frac{200}{3}\%$

* for PPT → Grade up app

* Homework → (37-38Q)