
EXERCISE

1. If the manufacture gains 10%, the wholesale dealer 15% and the retailer 25%, then find the cost of production of a table, the retail price of which is ₹1265?
(a) ₹800 (b) ₹1000
(c) ₹900 (d) ₹600
2. The price of a jewel, passing through three hands, rises on the whole by 65%. If the first and the second sellers earned 20% and 25% profit respectively, find the percentage profit earned by the third seller.
(a) 20% (b) 10%
(c) 25% (d) No gain or loss
3. A man sold his book for ₹891, thereby gaining $\frac{1}{10}$ of its cost price. Find his cost price. (a) ₹850 (b) ₹810
(c) ₹851 (d) ₹840
4. A trader wants 10% profit on the selling price of a product whereas his expenses amount to 15% on sales. What should be his rate of mark up on an article costing ₹9?
(a) 20% (b) $66\frac{2}{3}\%$
(c) 30% (d) $\frac{100}{3}\%$
5. If 11 lichchus are bought for 10 paise and 10 lichchus are sold for 11 paise, the gain % is
(a) 10% (b) 11%
(c) 20% (d) 21%
6. A man sold 10 eggs for 5 rupees and gained 20%. How many eggs did he buy for 5 rupees?
(a) 10eggs (b) 12 eggs
(c) 14 eggs (d) 16 eggs
7. A person sells 36 oranges per rupee and suffers a loss of 4%. Find how many oranges per rupee to be sold to have a gain of 8%?
(a) 30 (b) 31
(c) 32 (d) 33
8. Coconuts were purchased at ₹ per hundred and sold at ₹2 per coconut. If 2000 coconuts were sold, what was the total profit made?
(a) ₹500 (b) ₹1000
(c) ₹1500 (d) ₹2000
9. A shopkeeper's price is 50% above the cost price. If he allows his customer a discount of 30% what profit does he make?
(a) 5% (b) 10%
(c) 15% (d) 20%
10. A shopkeeper purchases 10kg of rice at ₹600 and sells at a loss as much as the selling price of 2kg of rice. Find the sale rate of rice/kg.
(a) ₹60 per kg (b) ₹50 per kg
(c) ₹80 per kg (d) ₹70 per kg
11. A businessman allows a discount of 10% on the written price. How much above the cost price must he mark his goods to make a profit of 17%?
(a) 30% (b) 20%
(c) 27% (d) 18%
12. A man sold an article at a loss of 20%. If he sells the article for ₹12 more, he would have gained 10%. The cost price of the article is
(a) ₹60 (b) ₹40
(c) ₹30 (d) ₹22
13. A milk man makes a profit of 20% on the sale of milk. If he were to add 10% water to the milk, by what % would his profit increase?
(a) 30 (b) $\frac{40}{3}$
(c) 22 (d) 10
14. A grocer purchased 80 kg of sugar at ₹13.50 per kg and mixed it with 120 kg sugar at ₹16 per kg. At what rate should he sell the mixture to gain 16%?
(a) ₹17 per kg (b) ₹17.40 kg
(c) ₹16.5 kg (d) ₹16 per kg

Profit & Loss Exercise Questions with Answer Key

15. A dishonest fruit seller professes to sell his goods at the cost price but weights 800 grams for a kg weight. Find his gain percent.
(a) 100% (b) 150%
(c) 50% (d) 200%
16. A shopkeeper purchased 150 identical pieces of calculators at the rate of ₹250 each. He spent an amount of ₹2500 on transport and packing. He fixed the labelled price of each calculator at ₹320. However, he decided to give a discount of 5% on the labelled price. What is the percentage profit earned by him?
(a) 14% (b) 15%
(c) 16% (d) 20%
17. A dishonest dealer sells his goods at the cost price but still earns a profit of 25% by underweighing. What weight does he use for a kg?
(a) 750g (b) 800g
(c) 825g (d) 850g
18. A shopkeeper marks up his goods to gain 35%. But he allows 10% discount for cash payment. His profit on the cash transaction therefore, in percentage, is
(a) $13\frac{1}{2}$ (b) 25
(c) $21\frac{1}{2}$ (d) $31\frac{1}{2}$
19. A man sold two steel chairs for ₹500 each. On one he gains 20% and on other, he loses 12%. How much does he gain or lose in the whole transaction?
(a) 1.5% gain (b) 2% gain
(c) 1.55% gain (d) 2% loss
20. A firm of readymade garments makes both men's and women's shirts. Its average profit is 6% of the sales. Its profit in men's shirts average 8% of the sales and women's shirts comprise 60% of the output. The average profit per sale rupee in women shirts is
(a) 0.0466 (b) 0.0666
(c) 0.0166 (d) None of these
21. A man purchases two watches at ₹560. He sells one at 15% profit and other at 10% loss. Then he neither gains nor loss. Find the cost price of each watch.
(a) ₹224, ₹300 (b) ₹200, ₹300
(c) ₹224, ₹336 (d) ₹200, ₹336
22. A man bought a horse and a carriage for ₹3000. He sold the horse at a gain of 20% and the carriage at a loss 10%, thereby gaining 2% on the whole. Find the cost of the horse.
(a) ₹1000 (b) ₹1200
(c) ₹1500 (d) ₹1700
23. Two electronic musical instruments were purchased for ₹8000. The first was sold at a profit of 40% and the second at loss of 40%, If the sale price was the same in both the cases, what was the cost price of two electronic musical instruments?
(a) ₹2000, ₹5000 (b) ₹2200, ₹5500
(c) ₹2400, ₹5000 (d) ₹2400, ₹5600
24. A man sells an article at a gain 15%. If he had bought it at 10% less and sold it for ₹4 less, he would have gained 25%. Find the cost price of the article.
(a) ₹150 (b) ₹160
(c) ₹170 (d) ₹180
25. A businessman, while selling 20 articles, loses the cost price of 5 articles. Had he purchased the 20 articles for 25% less and sold them for $33\frac{1}{3}\%$ more than the original selling price, what is his gain?
(a) 5% (b) 75%
(c) $33\frac{1}{3}\%$ (d) 45%
26. Five kg of butter was bought by a shopkeeper for ₹300. One kg becomes unsalable. He sells the remaining in such a way that on the whole he incurs a loss of 10%. At what price per kg was the butter sold?
(a) ₹67.50 (b) ₹52.50
(c) ₹60 (d) ₹72.50

Profit & Loss Exercise Questions with Answer Key

27. A manufacturer sells a pair of glasses to a wholesale dealer at a profit of 18%. The wholesaler sells the same to a retailer at a profit of 20%. The retailer in turn sells them to a customer for ₹30.09, thereby earning a profit of 25%. The cost price for the manufacturer is
(a) ₹15 (b) ₹16
(c) ₹17 (d) ₹18
28. By selling 66 metres of cloth a person gains the cost price of 22 metres. Find the gain per cent.
(a) 22% (b) $22\frac{1}{2}\%$
(c) 33% (d) $33\frac{1}{3}\%$
29. A dairy man pays ₹6.40 per litres of milk. He adds water and sells the mixture at ₹8 per litres, there by making 37.5% profit. The proportion of water to milk received by the customer is:
(a) 1:10 (b) 1:12
(c) 1:15 (d) 1:20
30. A single discount equal to a discount series of 10% and 20% is
(a) 25% (b) 28%
(c) 30% (d) 35%
31. The list price of a watch is ₹160. A retailer bought the same watch ₹122.40. He got two successive discounts one at 10% and the other at a rate which was not legible. What is the second discount rate?
(a) 12% (b) 14%
(c) 15% (d) 18%
32. Instead of a meter scale cloth merchant uses a 120 cm scale while buying but use an 80 cm scale while selling the same cloth. If he offers a discount of 20 per cent of cash payment, what is his overall per cent profit?
(a) 20% (b) 25%
(c) 40% (d) 15%
33. A trader marks his good at such a price that he can deduct 15% for cash and yet make 20% profit. Find the marked price of an item which costs him ₹90:
(a) ₹ $135\frac{11}{13}$ (b) ₹ $105\frac{3}{21}$
(c) ₹ $127\frac{1}{17}$ (d) ₹ $95\frac{1}{21}$
34. A trader wants 10% profit on the selling price of a product whereas his expense amount to 15% on sales. What should be his rate of mark up on an article costing ₹9?
(a) 20% (b) $66\frac{2}{3}\%$
(c) 30% (d) $\frac{100}{3}\%$
35. A wholesaler sells 30 pens at the price of 27 pens to a retailer. The retailer sells the pens at their market price. The profit for the retailer is
(a) 11% (b) 10%
(c) $11\frac{1}{9}\%$ (d) $9\frac{1}{11}\%$
36. A discount of 16% on the marked price of a book enables a man to buy a pen which costs ₹80. How much did he pay for the book?
(a) ₹420 (b) ₹450
(c) ₹480 (d) ₹495
37. A shopkeeper fixes the marked price of an item 20% above the cost price. He allows his customers a discount and makes a profit of 8%. Find the rate of discount.
(a) 8% (b) 9%
(c) 10% (d) 11%
38. A chair originally costs ₹50. It was offered for sales at 108% of its cost. After a week, the price was 10% discounted and was sold. Find the sale price.
(a) ₹46.80 (b) ₹48.60
(c) ₹50 (d) ₹52.40
39. By selling an umbrella for ₹30, a merchant gains 20%. During a clearance sale, the merchant allows a discount of 10% off the marked price (the price at which he used to sell). Find his again per cent.
(a) 6% (b) 7%
(c) 8% (d) 9%

Profit & Loss Exercise Questions with Answer Key

40. By what % must the cost of goods be marked up so that even after a discount of 20% the same amount is realised as before the discount?
(a) 20 (b) 25
(c) 40 (d) 10
41. Goods are sold so that when a discount of 4 percent is given on the sale price, a profit of 20 percent is made. How much percent, is the sale price higher than the cost price?
(a) 20% (b) 24%
(c) 25% (d) 27%
42. A man sells his car for ₹ 5000 and loses something. Had he sold it for ₹ 5600, his gain would have been double the former loss. Find the cost price.
(a) ₹ 5500 (b) ₹ 5100
(c) ₹ 5400 (d) ₹ 5200
43. A manufacturer sells goods to an agent at a profit of 20%. The agent's wholesale price to a shopkeeper is at a profit of 10% and the shopkeeper retails his goods at a profit of 12%. Find the retailer's price of an article which had cost the manufacturer ₹ 25
(a) ₹ 37 (b) ₹ 40
(c) ₹ 44 (d) ₹ 46
44. A business man sells goods to an agent at a profit of 20%. The agent's wholesale price to a shopkeeper is at a profit of 10% and the shopkeeper retails his goods at a profit of 12%. Find the retailer's price of an article which had cost the manufacturer ₹ 25.
(a) ₹ 2450 (b) ₹ 2225
(c) ₹ 2000 (d) ₹ 1880
45. A sells an article which costs him ₹ 400 to B at a profit, of 20%. B then sells it to C, making a profit of 10% on the price he paid to A. How much does C pay to B.
(a) ₹ 472 (b) ₹ 476
(c) ₹ 528 (d) ₹ 532
46. A shopkeeper buys 50 dozen eggs at ₹ 4 per dozen. Out of them, 40 eggs were found broken. At what rate should he sell the remaining eggs per dozen so as to gain 5% on the whole?
(a) ₹ 4 (b) ₹ 4.25
(c) ₹ 4.50 (d) ₹ 5.25
47. A person sells his table at a profit of $12\frac{1}{2}\%$ and the other had if he sells the table at a loss of $8\frac{1}{3}\%$ but on the whole he gains ₹ 25. On the other hand if he sells the table at a loss of $8\frac{1}{3}\%$ and the chair at a profit of $12\frac{1}{2}\%$ then he neither gains nor loses. Find the cost price of the table.
(a) ₹ 120 (b) ₹ 360
(c) ₹ 240 (d) ₹ 230
48. Kabir buys an article with 25% discount on its marked price. He makes a profit of 10% by selling it at ₹ 660. The marked price is
(a) ₹ 600 (b) ₹ 685
(c) ₹ 700 (d) ₹ 800
49. On the eve of Gandhi Jayanti, Gandhi Ashram declared a 25% discount on silk. If selling price of a silk saree is ₹ 525, what is its marked price?
(a) ₹ 700 (b) ₹ 725
(c) ₹ 750 (d) ₹ 775
50. A shopkeeper marks an article at a price which gives a profit of 25%. After allowing certain discount, the profit reduces to $12\frac{1}{2}\%$. The discount percent is
(a) 12% (b) 12.5%
(c) 10% (d) 20%
51. ACD was sold at a profit of $12\frac{1}{2}\%$. If it had been sold at a profit of 15%, it would have

Profit & Loss Exercise Questions with Answer Key

14	(b)	44	(c)
15	(a)	45	(c)
16	(a)	46	(c)
17	(b)	47	(b)
18	(c)	48	(d)
19	(a)	49	(a)
20	(a)	50	(c)
21	(c)	51	(c)
22	(b)	52	(a)
23	(d)	53	(c)
24	(b)	54	(a)
25	(c)	55	(b)
26	(a)	56	(b)
27	(c)	57	(c)
28	(d)	58	(c)
29	(a)	59	(a)
30	(b)	60	(b)

HINTS & EXPLANATIONS

1. (a) Let the cost of production of the table be `x.

Then, 125% of 115% of 110% of x = 1265

$$\Rightarrow \frac{125}{100} \times \frac{115}{100} \times \frac{110}{100} \times x = 1265$$

$$\Rightarrow \frac{253}{160} x = 1265 \Rightarrow x = \left(\frac{1265 \times 160}{253} \right) = \text{₹}800$$

2. (b) Let the original price of the jewel be `P and let the profit earned by the third seller be x%.

Then, (100+x) % of 125% of 120% of P = 165% of P

$$\Rightarrow \frac{(100+x)}{100} \times \frac{125}{100} \times \frac{120}{100} \times P = \frac{165}{100} \times P$$

$$\Rightarrow 100 + x = \frac{165 \times 100 \times 100}{125 \times 120} = 110 \Rightarrow x = 10\%$$

3. (b) Let C.P. = `x then profit = S.P. - C.P.

$$\Rightarrow \frac{1}{10} \times x = 891 - x \Rightarrow \frac{11x}{10} = 891$$

$$\Rightarrow x = \frac{891 \times 10}{11} = \text{₹}810$$

4. (d) Let the Sp of the article be `x

Expenses = 15% of x = `0.15x

Profit = 10% of x = `0.10x

CP = `9 (given)

Therefore, 9 + 0.15x + 0.10x = x \Rightarrow x = 12

\therefore % increase for marked price = $\frac{12-9}{9} \times 100$

$$= \frac{100}{3} \%$$

5. (d) C.P. for 1 lichchus = $\frac{10}{11}$ paise

S.P. for 1 lichchus = $\frac{11}{10}$ paise

$$\therefore \text{gain \%} = \frac{\frac{11}{10} - \frac{10}{11}}{\frac{10}{11}} \times 100 = 21\%$$

Quantity Price

$$\begin{array}{r} 11 \quad \times \quad 10 \\ 10 \quad \times \quad 11 \end{array}$$

$$\text{gain \%} = \left(\frac{11 \times 11}{10 \times 10} - 1 \right) \times 100\%$$

$$= \frac{21}{100} \times 100 \%$$

$$= 21\%$$

6. (b) S.P. for 1 egg = $\frac{5}{10} = \text{Rs } \frac{1}{2}$

$$\therefore \text{C.P. for 1 egg} = \frac{100}{(100+20)} \times \frac{1}{2} = \frac{5}{12}$$

\Rightarrow He bought 12 eggs for 5 rupees.

7. (c) Let he sells x oranges per rupee.

$$\frac{1}{36} : (100 - 4) :: x : (10 + 8)$$

$$\Rightarrow x = \frac{108}{96 \times 36} = \frac{1}{32}$$

Profit & Loss Exercise Questions with Answer Key

- He sells 32 oranges per rupee.
8. (b) C.P for one coconut = Rs $\frac{150}{100} = \text{Rs } \frac{3}{2}$
S.P for one coconut = `2
Profit on one coconut = $2 - \frac{3}{2} = \frac{1}{2}$
 \therefore Profit on 2000 coconut = $\frac{1}{2} \times 2000 = \text{`1000}$
9. (a) Let C.P. = Rs 100, then M.P. = `150
S.P. = 70% of 150 = `105
 \therefore % profit = $\frac{105-100}{100} \times 100 = 5\%$
10. (b) Let S.P. = `x per kg
 \therefore S.P. of 2 kg of rice = `2x = loss
now, Loss = C.P. - S.P.
 $2x = 600 - 10x$
 $\Rightarrow x = \text{`50 per kg}$
11. (a) Let CP = `100
Then, S.P. = `117
Let marked price be Rs. x.
Then, 90% of x = 117 $\Rightarrow x = \frac{117 \times 100}{90} = 130$
 \therefore Marked price = 30% above C.P.
12. (b) S.P. = C.P. $\frac{80}{100} \Rightarrow S.P. = \frac{4}{5} C.P.$...
(1)
 $S.P. + 12 = C.P. \frac{110}{100} \Rightarrow S.P. = \frac{11}{10} C.P. - 12$...
(2)
From eqn. (1) and (2)
 $\frac{4}{5} C.P. = \frac{11}{10} C.P. - 12$
 $\Rightarrow \frac{11}{10} C.P. - \frac{4}{5} = 12 \Rightarrow C.P. = \text{`40}$
13. (b) Let profit per litre = `20
So, C.P./litre = `100
S.P. /litre = `120
On adding 10% water to the milk
C.P. per $\frac{9}{10}$ litre = `100
S.P. per $\frac{9}{10}$ litre = `100
S.P. per litre = $\frac{\text{`120} \times 10}{9} = \text{` } \frac{400}{3}$
- \Rightarrow Profit /litre = $\frac{400}{3} - 100 = \frac{100}{3}$
% by which profit increase = $\frac{100}{3} - 20 = \frac{40}{3}$
14. (b) C.P. of 200 kg of mixture =
 $\text{`}(80 \times 13.50 + 120 \times 16)$
= `3000.
S.P. = 116% of Rs 3000 = $\text{`}\left(\frac{116}{100} \times 3000\right)$
= `3480
 \therefore Rate of S.P. of the mixture = Rs $\left(\frac{3480}{200}\right)$ per kg
= `17.40 kg
15. (a) He gives 800 grams but charges the price of 1000 grams (1 kg)
 \Rightarrow on every 800 grams, he gains (1000-800) grams i.e. 200 grams.
 \therefore His gain % = $\frac{200}{800} \times 100\% = 25\%$
Short cut:
Gain % = $\frac{\text{error}}{\text{true weight} - \text{error}}$
= $\frac{200}{1000 - 200} \times 100 = 25\%$
16. C.P. of 150 calculators
= $150 \times 250 + 2500 = 37500 + 2500 = \text{` } 40000$
Labelled price of 150 calculators
= $150 \times 320 = \text{` } 48000$
Discount allowed = 5%
 \therefore S.P. of 150 calculators
= $48000 - 5\% \text{ of } 48000 = \text{` } 45600$
 \therefore Profit % = $\frac{5600}{40000} \times 100 = 14$
17. (b) $\frac{\text{True weight}}{\text{False weight}} = \frac{100 + \text{gain \%}}{100 + x}$
Here S.P. = C.P. $\therefore x = 0$
 \Rightarrow False weight = $\frac{1000 \times 100}{125} = 800 \text{ gm}$
18. Let cost price = `100
 \therefore Marked price = `135
After discount, selling price = $135 - 13.5 = 121.5$
 \therefore profit % = $121.5 - 100 = 21.5\%$
19. (a) S.P. of the 1st chair = `500
Gain = 20%

Profit & Loss Exercise Questions with Answer Key

$$\therefore \text{C.P. of the 1st chair} = \frac{500 \times 100}{100 + 20} = \frac{500 \times 100}{120}$$

$$= \frac{1250}{3}$$

$$\text{S.P. of the 2nd chair} = \frac{500 \times 100}{100 - 12} = \frac{500 \times 100}{88}$$

$$= \text{` } 500 \text{ Loss} = 12\%$$

$$\frac{500 \times 25}{22} = \frac{250 \times 25}{11}$$

$$= \frac{6250}{11}$$

Now S.P. of both the chairs = `1000

C.P. of both the chairs

$$= \frac{1250}{3} + \frac{6250}{11} = \frac{13750 + 18750}{33} = \frac{32500}{33}$$

$$\therefore \text{Net gain} = 1000 - \frac{32500}{33} = \frac{500}{33}$$

$$\Rightarrow \text{Gain \%} = \frac{500/33}{32500/33} \times 100 = \frac{500}{32500} \times 100$$

$$= \frac{100}{65} = \frac{20}{13} = 1.5\% \text{ (To one place of decimal)}$$

Shortcut Method:

$$\frac{100(x+y)+2xy}{(100+x)+(100+y)} = \frac{100(20-12)+2 \times 20 \times (-12)}{(100+20)+(100-12)}$$

$$= \frac{100 \times 8 - 480}{208} = \frac{320}{208} = 1.5\% \text{ gain}$$

20. (a) Women's shirt comprise 60% of the output.

\therefore Men's shirts comprise $(100-60) = 40\%$ of the output.

\therefore Average profit from men's shirt = 8% of 40 = 3.2 out of 40. Over all avg. profit = 6 out of 100 \therefore Average from womens shirt = 2.8 Out of 60

i.e. 0.0466 out of each shirt.

21. (c) Here, in whole transaction, there is neither gains nor loss, therefore,

Amount of gain in one watch = Amount of loss in other watch

$$\Rightarrow 0.15 \times \text{CP}_1 = 0.10 \times \text{CP}_2$$

$$\Rightarrow \frac{\text{CP}_1}{\text{CP}_2} = \frac{0.10}{0.15} = \frac{2}{3}$$

$$\text{Also } \text{CP}_1 + \text{CP}_2 = 560$$

$$\therefore \text{CP}_1 = \frac{2}{(2+3)} \times 560 = \text{` } 224$$

$$\text{and } \text{CP}_2 = 560 - 224 = \text{` } 336$$

22. (b) Let the C.P. of horse = `x

Then the C.P. of carriage = Rs (3000-x)

$$20\% \text{ of } x - 10\% \text{ of } (3000-x) = 2\% \text{ of } 3000$$

$$\Rightarrow \frac{x}{5} - \frac{(3000-x)}{10} = 60$$

$$\Rightarrow 2x - 3000 + x = 600$$

$$\Rightarrow 3x = 3600 \Rightarrow x = 1200$$

23. (d) Here, $\text{SP}_1 = \text{SP}_2$

$$\Rightarrow 140 \text{CP}_1 = 60 \text{CP}_2 \Rightarrow \frac{\text{CP}_1}{\text{CP}_2} = \frac{6}{14} = \frac{3}{7}$$

$$\therefore \text{CP}_1 = \frac{3}{(3+7)} \times 8000 = \text{` } 2400$$

$$\text{and } \text{CP}_2 = 8000 - 2400 = \text{` } 5600$$

24. (b) Let the C.P. be Rs 100

First S.P. = `115

Second C.P = 90..... Second s.p = 125% of

90 = `112.50 Difference of two selling prices

is `115 - Rs 112.50 = 2.50 and c.p of the article is `100. But actual difference is Rs.4

$$\therefore \text{C.P.} = 100 / 2.50 \times 4 = \text{` } 160$$

25. (c) Let the price of 1 article = `1

$$\Rightarrow \text{Loss} = 20 \text{ C.P.} - 20 \text{ S.P.}$$

$$\Rightarrow 5 \text{C.P.} = 20 \text{ C.P.} - 20 \text{ S.P.} \Rightarrow 20 \text{ S.P.} = 15 \text{ C.P.}$$

$$\Rightarrow \text{CP}_1 \text{ of 20 articles} = \text{` } 20$$

$$\Rightarrow \text{SP}_1 \text{ of 20 articles} = \text{` } 15$$

Also given that, had he purchased the 20 articles for 25% less and sold them for $33\frac{1}{3}\%$ more, then

$$\Rightarrow \text{CP}_2 \text{ of 20 articles} = \text{` } 15$$

$$\Rightarrow \text{CP}_2 \text{ of 20 articles} = \text{` } 20$$

$$\therefore \text{Gain percentage} = \frac{20-15}{15} \times 100 = 33\frac{1}{3}\%$$

26. (a) Let S.P. = `x per kg

$$\therefore \text{S.P. of 4 kg} = \text{` } 4x$$

$$\therefore 4x = \frac{100-10}{100} \times 300$$

$$\Rightarrow x = \frac{270}{4} = \text{` } 67.50$$

27. (c) Let the cost price of manufactures is =P

Profit & Loss Exercise Questions with Answer Key

$$\text{Selling price of manufacturer} = P + P \times \frac{18}{100} = \frac{59P}{50}$$

$$\begin{aligned} \text{Wholesaler selling price} &= \frac{59P}{50} + \frac{59P}{50} \times \frac{20}{100} \\ &= \frac{59P}{50} + \frac{59P}{250} = \frac{354P}{250} \end{aligned}$$

$$\begin{aligned} \text{Retailer selling price} &= \frac{354P}{250} + \frac{354P}{250} \times \frac{25}{100} \\ &= \frac{354P}{250} + \frac{177P}{500} = \frac{805P}{500} \end{aligned}$$

$$\begin{aligned} \text{Now, } \frac{805P}{500} &= 30.09 \\ \Rightarrow P &= 17 \end{aligned}$$

$$\text{Short } P = \left(\frac{100}{118} \times \frac{100}{120} \times \frac{100}{125} \times 30.09 \right) = 17$$

28. (d) Let C.P. of one metre of cloth = `1

then C.P. of 66 metres of cloth = `66

Gain = C.P. of 22 metres = `22

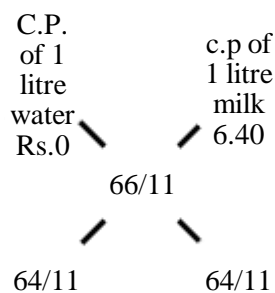
$$\% \text{ gain} = \frac{22}{66} \times 100 = 33\frac{1}{3}\%$$

Shortcut method:

If on selling 'x' articles, a man gains equal to the C.P. of 'y' articles, then $\% \text{ gain} = \frac{y}{x} \times 100$

$$\therefore \% \text{ gain} = \frac{22}{66} \times 100 = 33\frac{1}{3}\%$$

29. (a) Mean cost price = ` $\left(\frac{100}{137.5} \times 8 \right) = \text{₹ } \frac{64}{11}$
using allegation rule.



$$\text{Required ration} = \frac{64}{110} = \frac{64}{11} = 1:10$$

30. (b) Equivalent discount = $10 + 20 - \frac{10 \times 20}{100}$
= $30 - 2 = 28\%$

31. (c) Retailer price = list price $\left(1 - \frac{d_1}{100} \right) \left(1 - \frac{d_2}{100} \right)$

$$\Rightarrow 122.40 = 160 \left(1 - \frac{10}{100} \right) \left(1 - \frac{d_2}{100} \right)$$

$$\Rightarrow 1 - \frac{d_2}{100} = \frac{122.40 \times 100}{160 \times 90} = 0.85$$

$$\Rightarrow d_2 = (1 - 0.85) \times 100 = 15\%$$

32. (a) Let the cost of cloth per cm be `x

As he uses 120 cm scale. so he has 120 cm cloth cost incurred = 100x. While selling he uses 80 cm scale, so actually he charges for $\frac{100}{80} \times 20 = 150$ cm of cloth

Amount obtained after 20% discount = $0.8x \times 150 = 120x$

$$\therefore \text{Profit} = \frac{20x}{100x} \times 100 = 20\%$$

33. (c) SP = $90 \times 1.2 = \text{Rs } 108$

$$\text{Marked price} = \frac{108}{0.85} = \text{₹ } 127.05$$

34. (d) Let the SP of the article be `x

Expenses = 15% of x = `0.15x

Profit = 10% of x = Rs 0.10x

CP = `9 (given)

Therefore, $9 + 0.15x + 0.1x = x \Rightarrow x = 12$

$$\therefore \% \text{ increase for marked price} = \frac{12-9}{9} \times 100 = \frac{100}{3}\%$$

35. (c) Retailer's S.P. = M.P.

Retailer's C.P. for 30 Pens = M.P. of 27 pens

\therefore Retailer's S.P. for 30 pens = M.P. of 30 pens

$$\therefore \% \text{ gain} = \frac{30-27}{27} \times 100 = \frac{100}{9} = 11\frac{1}{9}\%$$

36. (a) Let M.P. = `100

then discount = `16

\therefore when discount = `80, then M.P. = `x

Now, $\downarrow \frac{100}{16} \quad x \quad \downarrow$ it's direct proportion

$$\therefore 100: x :: 16: 80$$

$$\Rightarrow 16x = 100 \times 80 \Rightarrow x = \text{₹ } 500$$

Now, since M.P. = `500, therefore, after 16% discount

$$\text{man paid} = 500 \left(1 - \frac{16}{100} \right) = \text{₹ } 420$$

Profit & Loss Exercise Questions with Answer Key

37. (c) Let C.P. = ₹100. Then M.P. = ₹120 and S.P.
= ₹108

$$\% \text{ discount} = \frac{12}{120} \times 100 = 10\%$$

38. (b) Offering price = $\frac{50 \times 108}{100} = ₹54$

After 10% discount, S.P. = 90% of 54

$$= \frac{90 \times 54}{100} = ₹48.60$$

39. (c) $(100 + g_1):S_1 :: (100 + g_2):S_2$

$$100 + 20):30 :: (100 + g_2):30 \left(1 - \frac{10}{100}\right)$$

[∵ 10% discount is allowed on S.P.]

$$120:30 :: (100 + g_2):27$$

$$100 + g_2 = \frac{120 \times 27}{30} = 108$$

$$\Rightarrow g_2 = 8\%$$

40. (b) Let C.P. = Rs 100, Also, let M.P. = ₹x

Given, C.P. after 20% discount on M.P. = C.P.

$$\Rightarrow 80\% \text{ of } x = 100$$

$$\Rightarrow x = \frac{100 \times 100}{80} = ₹125$$

41. (c) Let the C.P. be Rs. 100

S.P. = Rs 120

Discount being 4%, S.P. is 96% of sale price

$$\therefore 96\% \text{ of sale price} = ₹120$$

\Rightarrow Sale price is 25% higher than the C.P.

42. (d) Let his loss = ₹x. Then,

$$\text{C.P.} = 5000 + x = 5600 - 2x$$

$$\Rightarrow 3x = 600 \Rightarrow x = 200$$

$$\therefore \text{C.P.} = 5000 + 200 = \text{Rs } 5200$$

43. (a) Retailer's price = 112% of 110% of (120% of 25)

$$= \frac{112}{100} \times \frac{110}{100} \times \frac{120}{100} \times 25 = ₹36.96 \approx ₹37$$

44. (c) Let C.P. = ₹x.

$$120\% \text{ of } \left(\frac{225}{2}\% \text{ of } x\right) = 2700$$

$$\Rightarrow \frac{120}{100} \times \frac{225}{2 \times 100} \times x = 2700 \Rightarrow x = 2000$$

45. (c) C.P for B = 120% of ₹400 = $\left(\frac{120}{100} \times 400\right)$

$$= ₹480$$

$$\text{C.P for C} = 110\% \text{ of } ₹480 = \left(\frac{110}{100} \times 480\right) = ₹528.$$

46. (c) C.P. = $50 \times 4 = ₹200$

Remaining eggs = $600 - 40 = 560$

Let S.P. of eggs = ₹x per dozen

$$\therefore \text{Total S.P.} = \frac{560}{12} x$$

$$\therefore \frac{560}{12} x = \frac{(100+5)\%}{100} \times 200$$

$$\Rightarrow x = \frac{105}{100} \times \frac{2400}{560} = ₹4.5 \text{ per dozen}$$

47. (b) Suppose the cost price of table = ₹T and cost price of a chair = ₹C.

Then; $12\frac{1}{2}\%$ of T + $(-8\frac{1}{3}\%)$ of C = 25 and $-8\frac{1}{3}\%$ of T + $12\frac{1}{2}\%$ of C = 0

$$\text{or, } \frac{25}{2}T - \frac{25}{3}C = 2500 \quad \dots (1)$$

$$-\frac{25}{3}T + \frac{25}{3}C = 0 \quad \dots (2)$$

$$(1) \div 2 \div (2) \times 3 \text{ gives } \frac{25}{4}T - \frac{25}{9}T = 1250$$

$$\text{or, } T \left[\frac{225-100}{36}\right] = 1250$$

$$\therefore T = 360 \therefore \text{price of a table} = ₹360$$

48. (d) Let the marked price be ₹x.

$$\therefore \text{C.P.} = (x - 25\% \text{ of } x) = \frac{3}{4}x$$

$$\Rightarrow \text{S.P.} = \frac{3x}{4} + 10\% \text{ of } \frac{3x}{4} = \frac{33}{40}x$$

$$\text{But, } \frac{33}{40}x = 660 \Rightarrow x = 800.$$

49. (a) Let the marked price be ₹x.

$$\therefore \text{S.P.} = (x - 25\% \text{ of } x) = \frac{3}{4}x$$

But, S.P = ₹525

$$\therefore \frac{3}{4}x = 525 \Rightarrow x = 700$$

50. (c) Shortcut method:

$$\text{Net profit} = \text{profit} + \text{Discount} + \frac{\text{Profit} \times \text{Discount}}{100}$$

$$\frac{25}{2} = 25 - \text{Discount} - \frac{25 \times \text{Discount}}{100}$$

('-' to represent discount)

$$\frac{25}{2} - 25 = \frac{-5}{4} \text{ Discount}$$

$$\therefore \text{Discount \%} = 10\%$$

Profit & Loss Exercise Questions with Answer Key

51. (c) 1st case:

$$S.P. = \frac{100 + \text{Profit \%}}{100} \times C.P. \Rightarrow S.P. = \frac{100 + \frac{25}{2} \times C.P.}{100}$$

$$\Rightarrow S.P. = \frac{112.5}{100} C.P. \quad \dots (1)$$
 Ind case:

$$S.P. = \frac{100 + \text{Profit \%}}{100} \times C.P. \Rightarrow (S.P. + 10)$$

$$= \frac{100 + 15}{100} \times C.P.$$

$$\Rightarrow (S.P. + 10) = \frac{115}{100} C.P. \quad \dots (2)$$

$$\frac{S.P.}{S.P. + 10} = \frac{112.5}{100} (C.P.) \times \frac{100}{115(C.P.)}$$

$$S.P. = \frac{112.5}{150} (S.P. + 10)$$

$$115 S.P. = 112.5 S.P. + 1125$$

$$S.P. = 450$$

$$\therefore C.P. = \frac{S.P. \times 100}{112.5} = \frac{450 \times 100}{112.5} = 400$$
52. (a) The trader professes to sell 1200 kg but sells only 1000 kg.
 So profit = 20%
 Markup = 10%

$$\text{Total profit} = 10 + 20 + \frac{10 \times 20}{100} = 32\%$$
53. (c) Let marked price of goods be `100.

$$\text{Selling price goods} = 100 - \frac{10}{100} \times 100 = `90$$
 Cost price of goods is 80% of its selling price

$$C.P. = \frac{80}{100} \times 90 = 72$$

$$\text{Profit on goods} = (90 - 72) = `18$$
54. (a) Let marked price of the instruments be `x

$$\text{Selling price, } S.P. = x - \frac{20}{100}x = 0.8x$$

$$\text{Cost price, } C.P. = C.P. + \frac{25}{100} C.P. = 0.8x$$

$$C.P. = \frac{0.8 \times 100}{125} = \frac{16}{25}x$$

$$x = \frac{25}{16} C.P.$$
 Given that $\frac{25}{100} C.P. = 150$

$$\Rightarrow C.P. = \frac{150 \times 100}{25} = 600$$

$$\text{Marked price } x = \frac{25}{16} \times 6,000 = `938.50$$
55. (b) Let labelled price of T.V. be `x

$$\text{Price after 20\% discount, } x - \frac{20}{100}x = 0.8x$$

$$\text{Price after 30\% discount, } x - \frac{30}{100}x = 0.7x$$
 According to question
- $$0.8x - 0.7x = 800$$

$$x = 800 \times 10 = 8000$$
56. (b) Let `100 be the cost price for A.

$$S.P. \text{ for A} = 100 + 20\% \text{ of } 100 = 120$$

$$S.P. \text{ for B} = 120 - 15\% \text{ of } 120 = 102$$

$$\text{Profit \%} = \frac{102 - 100}{100} \times 100 = 2\%$$
57. (c) Let cost price of good be 100
 Trades mark up at 50% more i.e. 150

$$\text{Selling price of goods} = 150 - \frac{20}{100} \times 150 = 120$$

$$\text{Profit \%} = \frac{120 - 100}{100} \times 100 = 20\%$$
58. (c) Let original price of sewing machine be `x
 Retailer sought it at $x - \frac{15}{100}x = 0.85x$

$$0.85x + \frac{15}{100} \times 0.85x = 1955$$

$$1.15 \times 0.85x = 1955$$

$$x = \frac{1955 \times 10000}{115 \times 85} = 2000$$
 Discount is $\frac{15}{100} \times 200 = `300$
59. (a) Profit % = $\frac{1000 - 900}{900} \times 100 = 11\frac{1}{9}\%$
60. (b) Selling price of 5 apples = `42.50

$$\text{Selling price of 60 apples} = \frac{42.5}{5} \times 60 = 510$$

$$C.P. + \text{Profit} = S.P.$$

$$C.P. + \frac{20}{100} \times C.P. = 510$$

$$C.P. = \frac{510}{120} \times 100 = `425$$