SOLUTIONS

1. (b) Let the CP of 1st & 2nd shirt = 100 unit

	I	II	
CP	$\rightarrow 100_{\times 2\times 97}$ = 19400	$100_{\times 108}$ = 10800	$\rightarrow$ 30200
P/L%	$\rightarrow$ 8%	–3%	$\rightarrow$ + 1128
SP	$\rightarrow 108_{\times 2\times 97}$ = 20952	$97_{\times 108}$ = 10476	$\rightarrow$ 31428

$P\% = \frac{1228}{30200}\times 100 = 4.07\%$

2. (b) $22\% = \frac{22}{100}, 35\% = \frac{35}{100}$

	CP	SP
Price/Rate	100	78
Quantity	65	100
	65	78

+13 profit

Actual profit = $\frac{13}{65}\times 100$

= 20% profit

3. (b) Let, Total number of item = 100
Let, CP of 1 item = 10
Total CP = 1000

Overall profit = $1000\times\frac{19}{100}\Rightarrow 190$

CP of items that did not go bad = $10\times 70 = 700$
S.P = 1000 + 190
= 1190

Required% = $\frac{1190-700}{700}\times 100$

$= \frac{490}{7} = 70\%$

4. (c) Let CP of each article = 100 unit
Then,
ATQ,
P% = 10% and 7%
SP_1 = 110 unit
SP_2 = 107 unit
Difference 110 – 107 = 3 unit $\rightarrow$ Rs.6
$\Rightarrow$ C.P = 100 unit $\rightarrow$ Rs. 200

5. (a) Let price of article x be 'x' and price of article y be $x + 90$
ATQ,

$\frac{23}{100}x - \frac{13}{100}(x+90) = 180$

$\Rightarrow x - 117 = 1800$
$\Rightarrow x = 1800 + 117 \Rightarrow 1917$
$\therefore$ CP of y = $x + 90 = 1917 + 90$
= 2007

6. (b) CP $\rightarrow$ 100 $\rightarrow$ 107, 157 (+ 50)

ATQ,
50 unit $\rightarrow$ 1329
100 unit $\rightarrow$ 2658
Hence the CP of watch is Rs.2658

7. (a) $10\% = \frac{1}{10}, 25\% = \frac{1}{4}$

	CP	SP
Price	100	90
Quantity	3	4
	15	18
$\Rightarrow$	5 :	6

$\therefore$ Profit% = $\frac{1}{5}\times 100 = 20\%$

8. (d) Let the CP of the table = 100 unit
SP of the table = 135 unit
New SP of table = 112 unit
ATQ,

New SP = $\frac{5670}{135}\times 112$

= 4704

9. (c)
Let, Profit earned by third seller be a%

	CP	SP
I	5	6
II	4	5
III	100	$100 + a$
	100	165
	20 :	33

$\therefore \frac{200}{300+3a} = \frac{20}{33}$

$\Rightarrow 330 = 300 + 3a$
$\Rightarrow$ a = 10%

10. (a)

$12\% = \frac{12}{100} - \frac{88}{100}, 25\% = \frac{1}{4} + \frac{5}{4}$

	CP	SP
Rate/Price	88	100
Total price	4	5
Quantity	$\frac{4}{88}$	$\frac{5}{100}$
	10 :	11

$\Rightarrow$ Required% = $\frac{1}{10}\times 100$
= 10%

11. (a) 42 SP – 42 CP = 7 SP
$\Rightarrow$ 35 SP = 42 CP

$\frac{SP}{CP} = \frac{6}{5}$ +1

$\therefore P\% = \frac{1}{5}\times 100 = 20\%$

12. (b) Given,
CP = 625, SP = 550
Loss = CP – SP $\Rightarrow$ 625 – 550 $\Rightarrow$ 75

Loss% = $\frac{75}{625}\times 100 \Rightarrow 12\%$

13. (c)

	CP	SP
Price	100	76
Quantity	19	50
	19	38
	1 :	2

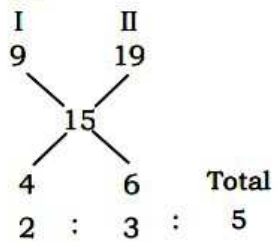
Profit% = $\frac{1}{1}\times 100 = 100\%$

14. (a) Let, CP be 100
ATQ,
SP_1 = 76
For $\rightarrow$ 24% profit
SP_2 = 124

Now $SP_2 = \frac{1596}{76}\times 124$

= 2604

15. (a)



2 : 3 : 5

ATQ,

$5 \rightarrow 650$ kg

$2 \rightarrow 260$ kg

Quantity of wheat is 260 kg.

16. (b) Overall percentage P/L:-

$$+20 - 20 - \frac{20 \times 20}{100}$$

$\Rightarrow -4\%$

$\Rightarrow 4\%$ loss

Alternate method:

$$\text{Loss\%} = \frac{(-20\%)^2}{100} = -4\%$$

17. (c)

	CP	SP
Price	36	40
Quantity	800	1000
Final Price	72	100

+28

$$\therefore \text{Profit\%} = \frac{28}{72} \times 100 \Rightarrow 38.89\%$$

18. (b) Total SP = 1500 + 2800 + 3500 = 7800

$$\text{Total CP} = \left(\frac{1500}{5} \times 4\right) + \left(\frac{2800 \times 2}{1}\right) + \left(\frac{3500 \times 4}{5}\right)$$

= 1200 + 5600 + 2800

= 9600

$$\text{Overall loss\%} = \frac{9600 - 7800}{9600} \times 100$$

$$= \frac{18}{96} \times 100 = 18.75\%$$

19. (b) Let the error in whole transactions be x gm.

$$\text{Profit\%} = \frac{\text{Error}}{[\text{True Value} - \text{Error}]}$$

$$\Rightarrow 25\% = \frac{x}{2000 - x}$$

$$\Rightarrow \frac{25}{100} = \frac{x}{2000 - x}$$

$$\Rightarrow \frac{1}{4} = \frac{x}{2000 - x}$$

$\Rightarrow 2000 - x = 4x$

$\Rightarrow x = 400$ gm

SMART APPROACH:-

Given that, Profit% = 25%
Hence, CP : SP = 4 : 5
5 Units = 2000 gm
1 units = 400 gm
Required Error = 400 gm

20. (a) Before Raid,
Due to Fault in Machine it reads 1 kg when 900 gm is actually weighted and the shopkeeper also marks 10% above

$900 \rightarrow 1000 \rightarrow 1100$

$$\Rightarrow \text{Profit} = \frac{2}{9}$$

After Raid,
Gave punishment to sell the goods at 10% discount on cost price for a month
Cost price = 10
Selling price = 9
Before the Raid Price

$$= \frac{20}{9} \times 10 \times \frac{11}{9} = \frac{2200}{81} = 27.16$$

21. (d)
Let the cost price of 1000g is ₹ 1000
Selling Price = 110% of 1000
= ₹ 1100
Uses 20% less weight instead of actual weight.
It means he gave 800 g instead of 1000 g.
Hence, He sells 800g at ₹ 1100 which costs him ₹ 800
Profit = 1100 – 800

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

$$= \frac{300}{800} \times 100\% = 37.5\%$$

SMART APPROACH:-

CP	SP
10	11
4	5
40	55

$$\text{Actual profit \%} = \frac{15}{40} \times 100 = 37.5\%$$

22. (a) Let the cost price of Aman = 100 units

Aman $\xrightarrow[\text{@10\% Loss}]{\text{Sold}}$ Anuj $\xrightarrow[\text{@12\% Loss}]{\text{Sold}}$ □

100 $\longrightarrow$ 90 $\longrightarrow$ 88% of 90 = 79.2

Selling Price of Anuj = 79.2 units
79.2 units = 554400

$$1 \text{ unit} = \frac{554400}{79.2} = 7000$$

100 units = 700000

SMART APPROACH:-

CP	SP
10	9
25	22
125	99

∴ Cost price for Aman

$$= \frac{5,54,400}{99} \times 125$$

= Rs. 700,000

23. (d) Let the cost price of the article = x & profit% = x
SP = CP + P% of CP
$\Rightarrow 1200 = x + x\%$ of x

$$\Rightarrow 1200 = x + \frac{x^2}{100}$$

$\Rightarrow 120000 = 100x + x^2$

$\Rightarrow x^2 + 100x - 120000 = 0$

$\Rightarrow x^2 + 400x - 300x - 120000 = 0$

$\Rightarrow x(x + 400) - 300(x + 400) = 0$

$\Rightarrow (x + 400)(x - 300) = 0$

$\Rightarrow x = -400$ or $x = 300$

∵ Negative Value can not be considered as cost price.
Hence, Cost Price = ₹ 300

24. (c) Let the CP of the article = 100%
ATQ,
There is a loss of 45% while selling the article at $\frac{3}{8}$ of SP.
Initial Selling Price = 8
New Selling Price = 3
Hence, 55% = 3

$$\therefore 100\% = \frac{3}{55} \times 100 = \frac{60}{11}$$

$$\text{CP} = \frac{60}{11} \text{ and SP} = 8$$

Profit = SP – CP

$$= 8 - \frac{60}{11} = \frac{88 - 60}{11} = \frac{28}{11}$$

$$\text{Profit\%} = = \frac{\text{profit}}{\text{cost price}} \times 100\%$$

$$= \frac{\left(\frac{28}{11}\right)}{\left(\frac{60}{11}\right)} \times 100\% = \frac{28}{60} \times 100\%$$

= 46.67% = 47% (Approx)

25. (b) **Method-1**

CP	SP
20	23
5	6
100	138

Swati bought at,

$\frac{24840}{138} \times 100 = \text{Rs.}18000$

No need of doing complete calculation as 24840 is a multiple of 9, Answer must be a multiple of 9 only option (b) satisfied.

Method-2

Let the Swati's CP = 100 units

Swati $\xrightarrow[=15]{@15\% \text{ Profit}}$ Ankita $\xrightarrow[=23(20\% \text{ of } 115)]{@20\% \text{ Profit}}$ Aashi

100 → 115 → 138

$\because$ 138 units = 24840

$\therefore$ 1 unit = $\frac{24840}{138}$

$\therefore$ 100 units = 18000

Hence, Swati's cost price = 18000

26. (c)

1st Bicycle	2nd Bicycle
1	1
10%	x%
20%	

$\frac{10+x}{2} = 20$

$10 + x = 40$

$x = 30$

$\therefore$ Profit on other bicycle = 30%

27. (d)

Net change = $\left(25 - 30 - \frac{25 \times 30}{100}\right)\%$

= (–5 – 7.5)%

= – 12.5%

Therefore, price will decrease by 12.5%

28. (d) Cost Price of 1 orange

= $\frac{90}{18} = ₹ 5$

Selling price of 1 orange

= $\frac{105}{15} = ₹ 7$

Profit = SP – CP = 7 – 5 = 2

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

= $\frac{2}{5} \times 100\% = 40\%$

29. (d) Let the price of 1 kg = ₹ 1000

MP = ₹ 1150

SP = 90% of 1150 = ₹ 1035

CP of 750 gm = ₹ 750

SP of 750 gm = ₹ 1035

Net profit = 1035 – 750 = ₹ 285

Profit% = $\frac{285}{750} \times 100 = 38\%$

SMART APPROACH:-

CP	SP
750	1000
100	115
100	90
600	828

P% = $\frac{228}{600} \times 100 = 38\%$

30. (a) CP of 1 Notebook = $\frac{700}{35} = ₹ 20$

SP of 1 Notebook = $\frac{600}{28} = ₹ 21\frac{3}{7}$

Profit = $21\frac{3}{7} - 20 = 1\frac{3}{7} = \frac{10}{7}$

Profit% = $\frac{10}{7} \times \frac{1}{20} \times 100\% = 7\frac{1}{7}\%$

31. (d) **Case-I**

CP : SP = 16 : 18

= 8 : 9

Case-II

CP : SP = 900 : 1000

= 9 : 10

Final, $\frac{SP}{CP} = \frac{9}{8} \times \frac{10}{9} = \frac{90}{72}$

Profit% = $\frac{90-72}{72} \times 100\%$

= $\frac{18}{72} \times 100\% = 25\%$

SMART APPROACH:-

CP	SP
8	9
9	10
72	90

Profit % = $\frac{18}{72} \times 100 = 25\%$

32. (b)

CP	SP
23	20
4	5
92	100

Profit% = $\frac{8}{92} \times 100 = 8\frac{16}{23}\%$

33. (d) Initial profit = 5%

CP	SP
20	21

New CP = $21 \times \frac{23}{20} \times \frac{20}{23} = 21$

% increase in CP = $\frac{1}{20} \times 100\% = 5\%$

34. (b) Gain % = $\frac{4}{24-4} \times 100\% = 20\%$

35. (c) Cost Price of Swastik = 75000

Loss = 10%

Selling Price = $CP \times \frac{(100 - L\%)}{100}$

= $75000 \times \frac{90}{100} = 67500$

Cost Price of Anju = 67500

Profit = 20%

Selling Price of Anju

= $CP \times \frac{(100 + P\%)}{100}$

= $67500 \times \frac{120}{100} = 81000$

36. (a) –16% and 8%

Difference = 8 – (–16) = 24%

So, 24% = 660

100% = $\frac{660}{24} \times 100 = 110 \times 25$

12% profit = $110 \times 25 \times \frac{112}{100}$

= 110 × 28 = Rs.3080

37. (a)

C.P	S.P
100	110
80	112

2 unit → 1000

$\therefore$ C.P of article, 100 unit = 500 × 100 = Rs.50,000

38. (d)

C.P	S.P
100	110
80	112

2 unit → 1000

$\therefore$ Earlier S.P = 500 × 110 = 55,000

39. (b) 50 × SP = 42 × CP

$\frac{SP}{CP} = \frac{21}{25}$

Loos% = $\frac{21-25}{25} \times 100\%$

= $\frac{-4}{25} \times 100 = -16\%$

40. (c) Difference = 8 – (–16) = 24%

$\because$ 24% = 660

100% = 110 × 25 = 2750

New Profit%

= $\left(\frac{3080 - 2750}{2750}\right) \times 100\%$

= $\frac{330}{2750} \times 100\% = 12\%$

41. (b) Difference = (9.5) – (13.5) = 23%

23% = 1104

100% = 4800

42. (d) According to the question

100 SP – 100 CP = 40 CP

100 SP = 140 CP

$$\frac{CP}{SP} = \frac{100}{140}$$

$$P\% = \frac{40}{100} \times 100\% = 40\%$$

43. (d) Selling an article for Rs 1134 and suffers as much loss as she would have gained by selling it at 10% profit.

$$CP = \frac{1134}{9} \times 10 = 1260$$

SP = 1354.5

$$\text{Profit\%} = \frac{(1354.5 - 1260)}{1260} \times 100\%$$

= 7.5%

44. (a)

24%		40%
	x	
75	:	25
3	:	1

$$= x = \frac{24 \times 3 + (1 \times (-40))}{4}$$

$= 4x = 72 - 40$

$= x = 8\%$ gain

45. (d)

CP	SP
3750	113% of 3750 = 4237.5

New SP = 4237.5 + 607.5 = 4845

$$\%\ \text{profit} = \frac{(4845 - 3750)}{3750} \times 100\%$$

$$= \frac{1095}{3750} \times 100\% = 29.2\%$$

46. (d) Let CP = x

ATQ,

$\Rightarrow (1100 - x) = 3(x - 700)$

$\Rightarrow 1100 - x = 3x - 2100$

$\Rightarrow 3200 = 4x$

$\Rightarrow x = 800$

To gain 12.5% must be sold at

$$= \frac{800}{8} \times 9 = \text{Rs. } 900$$

47. (d) CP of the article = x

$$\text{ATQ, } (115 - x) = (x - 104) \times \frac{120}{100}$$

$\Rightarrow 5(115 - x) = 6(x - 104)$

$\Rightarrow 575 - 5x = 6x - 624$

$\Rightarrow 11x = 1199$

$\Rightarrow x = 109$

CP = 109

New SP = 130.8

$$\text{Profit\%} = \frac{(130.8 - 109)}{109} \times 100\%$$

= 20%

48. (c) Let SP = 500

Had it been sold at $\frac{4}{5}$ of that price there would have been loss of 10%

$$500 \times \frac{4}{5} = 400 \text{ (New SP)}$$

$$\text{Loss} = 10\% = \frac{1 \rightarrow \text{Loss}}{10 \rightarrow \text{CP}},$$

SP = 9

$$CP = \frac{400}{9} \times 10$$

CP :		SP
$\frac{400}{9} \times 10$	:	500
4000	:	4500

$$\text{Profit \% at initially} = \frac{5}{40} \times 100\%$$

= 12.5%

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