

# CBSEASSISTANCE.COM

## PROFIT AND LOSS

### EX. 10 A

1. (i) C.P. = Rs. 620

S.P. = Rs. 713

S.P. > C.P.

Profit = S.P. – C.P. = 713 – 620 = Rs. 93

Profit % =  $\frac{P}{C.P.} \times 100 = \frac{93}{620} \times 100 = 15\%$

(ii) C.P. = Rs. 675

S.P. = Rs. 630

C.P. > S.P.

Loss = C.P. – S.P. = 675 – 630 = Rs. 45

Loss % =  $\frac{L}{C.P.} \times 100 = \frac{45}{675} \times 100 = \frac{20}{3}\% = 6\frac{2}{3}\%$

(iii) C.P. = Rs. 345

S.P. = Rs. 372.50

S.P. > C.P.

Profit = S.P. – C.P. = 372.60 – 345 = Rs. 27.60

Profit % =  $\frac{P}{C.P.} \times 100 = \frac{27.60}{345} \times 100 = 8\%$

(iv) C.P. = Rs. 80

S.P. = Rs. 76.80

C.P. > S.P.

Loss = C.P. – S.P. = 80 – 76.80 = Rs. 3.20

Loss % =  $\frac{L}{C.P.} \times 100 = \frac{3.20}{80} \times 100 = 4\%$

2. (i) C.P. = Rs. 1650

Gain = 4%

S.P. =  $\left(\frac{100+P\%}{100}\right) \times C.P. = \left(\frac{100+4}{100}\right) \times 1650 = \frac{104}{100} \times 1650 = Rs. 1716$

(ii) C.P. = Rs. 915

Gain =  $6\frac{2}{3}\% = \frac{20}{3}\%$

$$S.P. = \left(\frac{100+P\%}{100}\right) \times C.P. = \left(\frac{100+\frac{20}{3}}{100}\right) \times 915 = \frac{320}{300} \times 915 = Rs. 976$$

Remaining parts similar to part (i) and (ii)

3. (i) S.P. = Rs. 1596

Gain = 12%

$$C.P. = \frac{100 \times S.P.}{100+P\%} = \frac{100 \times 1596}{100+12} = \frac{100 \times 1596}{112} = Rs. 1425$$

Remaining parts similar to part (i)

4. C.P. of iron safe = Rs. 12160 + 340 = Rs. 12500

S.P. of iron safe = Rs. 12875

Gain = S.P. – C.P. = 12875 – 12500 = Rs. 375

$$\text{Gain \%} = \frac{P}{C.P.} \times 100 = \frac{375}{12500} \times 100 = 3\%$$

5. C.P. of car = 73500 + 10300 + 2600 = Rs. 86400

S.P. of car = Rs. 84240

C.P. > S.P.

Loss = C.P. – S.P. = 86400 – 84240 = Rs. 2160

$$\text{Loss \%} = \frac{\text{loss}}{C.P.} \times 100 = \frac{2160}{86400} \times 100 = \frac{5}{2}\% = 2\frac{1}{2}\%$$

6. Cost of 20 kg rice = 20 × 36 = Rs. 720

Cost of 25 kg rice = 25 × 32 = Rs. 800

Total C.P. of 45 kg rice = 720 + 800 = Rs. 1520

S.P. of 45 kg rice = 38 × 45 = Rs. 1710

Gain = S.P. – C.P. = 1710 – 1520 = Rs. 190

$$\text{Gain\%} = \frac{P}{C.P.} \times 100 = \frac{190}{1520} \times 100 = \frac{25}{2}\% = 12\frac{1}{2}\%$$

7. Let amount of coffee be 5x kg

Amount of chicory be 2x kg

Total amount of mixture = 7x kg

Cost of 5x kg coffee = 250 × 5x = Rs. 1250x

Cost of 2x kg chicory = 75 × 2x = Rs. 150x

C.P. of 7x kg mixture = 1250x + 150x = Rs. 1400x

S.P. of 7x kg mixture = 7x × 230 = Rs. 1610x

S.P. > C.P.

$$\text{Profit} = \text{S.P.} - \text{C.P.} = 1610x - 1400x = \text{Rs. } 210x$$

$$\text{Profit\%} = \frac{P}{C.P.} \times 100 = \frac{210x}{1400x} \times 100 = 15\%$$

8. Let the C.P. of 1 bottle = Re. 1

C.P. of 16 bottles = Rs. 16

C.P. of 17 bottles = Rs. 17

S.P. of 16 bottles = C.P. of 17 bottles (given)

S.P. of 16 bottles = Rs. 17

S.P. > C.P.

$$\text{Profit} = \text{S.P.} - \text{C.P.} = 17 - 16 = \text{Re. } 1$$

$$\text{Profit\%} = \frac{P}{C.P.} \times 100 = \frac{1}{16} \times 100 = \frac{25}{4}\% = 6\frac{1}{4}\%$$

9. Let the C.P. of 1 candle = Re. 1

C.P. of 12 candles = Rs. 12

C.P. of 15 candles = Rs. 15

S.P. of 15 candles = C.P. of 12 candles (given)

S.P. of 15 candles = Rs. 12

C.P. > S.P.

$$\text{Loss} = \text{C.P.} - \text{S.P.} = 15 - 12 = \text{Rs. } 3$$

$$\text{Loss\%} = \frac{l}{C.P.} \times 100 = \frac{3}{15} \times 100 = 20\%$$

10. Let S.P. of 1 cassette = Re. 1

S.P. of 5 cassettes = Rs. 5

S.P. of 130 cassettes = Rs. 130

Profit = S.P. of 5 cassettes (given)

Profit = Rs. 5

C.P. of 130 cassettes = S.P. - P = 130 - 5 = Rs. 125

$$\text{Profit\%} = \frac{P}{C.P.} \times 100 = \frac{5}{125} \times 100 = 4\%$$

11. Let S.P. of 1 lemon = Re. 1

S.P. of 45 lemons = Rs. 45

S.P. of 3 lemons = Rs. 3

Loss = S.P. of 3 lemons (given)

Loss = Rs. 3

C.P. of 45 lemons = S.P. + loss = 45 + 3 = Rs. 48

$$\text{Loss\%} = \frac{\text{loss}}{\text{C.P.}} \times 100 = \frac{3}{48} \times 100 = \frac{25}{4}\% = 6\frac{1}{4}\%$$

12.L.C.M. of 6 and 4 = 12

C.P. of 6 oranges = Rs. 20

C.P. of 1 orange = Rs.  $\frac{20}{6}$

C.P. of 12 oranges =  $\frac{20}{6} \times 12 = \text{Rs. } 40$

S.P. of 4 oranges = Rs. 18

S.P. of 1 orange = Rs.  $\frac{18}{4}$

S.P. of 12 oranges =  $\frac{18}{4} \times 12 = \text{Rs. } 54$

S.P. > C.P.

Profit = S.P. - C.P. = 54 - 40 = Rs. 14

$$\text{Profit\%} = \frac{P}{\text{C.P.}} \times 100 = \frac{14}{40} \times 100 = 35\%$$

13.L.C.M. of 12 and 10 = 60

C.P. of 12 bananas = Rs. 40

C.P. of 1 banana = Rs.  $\frac{40}{12}$

C.P. of 60 bananas =  $\frac{40}{12} \times 60 = \text{Rs. } 200$

S.P. of 10 bananas = Rs. 36

S.P. of 1 banana = Rs.  $\frac{36}{10}$

S.P. of 60 bananas =  $\frac{36}{10} \times 60 = \text{Rs. } 216$

S.P. > C.P.

Gain = S.P. - C.P. = 216 - 200 = Rs. 16

$$\text{Gain\%} = \frac{P}{\text{C.P.}} \times 100 = \frac{16}{200} \times 100 = 8\%$$

14.L.C.M. of 10 and 12 = 60

C.P. of 10 apples = Rs. 75

C.P. of 1 apple = Rs.  $\frac{75}{10}$

C.P. of 60 apples =  $\frac{75}{10} \times 60 = \text{Rs. } 450$

S.P. of 12 apples = Rs. 75

$$\text{S.P. of 1 apple} = \text{Rs. } \frac{75}{12}$$

$$\text{S.P. of 60 apples} = \frac{75}{12} \times 60 = \text{Rs. } 375$$

C.P. > S.P.

$$\text{Loss} = 450 - 375 = \text{Rs. } 75$$

$$\text{Loss\%} = \frac{\text{loss}}{\text{C.P.}} \times 100 = \frac{75}{450} \times 100 = \frac{50}{3}\% = 16\frac{2}{3}\%$$

15.L.C.M. of 3 and 5 = 15

$$\text{C.P. of 3 eggs} = \text{Rs. } 16$$

$$\text{C.P. of 1 egg} = \text{Rs. } \frac{16}{3}$$

$$\text{C.P. of 15 eggs} = \frac{16}{3} \times 15 = \text{Rs. } 80$$

$$\text{S.P. of 5 eggs} = \text{Rs. } 36$$

$$\text{S.P. of 1 egg} = \text{Rs. } \frac{36}{5}$$

$$\text{S.P. of 15 eggs} = \frac{36}{5} \times 15 = \text{Rs. } 108$$

$$\text{Gain} = \text{S.P.} - \text{C.P.} = 108 - 80 = \text{Rs. } 28$$

If the gain is Rs. 28, number of eggs purchased = 15

$$\text{If the gain is Re. 1, number of eggs purchased} = \frac{15}{28}$$

$$\text{If the gain is Rs. 168, number of eggs purchased} = \frac{15}{28} \times 168 = 90$$

16.(i) Let the C.P. of camera = Rs. 100

$$\text{Gain} = \frac{1}{8} \times 100 = \text{Rs. } \frac{25}{2}$$

$$\text{S.P. of camera} = 100 + \frac{25}{2} = \text{Rs. } \frac{225}{2}$$

If the S.P. of the camera is Rs.  $\frac{225}{2}$ , C.P. of camera = Rs. 100

$$\text{If the S.P. of the camera is Re. 1, C.P. of camera} = \text{Rs. } 100 \div \frac{225}{2} = \frac{100 \times 2}{225} = \text{Rs. } \frac{200}{225}$$

$$\text{If the S.P. of the camera is Rs. 1080, C.P. of camera} = \frac{200}{225} \times 1080 = \text{Rs. } 960$$

(ii) Profit = S.P. - C.P. = 1080 - 960 = Rs. 120

$$\text{Profit\%} = \frac{P}{\text{C.P.}} \times 100 = \frac{120}{960} \times 100 = \frac{25}{2}\% = 12\frac{1}{2}\%$$

17.(i) Let the C.P. of the pen = Rs. 100

$$\text{Loss} = \frac{1}{10} \times 100 = \text{Rs. } 10$$

$$\text{S.P. of pen} = \text{C.P.} - \text{loss} = 100 - 10 = \text{Rs. } 90$$

If the S.P. is Rs. 90, C.P. of pen = Rs. 100

$$\text{If the S.P. is Re. } 1, \text{ C.P. of pen} = \text{Rs. } \frac{100}{90}$$

$$\text{If the S.P. is Rs. } 54, \text{ C.P. of pen} = \frac{100}{90} \times 54 = \text{Rs. } 60$$

(ii) Loss = C.P. - S.P. = 60 - 54 = Rs. 6

$$\text{Loss\%} = \frac{\text{loss}}{\text{C.P.}} \times 100 = \frac{6}{60} \times 100 = 10\%$$

18. Let C.P. of the table = Rs. 100

$$\text{S.P. of the table at } 10\% \text{ loss} = \left(\frac{100-10}{100}\right) \times \text{C.P.} = \left(\frac{100-10}{100}\right) \times 100 = \text{Rs. } 90$$

$$\text{S.P. of the table at } 10\% \text{ gain} = \left(\frac{100+10}{100}\right) \times \text{C.P.} = \left(\frac{100+10}{100}\right) \times 100 =$$

Rs. 110

$$\text{Difference in S.P.} = 110 - 90 = \text{Rs. } 20$$

If the difference in S.P. is Rs. 20, C.P. = Rs. 100

$$\text{If the difference in S.P. is Re. } 1, \text{ C.P.} = \text{Rs. } \frac{100}{20} = \text{Rs. } 5$$

$$\text{If the difference in S.P. is Rs. } 940, \text{ C.P.} = 5 \times 940 = \text{Rs. } 4700$$

19. Let the C.P. of chair = Rs. 100

$$\text{S.P. of the table at } 15\% \text{ gain} = \left(\frac{100+15}{100}\right) \times \text{C.P.} = \left(\frac{100+15}{100}\right) \times 100 =$$

Rs. 115

$$\text{S.P. of the table at } 8\% \text{ gain} = \left(\frac{100+8}{100}\right) \times \text{C.P.} = \left(\frac{100+8}{100}\right) \times 100 = \text{Rs. } 108$$

$$\text{Difference in S.P.} = 115 - 108 = \text{Rs. } 7$$

If the difference in S.P. is Rs. 7, C.P. = Rs. 100

$$\text{If the difference in S.P. is Re. } 1, \text{ C.P.} = \text{Rs. } \frac{100}{7}$$

$$\text{If the difference in S.P. is Rs. } 56, \text{ C.P.} = \text{Rs. } \frac{100}{7} \times 56 = \text{Rs. } 800$$

20. Let the C.P. of cycle = Rs. 100

$$\text{S.P. of cycle at } 10\% \text{ gain} = \left(\frac{100+10}{100}\right) \times \text{C.P.} = \left(\frac{100+10}{100}\right) \times 100 = \text{Rs. } 110$$

$$\text{S.P. of cycle at } 14\% \text{ gain} = \left(\frac{100+14}{100}\right) \times \text{C.P.} = \left(\frac{100+14}{100}\right) \times 100 = \text{Rs. } 114$$

Difference in S.P. =  $114 - 110 = \text{Rs. } 4$

If the difference in S.P. is Rs. 4, C.P. = Rs. 100

If the difference in S.P. is Re. 1, C.P. =  $\text{Rs. } \frac{100}{4}$

If the difference in S.P. is Rs. 260, C.P. =  $\frac{100}{4} \times 260 = \text{Rs. } 6500$

21. C.P. of 40 kg wheat at Rs. 12.50 per kg =  $40 \times 12.50 = \text{Rs. } 500$

C.P. of 30 kg wheat at Rs. 14 per kg =  $30 \times 14 = \text{Rs. } 420$

Total quantity of wheat =  $40 + 30 = 70 \text{ kg}$

Total cost of 70 kg wheat =  $500 + 420 = \text{Rs. } 920$

Gain = 5%

S.P. of 70 kg wheat =  $\left(\frac{100+P\%}{100}\right) \times C.P. = \left(\frac{100+5}{100}\right) \times 920 = \frac{105}{100} \times 920 = \text{Rs. } 966$

S.P. of wheat per kg =  $\frac{966}{70} = \text{Rs. } 13.80$

22. C.P. of first bat = Rs. 840

Gain = 15%

S.P. of bat =  $\left(\frac{100+P\%}{100}\right) \times C.P. = \left(\frac{100+15}{100}\right) \times 840 = \frac{115}{100} \times 840 = \text{Rs. } 966$

C.P. of second bat = Rs. 360

Loss = 5%

S.P. of bat =  $\left(\frac{100-l\%}{100}\right) \times C.P. = \left(\frac{100-5}{100}\right) \times 360 = \frac{95}{100} \times 360 = 342$

Total C.P. =  $840 + 360 = \text{Rs. } 1200$

Total S.P. =  $966 + 342 = \text{Rs. } 1308$

S.P. > C.P.

Gain = S.P. - C.P. =  $1308 - 1200 = \text{Rs. } 108$

Gain% =  $\frac{P}{C.P.} \times 100 = \frac{108}{1200} \times 100 = 9\%$

23. C.P. of first jeans = Rs. 1450

Gain = 8%

S.P. of first jeans =  $\left(\frac{100+P\%}{100}\right) \times C.P. = \left(\frac{100+8}{100}\right) \times 1450 = \frac{108}{100} \times 1450 =$

Rs. 1566

C.P. of second jeans = Rs. 1450

Loss = 4%

$$\text{S.P. of second jeans} = \left(\frac{100-l\%}{100}\right) \times C.P. = \left(\frac{100-4}{100}\right) \times 1450 = \frac{96}{100} \times 1450 = \text{Rs. } 1392$$

$$\text{Total C.P. of two jeans} = 1450 + 1450 = \text{Rs. } 2900$$

$$\text{Total S.P. of two jeans} = 1566 + 1392 = \text{Rs. } 2958$$

$$\text{S.P.} > \text{C.P.}$$

$$\text{Profit} = \text{S.P.} - \text{C.P.} = 2958 - 2900 = \text{Rs. } 58$$

$$\text{Profit \%} = \frac{P}{C.P.} \times 100 = \frac{58}{2900} \times 100 = 2\%$$

$$24. \text{C.P. of 25 kg rice} = 200 \times 25 = \text{Rs. } 5000$$

$$\text{C.P. of 80 kg rice} = 80 \times 25 = \text{Rs. } 2000$$

$$\text{C.P. of 40 kg rice} = 40 \times 25 = \text{Rs. } 1000$$

$$\text{S.P. of 80 kg rice} = \left(\frac{100+P\%}{100}\right) \times 2000 = \left(\frac{100+10}{100}\right) \times 2000 = \frac{110}{100} \times 2000 = \text{Rs. } 2200$$

$$\text{S.P. of 40 kg rice} = \left(\frac{100-l\%}{100}\right) \times C.P. = \left(\frac{100-4}{100}\right) \times 1000 = \frac{96}{100} \times 1000 = \text{Rs. } 960$$

$$\text{S.P. of 200 kg rice} = \left(\frac{100+P\%}{100}\right) \times C.P. = \left(\frac{100+8}{100}\right) \times 5000 = \frac{108}{100} \times 5000 = \text{Rs. } 5400$$

$$\text{Remaining quantity of rice} = 200 - (80 + 40) = 200 - 120 = 80 \text{ kg}$$

$$\text{S.P. of remaining 80 kg rice} = 5400 - (2200 + 960) = \text{Rs. } 2240$$

$$\text{Rate per kg} = \frac{2240}{80} = \text{Rs. } 28$$

$$25. \text{Let the C.P. of the T.V.} = \text{Rs. } 100$$

$$\text{S.P. of the T.V.} = \frac{6}{5} \times 100 = \text{Rs. } 120$$

$$\text{Gain} = 120 - 100 = \text{Rs. } 20$$

$$\text{Gain\%} = \frac{P}{C.P.} \times 100 = \frac{20}{100} \times 100 = 20\%$$

$$26. \text{Let the C.P. of the flower vase} = \text{Rs. } 100$$

$$\text{S.P. of the flower vase} = \frac{5}{6} \times 100 = \text{Rs. } \frac{250}{3}$$

$$\text{Loss} = \text{C.P.} - \text{S.P.} = 100 - \frac{250}{3} = \frac{300-250}{3} = \text{Rs. } \frac{50}{3}$$

$$\text{Loss\%} = \frac{l}{C.P.} \times 100 = \frac{\frac{50}{3}}{100} \times 100 = \frac{50}{3}\% = 16\frac{2}{3}\%$$



27.S.P. of bouquet = Rs. 322

Gain = 15%

$$C.P. \text{ of bouquet} = \frac{100 \times S.P.}{100 + P\%} = \frac{100 \times 322}{100 + 15} = \frac{100 \times 322}{115} = Rs. 280$$

Gain = 25%

$$S.P. \text{ of bouquet} = \left( \frac{100 + P\%}{100} \right) \times C.P. = \left( \frac{100 + 25}{100} \right) \times 280 = \frac{125}{100} \times 280 = Rs. 350$$

28.S.P. of umbrella = Rs. 336

Loss = 4%

$$C.P. \text{ of umbrella} = \frac{100 \times S.P.}{100 - l\%} = \frac{100 \times 336}{100 - 4} = \frac{100 \times 336}{96} = Rs. 350$$

Gain = 4%

$$S.P. \text{ of umbrella} = \left( \frac{100 + P\%}{100} \right) \times C.P. = \left( \frac{100 + 4}{100} \right) \times 350 = \frac{104}{100} \times 350 = Rs. 364$$

29.S.P. of radio = Rs. 3120

Loss = 4%

$$C.P. \text{ of radio} = \frac{100 \times S.P.}{100 - l\%} = \frac{100 \times 3120}{100 - 4} = \frac{100 \times 3120}{96} = Rs. 3250$$

S.P. of radio = Rs. 3445

S.P. > C.P.

$$\text{Gain} = S.P. - C.P. = 3445 - 3250 = Rs. 195$$

$$\text{Gain}\% = \frac{P}{C.P.} \times 100 = \frac{195}{3250} \times 100 = 6\%$$

30.S.P. of first saree = Rs. 1980

Loss = 10%

$$C.P. \text{ of first saree} = \frac{100 \times S.P.}{100 - l\%} = \frac{100 \times 1980}{100 - 10} = \frac{100 \times 1980}{90} = Rs. 2200$$

S.P. of second saree = Rs. 1980

Gain = 10%

$$C.P. \text{ of second saree} = \frac{100 \times S.P.}{100 + P\%} = \frac{100 \times 1980}{100 + 10} = \frac{100 \times 1980}{110} = Rs. 1800$$

$$S.P. \text{ of two sarees} = 1980 + 1980 = Rs. 3960$$

$$C.P. \text{ of two sarees} = 2200 + 1800 = Rs. 4000$$

C.P. > S.P.

$$\text{Loss} = C.P. - S.P. = 4000 - 3960 = Rs. 40$$

$$\text{Loss} = \frac{\text{loss}}{\text{C.P.}} \times 100 = \frac{40}{4000} \times 100 = 1\%$$

31. S.P. of first fan = Rs. 1140

Gain = 14%

$$\text{C.P. of first fan} = \frac{100 \times \text{S.P.}}{100 + P\%} = \frac{100 \times 1140}{100 + 14} = \frac{100 \times 1140}{114} = \text{Rs. } 1000$$

S.P. of second fan = Rs. 1140

Loss = 5%

$$\text{C.P. of second fan} = \frac{100 \times \text{S.P.}}{100 - l\%} = \frac{100 \times 1140}{100 - 5} = \frac{100 \times 1140}{95} = \text{Rs. } 1200$$

C.P. of two fans = 1000 + 1200 = Rs. 2200

S.P. of two fans = 1140 + 1140 = Rs. 2280

S.P. > C.P.

Gain = S.P. - C.P. = 2280 - 2200 = Rs. 80

$$\text{Gain\%} = \frac{P}{\text{C.P.}} \times 100 = \frac{80}{2200} \times 100 = \frac{40}{11}\% = 3.64\% \text{ (approx.)}$$

32. S.P. for Arun = Rs. 3990

Loss = 5%

$$\text{C.P. for Arun} = \frac{100 \times \text{S.P.}}{100 - l\%} = \frac{100 \times 3990}{100 - 5} = \frac{100 \times 3990}{95} = \text{Rs. } 4200$$

S.P. for Vinod = Rs. 4200

Profit = 12%

$$\text{C.P. for Vinod} = \frac{100 \times \text{S.P.}}{100 + P\%} = \frac{100 \times 4200}{100 + 12} = \frac{100 \times 4200}{112} = \text{Rs. } 3750$$

33. C.P. of plot = Rs. 480000

Gain = 10%

$$\text{S.P. of plot} = \left(\frac{100+10}{100}\right) \times \text{C.P.} = \left(\frac{100+10}{100}\right) \times 480000 = \frac{110}{100} \times 480000 = \text{Rs. } 528000$$

$$\text{C.P. of } \left(\frac{2}{5}\right)^{\text{th}} \text{ of plot} = \frac{2}{5} \times 480000 = 2 \times 96000 = \text{Rs. } 192000$$

Loss = 6%

$$\text{S.P. of } \left(\frac{2}{5}\right)^{\text{th}} \text{ of plot} = \left(\frac{100-l\%}{100}\right) \times \text{C.P.} = \left(\frac{100-6}{100}\right) \times 192000 = \frac{94}{100} \times 192000 = \frac{94}{100} \times 192000 = \text{Rs. } 180480$$

$$\text{S.P. of remaining } \left(\frac{3}{5}\right)^{\text{th}} \text{ of plot} = 528000 - 180480 = \text{Rs. } 347520$$

$$\text{C.P. of remaining } \left(\frac{3}{5}\right)^{\text{th}} \text{ of plot} = 480000 - 192000 = \text{Rs. } 288000$$

$$\text{Gain} = \text{S.P.} - \text{C.P.} = 347520 - 288000 = \text{Rs. } 59520$$

$$\text{Gain\%} = \frac{P}{\text{C.P.}} \times 100 = \frac{59520}{288000} \times 100 = \frac{62}{3}\% = 20\frac{2}{3}\%$$

$$34. \text{C.P. of sugar} = \text{Rs. } 4500$$

$$\text{Gain} = 12\%$$

$$\text{S.P. of sugar} = \left(\frac{100+P\%}{100}\right) \times \text{C.P.} = \left(\frac{100+12}{100}\right) \times 4500 = \frac{112}{100} \times 4500 =$$

$$\text{Rs. } 5040$$

$$\text{C.P. of } \left(\frac{1}{3}\right)^{\text{rd}} \text{ of sugar} = \frac{1}{3} \times 4500 = \text{Rs. } 1500$$

$$\text{Gain} = 10\%$$

$$\text{S.P. of } \left(\frac{1}{3}\right)^{\text{rd}} \text{ of sugar} = \left(\frac{100+P\%}{100}\right) \times \text{C.P.} = \left(\frac{100+10}{100}\right) \times 1500 =$$

$$\frac{110}{100} \times 1500 = \text{Rs. } 1650$$

$$\text{S.P. of remaining } \left(\frac{2}{3}\right)^{\text{rd}} \text{ sugar} = 5040 - 1650 = \text{Rs. } 3390$$

$$\text{C.P. of } \left(\frac{2}{3}\right)^{\text{rd}} \text{ sugar} = 4500 - 1500 = \text{Rs. } 3000$$

$$\text{S.P.} > \text{C.P.}$$

$$\text{Gain} = \text{S.P.} - \text{C.P.} = 3390 - 3000 = \text{Rs. } 390$$

$$\text{Gain\%} = \frac{P}{\text{C.P.}} \times 100 = \frac{390}{3000} \times 100 = 13\%$$