

Assignment 2 Percentage & Profit Loss

Q1 Loss = 25%, SP = 450

$$\begin{aligned} CP &= \frac{SP}{1 - \text{Loss}\%} \\ &= \frac{450}{1 - 0.25} \\ &= \frac{450}{0.75} \\ &= \underline{\underline{600}} \end{aligned}$$

Q2. CP = 1200 SP 1440

$$\text{Profit} = 1440 - 1200 \\ = 240$$

$$\text{Profit} = \frac{240}{1200} \times 100 \\ = \underline{\underline{20\%}}$$

Q3 CP = 800 SP = 960

$$\text{Profit} = 960 - 800 \\ = 160$$

$$\text{Profit} = \frac{160}{800} \times 100 = \underline{\underline{20\%}}$$

Q4 Loss = 40%, SP = 1200

$$\begin{aligned} CP &= \frac{SP}{1 - \text{Loss}\%} \\ &= \frac{1200}{1 - 0.40} \\ &= \frac{1200}{0.60} \\ &= 1500 \end{aligned}$$

Q5

$$\begin{aligned} CP &= 400 \quad SP = 480 \\ \text{Profit} &= 480 - 400 \\ &= 80 \\ \text{Profit} &= \frac{80}{400} \times 100 \\ &= \underline{\underline{20\%}} \end{aligned}$$

Q6

Net discount

$$= \frac{100 - (100 - 20) \times (100 - 10)}{100}$$

$$= 100 - 72 \\ = \underline{\underline{28\%}}$$

Q7 SP = 800 Dis = 20%

$$NP = \frac{SP}{1 - Dis} = \frac{800}{1 - 0.20} \\ = \frac{800}{0.80} \\ = \underline{\underline{1000}}$$

Q8 Profit = 25% SP = 1800

$$CP = \frac{1800}{1 + 0.25} \\ = \frac{1800}{1.25} \\ = \underline{\underline{1440}}$$

Q9 MP = 1500 Dis = 10%

$$SP = MP \times (1 - Dis) \\ = 1500 \times 0.90 \\ = \underline{\underline{1350}}$$

$$910 CP \text{ for 10 pen } 150 \\ SP \text{ for 10 pen } = 200 \\ P = 200 - 150 = 50 \\ P = \frac{50}{150} \times 100 \\ = \underline{\underline{33.33\%}}$$

Q11 Assume CP = 100 then SP 20% Prof = 120

$$MP 15\% = \frac{120}{0.85} = 141.18$$

$$\text{Markup} = \frac{141.18 - 100}{100} \times 100 \\ = \underline{\underline{41.18\%}}$$

Q12 Profit = 10% SP = 2250

$$CP = \frac{2250}{1.10} = \underline{\underline{2045.45\%}}$$

Q13 CP = 800 P = 25%
SP = 800×1.25
 $= \underline{\underline{1000}}$

Q14 Loss = 10% SP = 15000
CP = $\frac{15000}{0.90} = \underline{\underline{16,666.67}}$

Q15 CP = 100 then MP = 150
SP 20% = 150×0.80
 $= \underline{\underline{120}}$

$$\text{Profit} = \frac{120 - 100}{100} \times 100 \\ = \underline{\underline{20\%}}$$

Q16 CP = 400 Profit 12% Discount 5%

$$\begin{aligned} SP 12\% &= 400 \times 1.12 \\ &= 448 \\ MP 5\% &= \frac{448}{1-0.05} \\ &= \frac{448}{0.95} = 471 \end{aligned}$$

Q17 CP = 480 SP = 576

$$\begin{aligned} P &= 576 - 480 \\ &= \underline{\underline{96}} \\ P &= \frac{96}{480} \times 100 \\ &= \underline{\underline{20\%}} \end{aligned}$$

Q18 Profit = 50 CP = 500

$$\begin{aligned} \text{Profit} &= \frac{50}{500} \times 100 \\ &= \underline{\underline{10\%}} \end{aligned}$$

Q19

Profit = 15%. SP = 2300

$$CP = \frac{2300}{1.15} = \underline{\underline{2000}}$$

Q20
 $CP = 750 \quad SP = 900$
 $\text{Profit} = 900 - 750$
 $= 150$
 $\text{Prof} = \frac{150}{750} \times 100$
 $= \underline{\underline{20\%}}$

Q21 Loss - 20%. SP = 640

$$CP = \frac{640}{0.80}$$
 $= \underline{\underline{800}}$

Q22 Profit = 20%. SP = 9600

 $CP = \frac{9600}{1.20}$
 $= \underline{\underline{8000}}$

Q23 Profit = 20%. SP = 500

$$CP = \frac{500}{1.20}$$
 $= \underline{\underline{416.67}}$

Q24
Total CP: $1500 + 1500$
 $= 3000$
 $SP_1(20\%) = 1500 \times 1.20$
 $= 1800$
 $SP_2(0\%) = 1500 \times 0.90$
 $= 1350$
Total SP = $1800 + 1350$
 $= 3150$

Net profit = $3150 - 3000$
 $= 150$

Profit = $\frac{150}{3000} \times 100$
 $= \underline{\underline{5\%}}$

$$Q25 \text{ loss} = 12\% \quad SP = 1250$$

$$CP = \frac{1250}{0.88}$$
$$= \underline{\underline{₹1420.45}}$$

Q26 Assume CP for 1 article = 100 then SP for 0.5 article = ₹ 200

Total SP for 1 article = $200 \times 2 = 400$

Profit $\frac{400 - 100}{100} \times 100$
= 300 %

Q27 let no be x

Equation: $2x(x + 0.20x) = 490$

$$0.40x^2 = 490$$

$$x^2 = 1225$$

$$x = \underline{\underline{35}}$$

Q28 SP = ₹ 50 = 5% of SP
 $SP = \frac{50}{0.05} = 1000$

$$CP(20\% \text{ loss}) = \frac{1000}{0.80} = 1250$$

Total Loss = CP - SP + selling cost
= $1250 - 1000 + 50$
= ₹300

Q29 assume CP = 100

$$- SP_1 (\text{half at } 20\% \text{ loss}) = 50 \times 0.80 \\ = 40$$

$$SP_2 (\text{1/2 } 50\% \text{ profit}) = 50 \times 1.50 \\ = 75$$

$$\text{Total SP} = 40 + 75 \\ = 115$$

$$\text{Profit \%} = \frac{115 - 100}{100} \times 100 \\ = \underline{\underline{15\%}}$$

Q30 CP = 6000, SE = 50 = 10% of loss

$$\text{Loss} = \frac{50}{1.10} = 45.45$$

$$\text{Loss \%} = \frac{45.45}{6000} \times 100 \\ = 0.76\%$$

Q31 let CP of 1 article = 100 P = 200

$$SP = CP + \text{profit} \\ = 100 + 200 \\ = 300$$

$$\text{Profit \%} = \frac{200}{100} \times 100 \\ = \underline{\underline{200\%}}$$

Q32 let CP = x

$$\begin{aligned}\text{Initial profit} &= 20\% \text{ of CP} \\ &= 500 \\ 0.20x &= 500 \\ x &= 2500\end{aligned}$$

$$\text{Initial SP} = CP + \text{Profit}$$

$$\begin{aligned}&= 2500 + 500 \\ &= ₹ 3000\end{aligned}$$

$$\begin{aligned}\text{New CP} &= \text{decrease by } 20\% = 2500 \times 0.80 \\ &= 2000\end{aligned}$$

$$\begin{aligned}\text{New profit} &= 3000 - 2000 \\ &= ₹ 1000\end{aligned}$$

Q33 let CP = 100 : initial SP (25% profit) = 125

$$\begin{aligned}\text{New CP (decrease } 10\%) &= 100 \times 0.90 \\ &= 90\end{aligned}$$

$$\begin{aligned}\text{New profit \%} &= \frac{125 - 90}{90} \times 100 \\ &= \underline{\underline{38.8\%}}\end{aligned}$$

Q34 let CP = ₹100, initial SP 50% profit 600

$$\text{New CP} = 100 \times 2 = 200$$

$$\text{New SP} = 600 \div 2 = 300$$

$$\begin{aligned}\text{New profit \%} &= \frac{300 - 200}{200} \times 100 \\ &= 50\%\end{aligned}$$

Q35 initial price = 100 , new price = 125

To spend same amount , consumption decrease by
 $\frac{125 - 100}{125} \times 100$

$$= \underline{\underline{20\%}}$$

Q36 let CP^f = 100 the CP of 15 = 1500

Profit = Q of 2 article = 200

$$\text{Profit} = \frac{200}{1500} \times 100$$

$$= 13.33\%$$

Q37.

$$0.40a = 0.50b$$

$$\frac{a}{b} = \frac{0.50}{0.40} = \frac{5}{4}$$

Q38. let discount: ₹x then MP = 5x

$$\begin{aligned} SP &= MP - \text{Discount} \\ &= ₹5x - ₹x \\ &= ₹4x \end{aligned}$$

$$x = \underline{\underline{\frac{4}{4 \text{time discount}}}}$$

Q39 $x = 20\% \text{ of } 12\% \text{ of } 120\% \text{ of } 6250$

$$\begin{aligned}x &= 0.20 \times 0.12 \times 1.20 \times 6250 \\&= 0.20 \times 0.12 \times 7500 \\&= 0.20 \times 900 \\&= \underline{\underline{180}}\end{aligned}$$

Q40 $CP = 500$

Desired Profit = 100% of $SP = 1000$

MP (35% disc)

$$\begin{aligned}MP &= \frac{1000}{0.65} \\&= \underline{\underline{1538.46 \text{ ₹}}}\end{aligned}$$

Q41 let $B = ₹ 100$, then $A = 125$

B is smaller than A by

$$\begin{aligned}\frac{125-100}{125} \times 100 \\&= \underline{\underline{20\%}}\end{aligned}$$

Q42 $SP = CP$

let $CP = ₹ x$, then Discount = $₹ x$

$$\begin{aligned}MP &= SP + \text{Discount} \\&= 10000 - x + 2x\end{aligned}$$

$$x = ₹ 3333.33$$

$$SP = CP = 3333.33 \text{ ₹}$$

Q13

$$CP = 70\% \text{ of } SP$$

$$\text{Discount} = 40\% \text{ of } SP$$

$$\begin{aligned} MP &= SP + \text{Discount} \\ &= 12600 = SP + 0.40SP \\ &= 9000 \end{aligned}$$

$$\begin{aligned} CP &= 70\% \text{ of } SP \\ &= \underline{\underline{6300}} \end{aligned}$$

Q44 let the number be x

$$\frac{1}{3}x = 20 + \frac{1}{6}x$$

$$\frac{1}{3}x - \frac{1}{6}x = 20$$

$$\frac{1}{6}x = 20$$

$$x = 120$$

$$\begin{aligned} 120\% \text{ of } x &= 1.20 \times 120 \\ &= \underline{\underline{144}} \end{aligned}$$

Q45 let x

$$0.20x = 20 + 0.20 \times 20$$

$$0.20x = 20 + 4$$

$$0.20x = 24$$

$$x = \underline{\underline{120}}$$

Q46

let x

After doubling & tripling twice

$$x \times 2 \times 3 \times 2 \times 3$$

$$= 36x$$

$$\text{Percentage Change} = \frac{36x - x}{x} \times 100 \\ = \underline{\underline{3500\%}}$$

Q47

65% of 234:

$$0.65 \times 234 \\ = 152.1$$

Reduction Needed: $234 - 152.1 \\ = \underline{\underline{81.9}}$

Q48

$$0.90 \times 9 \times 90 \times 9 \\ = 0.90 \times 9 \times 810 \\ = 0.90 \times 7290 \\ = \underline{\underline{6561}}$$

Q49

let salary per emp = 100

total initial expenditure = 2500

After layoff: 12 emp, new salary = 124

$$\begin{aligned}\text{New expenditure} &= 12 \times 124 \\ &= 1488\end{aligned}$$

$$\begin{aligned}\text{Decrease \%} &= \frac{2500 - 1488}{2500} \times 100 \\ &= \underline{\underline{40.48\%}}\end{aligned}$$

Q50

CP = 3500

Discount = 15%

$$\begin{aligned}&= 0.15 \times 3500 \\ &= 525\end{aligned}$$

₹ 525