

① let the C.P. = x

$$x - 25\% \text{ of } x = 450$$

$$x - \frac{25}{100}x = 450 \Rightarrow x = 600 = \text{C.P}$$

(c)

② C.P. = 1200 S.P. = 1440

$$\text{Profit} = \text{S.P.} - \text{C.P.} = 240$$

$$\text{Profit \%} = \frac{240}{1200} \times 100 = 20\% \quad (\text{c})$$

③ C.P. = 800 S.P. = 960

$$\text{Profit} = 160$$

$$\text{Profit \%} = \frac{160}{800} \times 100 = 20\% \quad (\text{b})$$

④ S.P. = 1200 let C.P. = x

$$x - 20\% \text{ of } x = 1200$$

$$x - \frac{20}{100}x = 1200 \Rightarrow x = 1500 = \text{C.P.} \quad (\text{b})$$

$$\textcircled{5} \quad \text{C.P.} = 400 \quad \text{S.P.} = 480$$

$$\text{Profit} = 80 \quad \text{Profit \%} = \frac{80}{400} \times 100 \\ = 20\% \quad (\text{b})$$

$$\textcircled{6} \quad \text{Initial Price} = 100$$

$$100 \xrightarrow{-20\%} 80 \xrightarrow{-10\%} 72 \\ -20 \qquad \qquad \qquad -8$$

$$\text{Total Discount} = 100 - 72 = 28\% \quad (\text{a})$$

$$\textcircled{7} \quad \text{S.P.} = 800 \quad \text{let M.P.} = x$$

$$x - 20\% \text{ of } x = 800$$

$$x - \frac{20}{100} x = 800 \Rightarrow x = 1000 \quad (\text{b})$$

$$\textcircled{8} \quad \text{S.P.} = 1800 \quad \text{let C.P.} = x \quad \text{Profit} = 25\%$$

$$x + 25\% \text{ of } x = 1800$$

$$x + \frac{25}{100} x = 1800 \Rightarrow x = 1440 = \text{C.P.} \\ (\text{not in options})$$

⑨

$$M.P. = 1500$$

Discount = 10%

$$\begin{array}{r} 1500 \\ \xrightarrow{-10\%} \\ -150 \\ \hline 1350 \end{array} \quad \begin{array}{l} \text{(Ans)} \\ \text{(b)} \end{array}$$

⑩

$$C.P. = 150$$

$$S.P. = 200$$

$$\text{Profit} = 50$$

$$\text{Profit \%} = \frac{50}{150} \times 100 \Rightarrow 33.33\% \quad (\text{c})$$

⑪

$$\text{Let } M.P. = 100$$

$$\text{So, } S.P. = 100 - 15\% \text{ of } 100$$

$$S.P. = 100 - 15 = 85$$

$$\text{Let } C.P. = x$$

$$x + 20\% \text{ of } x = 85$$

$$x + \frac{20}{100} x = 85$$

$$x = 70 = C.P.$$

$$\begin{aligned} \text{So, Markup percentage} &= \frac{M.P. - C.P.}{C.P.} = \frac{100 - 70}{70} \times 100 \\ &= 41.18\% \quad (\text{not in options}) \end{aligned}$$

(12) $S.P. = 2250$ Profit = 10% $C.P. = x$

$$x + 10\% \text{ of } x$$

$$x + \frac{10}{100} x = 2250 \Rightarrow x = 2045.45$$

(not in options)

(13) $C.P. = 800$ Desired profit = 25%.

$$C.P. + 25\% = S.P.$$

of C.P.

$$\Rightarrow 800 + 200 = S.P. \Rightarrow S.P. = 1000 \text{ (b)}$$

(14) $S.P. = 15000$ Loss = 10% $C.P. = x$

$$\frac{90}{100} x = 15000 \Rightarrow x = 16666.66$$

(not in options)

(15) $M.P. = \frac{150}{100} \times C.P.$ let $C.P. = 100$

$$100 \xrightarrow[50]{+50\%} 150 \xrightarrow[-30]{-20\%} 120 = S.P.$$

So, Profit % = $\frac{120 - 100}{100} \times 100 = 20\% \text{ (a)}$

(16)

$$C.P. = 400 \quad \text{Profit} = 12\%$$

$$S.P. = 400 + 12\% \text{ of } 400$$

$$= 400 + 48 \Rightarrow S.P. = 448$$

$$M.P. = x \quad \text{discount} = 5\%$$

$$x - \frac{5}{100} x = 448 \Rightarrow x = M.P. = 471.58$$

(not in options)

(17)

$$C.P. = 480 \quad S.P. = 576$$

$$\text{Profit} = 96$$

$$\text{Profit \%} = \frac{96}{480} \times 100 \Rightarrow \text{Profit \%} = 20\% \text{ (c)}$$

(18)

$$C.P. = 500 \quad \text{Profit} = 50$$

$$\text{Profit \%} = \frac{50}{500} \times 100 = 10\% \text{ (c)}$$

(19)

$$S.P. = 2300 \quad \text{Profit} = 15\% \quad C.P. = x$$

$$\frac{115}{100} x = 2300 \Rightarrow C.P. = x = 2000 \text{ (b)}$$

(20)

$$C.P. = 750$$

$$S.P. = 900$$

$$\text{Profit} = 150$$

$$\text{Profit \%} = \frac{150}{750} \times 100 \Rightarrow 20\% \text{ (c)}$$

(21)

$$S.P. = 640$$

$$\text{Loss} = 20\%$$

$$C.P. = x$$

$$\frac{80}{100} x = 640 \Rightarrow x = C.P. = 800 \text{ (c)}$$

(22)

$$S.P. = 9600$$

$$\text{Profit \%} = 20\%$$

$$C.P. = x$$

$$\frac{120}{100} x = 9600 \Rightarrow x = 8000 \text{ (b)}$$

(23)

$$S.P. = 500$$

$$\text{Profit \%} = 20\% \quad C.P. = x$$

$$\frac{120}{100} x = 500 \Rightarrow x = C.P. = 416.66 \quad (\text{not in options})$$

(24)

$$\text{Total C.P.} = 1500 \times 2 = 3000$$

Article One \rightarrow 20% profit

$$S.P._{\text{one}} = 1500 + 300 = 1800$$

Article Two \rightarrow 10% loss

$$S.P. = 1800 - 180 = 1350$$

$$\text{Total S.P.} = 1800 + 1350 = 3150$$

$$\text{Total Profit} = \frac{\text{Total S.P.} - \text{Total C.P.}}{\text{Total C.P.}} \times 100$$

$$= \frac{3150 - 3000}{3000} \times 100$$

$$\text{Total Profit \%} = \frac{150}{3000} \times 100 = 5\% \text{ profit}$$

(b)

(25) $S.P. = 1250$ Loss = 12% $C.P. = x$

$$\frac{88}{100} x = 1250 \Rightarrow x = 1420.45 = C.P.$$

(not in options)

(26) let the initial quantity be $2x$ and their price = 100

So, Initially $2x \rightarrow 100 \Rightarrow x = 50$

After change $x \rightarrow 200$

$$\text{So, profit} = \frac{200 - \text{Initial } x}{\text{Initial } x} \times 100$$

$$= \frac{200 - 50}{50} \times 100$$

$$\text{Profit \%} = \frac{150}{50} \times 100 \Rightarrow 300 \% \quad (\text{b})$$

(27) Let the number be n [The number is doubled not the sum].

$$(n)(0.2n) \times 2 = 490$$

$$0.4n^2 = 490$$

$$\frac{4n^2}{10} = 490$$

$$n^2 = 1225 \Rightarrow n = 35 \quad (\text{a})$$

(28) Selling cost = 50 = 5% of S.P.

$$\text{So, S.P.} = 1000$$

$$\text{Loss} = 20\%$$

$$\text{C.P.} = x$$

$$\frac{80}{100}x = 1000 \Rightarrow x = 1250 = \text{C.P.}$$

$$\text{So, Loss} = \text{C.P.} - \text{S.P.} = 1250 - 1000 = 250 \quad (\text{c})$$

Ans:

(29)

Let the number of goods be 100 and each of them priced at ₹ 1. So, C.P. = 100.

So, 50 goods are sold at 20% loss which means loss of 20% on their value.

$$50 \xrightarrow{-20\%} 40 = S.P. I$$

- 10

Also, 50 goods are sold at 50% profit.

$$50 \xrightarrow{+50\%} 75 = S.P. II$$

+ 25

$$\text{Total S.P.} = S.P. I + S.P. II$$

$$= 40 + 75 = 115$$

$$\text{Profit \%} = \frac{\text{Total S.P.} - \text{Total C.P.}}{\text{Total C.P.}} \times 100$$

$$= \frac{115 - 100}{100} \times 100$$

$$\text{Profit \%} = 15\% \text{ (b)}$$

(30)

Selling expense = ₹ 50

Here, loss ≈ 45

} Approximating 45.45

$$\text{Loss \%} = \frac{45}{6000} \times 100 = 0.75\%$$

(not in options)

(31)

let the C.P. = 100

$$\text{So, profit} = 100 \times 2 = 200 \quad \text{Ans. (c)}$$

$$\text{S.P.} = 100 + 200 = 300$$

$$\text{Profit \%} = \frac{300 - 100}{100} \times 100 = 200\%$$

(32)

Initial profit = ₹ 500 = 20% of cost price

$$\text{So, cost price} = 500 \times 5 = 2500$$

$$\text{S.P.} = \text{C.P.} + \text{Profit} = 2500 + 500 = 3000$$

Now, new C.P. = 2500 - 20% of C.P.

$$\Rightarrow 2500 - 500 \Rightarrow \text{New C.P.} = 2000$$

$$\text{So, Profit \%} = \frac{\text{S.P.} - \text{New C.P.}}{\text{New C.P.}} \times 100$$

$$\text{New Profit \%} = \frac{3000 - 2000}{2000} \times 100 \% \\ = 50 \%$$

$$\begin{aligned}\text{Profit} &= \text{S.P.} - \text{New C.P.} \\ &= 3000 - 2000 \\ &= 1000 \quad \text{Ans. (c)}\end{aligned}$$

(33) let the initial C.P. = 100 Profit = 25%

so, initial S.P. = 125 (which remains same)

$$\text{New C.P.} = 90$$

$$\text{New Profit} = \frac{\text{S.P.} - \text{New C.P.}}{\text{New C.P.}} \times 100$$

$$= \frac{125 - 90}{90} \times 100$$

$$\text{New Profit \%} = \frac{35}{90} \times 100 = 38.88 \%$$

Ans. (b)

(34)

let the initial C.P. = 100 Initial profit = 500%.

So, Initial S.P. = 100 + 500% of C.P.

Initial S.P. = 600

Now, new C.P. = 200

new S.P. = 300

$$\text{New Profit \%} = \frac{\text{New S.P.} - \text{New C.P.}}{\text{New C.P.}} \times 100$$

$$= \frac{300 - 200}{200} \times 100$$

$$\text{New Profit \%} = 50\% \quad (\text{b})$$

(35)

Let the price of sugar be ₹ 1/kg.

So, if initial consumption = 100 kg

↳ Cost = Rs 100

And, if New cost = 125 of 100 kg Sugar

↳ we need to make it 100

$$\text{Reduction \%} = \frac{125 - 100}{125} \times 100 \Rightarrow \frac{1}{5} \times 100 \Rightarrow 20\% \text{ decrease} \quad (\text{d})$$

(36)

let the price of one article be 30
 So, price of two articles = 60

Profit on selling 15 articles = 60
 So, Profit on selling one article = $\frac{60}{15} = 4$

$$\text{Profit \%} = \frac{4}{30} \times 100 = 13.33 \% \quad (\text{c})$$

(37)

$$\frac{40}{100} \times a = \frac{50}{100} \times b$$

$$\frac{a}{b} = \frac{50}{40} = \frac{5}{4} \Rightarrow a:b = 5:4 \quad (\text{not in options})$$

(38)

$$\text{M.P.} = 5 \times \text{Discount}$$

$$\text{S.P.} = \text{M.P.} - \text{Discount}$$

$$\text{S.P.} = 5D - D$$

$$\text{S.P.} = 4D = 4 \times \text{Discount} \quad (\text{c})$$

(39)

$$x = \frac{26}{106.5} \times \frac{12}{100} \times \frac{120}{144} \times 625\phi$$

$$x = 12 \times \frac{1500}{100} \Rightarrow x = 15 \times 12$$

$$x = 180 \quad (\text{d})$$

(40)

$$C.P. = 500$$

For 100% profit, S.P. should be $500 + 500$
 So, $S.P. = 1000$

Let M.P. = x , discount = 35%

$$S.P. = M.P. - \text{discount}$$

$$1000 = x - \frac{35}{100}x$$

$$\Rightarrow x = 1539 \quad (\text{a})$$

(41)

$$\text{let } b = 100, \text{ so } a = 125$$

$$\frac{\text{Difference of } a \text{ and } b}{a} \times 100 = \frac{125 - 100}{125} \times 100$$

$$\Rightarrow 20\% \quad (\text{b})$$

(42)

$$\text{No profit, no loss} \rightarrow C.P. = S.P.$$

$$\text{Discount} = 2 \times S.P.$$

$$S.P. = M.P. - \text{Discount}$$

$$S.P. = 10000 - 2 \times S.P.$$

$$3 \times S.P. = 10000 \Rightarrow S.P. = 3333.33 \quad (\text{b})$$

(43)

$$\text{Discount} = \frac{40}{100} \times \text{S.P.} \quad \text{M.P.} = 12600$$

$$\text{S.P.} = \text{M.P.} - \text{Discount}$$

$$\text{S.P.} = \text{M.P.} - \frac{2}{5} \text{ S.P.}$$

$$\frac{7}{5} \text{ S.P.} = 12600 \Rightarrow \text{S.P.} = 9000$$

$$\text{C.P.} = \frac{70}{100} \times 9000 = 6300 \text{ (a)}$$

(44)

let the number be x .

$$\frac{x}{3} = 20 + \frac{x}{6} \Rightarrow x = 120$$

$$120\% \text{ of } x = \frac{120}{100} \times 120 \Rightarrow 144 \text{ (e)}$$

(45)

let the number be x

$$\frac{20}{100} \times x = 20 + \frac{20}{100} \times 20$$

$$\frac{x}{5} = 20 + 4 \Rightarrow x = 120 \text{ (c)}$$

(46)

let the number be 100

$$100 \xrightarrow{\times 2} 200 \xrightarrow{\times 3} 600 \xrightarrow{\times 2} 1200 \xrightarrow{\times 3} 3600$$

$$\begin{aligned}\% \text{ change} &= \frac{3600 - 100}{100} \times 100 \\ &= 3500 \% \text{ (a)}\end{aligned}$$

(47)

$$65\% \text{ of } 234 \Rightarrow \frac{65}{100} \times 234 = 152.10$$

$$\begin{aligned}\text{Difference} &= 234 - 152.10 \\ &\approx 82.9 \text{ (c)}\end{aligned}$$

(48)

$$\frac{90}{100} \times \frac{900}{100} \times \frac{9000}{100} \times 9$$

$$\Rightarrow 9 \times 9 \times 9 \times 9 = 6561 \text{ (d)}$$

(49)

let total salaries of 25 employees = $25x$ 12 employees are remaining so their salaries = $12x$ Increase = 24% .

So, New salary of 12 employees

$$\Rightarrow \frac{124}{100} \times 12x = 14.88x$$

$\frac{100}{x}$

% change in company's expenditure = $\frac{\text{Old Salary} - \text{New Salary}}{\text{Old Salary}} \times 100$

$$\frac{25x - 14.88x}{25x} \times 100$$

$$\% \text{ change} = 10.12 \times 4 \Rightarrow 40.48\% \quad (\text{a})$$

(50) $C.P_0 = 3500$ Discount = 15%

$$\text{Discount} = \frac{15}{100} \times 3500$$

$$\text{Discount} = 525 \quad (\text{c})$$