Chapter 10: Profit and Loss
Page number: 134
Exercise 10A

Question 1:
(i)
Solution:
CP = Rs. 620
SP = Rs.713
Gain = SP – CP = Rs.(713 – 620) = Rs. 93

$$gain\% = \frac{gain}{CP} \times 100 = \frac{93}{620} \times 100 = 15\%$$

(ii)
Solution:
CP = Rs.675, SP = Rs. 630
Loss = CP - SP = Rs.(675 – 630) = Rs. 45

$$Loss\% = \left(\frac{Loss}{CP} \times 100 \right) = \left(\frac{45}{675} \times 100 \right) = 6.67\%$$

(iii)
Solution:
CP = Rs.345, SP = Rs. 372.60
Gain = SP - CP = Rs.(372.60 – 345) = Rs. 27.6

$$Gain\% = \left(\frac{Gain}{CP} \times 100 \right) = \left(\frac{27.6}{345} \times 100 \right) = 8\%$$

(iv)
Solution:
CP = Rs.80, SP = Rs. 76.80
Loss = CP - SP = Rs.(80 – 76.80) = Rs. 3.2

$$Loss\% = \left(\frac{Loss}{CP} \times 100 \right) = \left(\frac{3.2}{80} \times 100 \right) = 4\%$$

Question 2:
(i)
Solution:
CP = Rs. 1650
Gain = 4%

$$SP = \left\{ \frac{100 + gain\%}{100} \times CP \right\}$$

$$= \left\{ \frac{(100 + 4)}{100} \times 1650 \right\}$$

$$= \frac{104}{100} \times 1650$$

$$= Rs.1716$$

(ii)

Solution:

CP = Rs. 915

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

$$SP = \left\{ \frac{100 + gain\%}{100} \times CP \right\}$$

$$= \left\{ \frac{\left(100 + \frac{20}{3}\right)}{100} \times 915 \right\}$$

$$= \frac{320}{300} \times 915$$

$$= Rs.976$$

(iii)

Solution:

CP = Rs. 875

Loss = 12%

$$SP = \left\{ \frac{100 - loss\%}{100} \times CP \right\}$$

$$= \left\{ \frac{(100 - 12)}{100} \times 875 \right\}$$

$$= \frac{82}{100} \times 875$$

$$= Rs.717.5$$

(iv)

Solution:

CP = Rs. 645

Loss = $13\frac{1}{3}\%$

$$SP = \left\{ \frac{100 - loss\%}{100} \times CP \right\}$$

$$= \left\{ \frac{\left(100 - \frac{40}{3} \right)}{100} \times 645 \right\}$$

$$= \frac{340}{300} \times 645$$

$$= Rs.731$$

Question 3:

(i)

Solution:

$$CP = \left\{ \frac{100}{(100 + Gain\%)} \times SP \right\}$$

$$= \left\{ \frac{100}{(100 + 12)} \times 1596 \right\}$$

$$= \frac{159600}{112}$$

$$= Rs.1425$$

(ii)

Solution:

$$CP = \left\{ \frac{100}{(100 - loss\%)} \times SP \right\}$$

$$= \left\{ \frac{100}{\left(100 - \frac{13}{2} \right)} \times 2431 \right\}$$

$$= \frac{243100}{187} \times 2$$

$$= Rs.2600$$

(iii)

Solution:

$$CP = \left\{ \frac{100}{(100 - loss\%)} \times SP \right\}$$

$$= \left\{ \frac{100}{(100 - 4)} \times 657.60 \right\}$$

$$= \frac{65760}{96}$$

$$= Rs.685$$

(iv)

Solution:

$$CP = \left\{ \frac{100}{(100 + Gain\%)} \times SP \right\}$$

$$= \left\{ \frac{100}{\left(100 + \frac{15}{2}\right)} \times 34.40 \right\}$$

$$= \frac{3440}{215} \times 2$$

$$= Rs.32$$

Question 4:

Solution: CP = Rs. 12160

Transportation cost = Rs.340

Therefore total CP = 12160 + 340 = 12500

SP = Rs.12875

Gain = SP – CP = Rs.(12875 – 12500) = Rs. 375

$$gain\% = \frac{gain}{CP} \times 100 = \frac{375}{12500} \times 100 = 3\%$$

Question 5:

Solution: Cost price of old car = Rs. 73500

Repair cost = Rs.10300

Insurance cost = Rs.2600

Total cost price = Rs.(73500 + 10300 + 2600) = Rs. 86400

SP = Rs.84240

Now, SP < CP

Loss = CP – SP = (86400 – 84240) = Rs.2160

$$Loss\% = \left(\frac{Loss}{CP} \times 100 \right) = \left(\frac{2160}{86400} \times 100 \right) = 2.5\%$$

Question 6:

Solution:

CP of 20 kg rice = Rs. 36 × 20 = Rs.720

CP of 25 kg rice = $Rs.32 \times 25 = Rs.800$

Total quantity = 20 + 25 = 45 kg

Total CP = 720 + 800 = Rs.1520

SP of 45 kg rice = Rs.38 × 45 = Rs.1710

Gain = SP – CP = (1710 – 1520) = Rs.190

$$Gain\% = \left(\frac{gain}{CP} \times 100 \right)$$

$$= \left(\frac{190}{1520} \times 100 \right)$$

$$= 12.5\%$$

Question 7:

Solution: Let 5 kg of coffee be mixed with 2 kg of chicory.

CP of 5 kg coffee = Rs. 250 × 5 = Rs.1250

CP of 2 kg rice = $Rs.75 \times 2 = Rs.150$

Total quantity = 5 + 2 = 7 kg

Total CP = 1250 + 150 = Rs.1400

SP of 7 kg mixture = Rs.230 × 7 = Rs.1610

Gain = SP – CP = (1610 – 1400) = Rs.210

$$Gain\% = \left(\frac{gain}{CP} \times 100 \right)$$

$$= \left(\frac{210}{1400} \times 100 \right)$$

$$= 15\%$$

Question 8:

Solution: Let the CP of one water bottle be Re.1

CP of 16 water bottles = Rs.16

SP of 16 water bottles = CP of 17 water bottles = Rs.17

Gain = SP – CP = Rs.(17 – 16) = Rs.1

$$gain\% = \left(\frac{gain}{CP} \times 100 \right)$$
$$= \left(\frac{1}{16} \times 100 \right)$$
$$= 6.25\%$$

Question 9:
Solution: Let the CP of one candle be Re.1
CP of 15 water bottles = Rs.15
SP of 15 candles = CP of 12 candles = Rs.12
loss = CP – SP = Rs.(15 – 12) = Rs.3
$$loss\% = \left(\frac{loss}{CP} \times 100 \right)$$
$$= \left(\frac{3}{15} \times 100 \right)$$
$$= 20\%$$

Question 10:
Solution: Let x be the SP of one cassette.
SP of 5 cassettes = $5x$
SP of 130 cassettes = $130x$
Gain = $5x$, when SP = $130x$
Gain = SP – CP
CP = SP – Gain
$$= 130x - 5x$$
$$= 125x$$
$$gain\% = \left(\frac{gain}{CP} \times 100 \right)$$
$$= \left(\frac{5x}{125x} \times 100 \right)$$
$$= 4\%$$

Question 11:
Solution: Let x be the SP of one lemon.
SP of 45 lemons = $45x$
SP of 3 lemons= $3x$
Gain = $3x$, when SP = $45x$
loss = CP – SP

CP = loss + SP

$= 45x + 3x$

$= 48x$

$loss\% = \left(\frac{loss}{CP} \times 100 \right)$

$= \left(\frac{3x}{48x} \times 100 \right)$

$= 6.25\%$

Question 12:

Solution: CP of 6 oranges = Rs.20

CP of one orange = $Rs.\frac{20}{6} = 3.33$

SP of 4 oranges = Rs.18

SP of one orange = $Rs.\frac{18}{4} = 4.5$

Gain = SP – CP = 4.5 – 3.33 = Rs.1.17

$gain\% = \left(\frac{gain}{CP} \times 100 \right)$

$= \left(\frac{1.17}{3.33} \times 100 \right)$

$= 35.13\%$

Question 13:

Solution: CP of 12 bananas = Rs.40

CP of one banana = $Rs.\frac{40}{12} = 3.33$

SP of 10 bananas = Rs.36

SP of one banana = $Rs.\frac{36}{10} = 3.6$

Gain = SP – CP = 3.6 – 3.33 = Rs.0.27

$gain\% = \left(\frac{gain}{CP} \times 100 \right)$

$= \left(\frac{0.27}{3.33} \times 100 \right)$

$= 8.1\%$

Question 14:

Solution:

CP of 10 apples = Rs.75

CP of one apple = $Rs.\frac{75}{10} = 7.5$

SP of 12 apples = Rs.75

SP of one apple = $Rs.\frac{75}{12} = 6.25$

loss = CP – SP = 7.5 – 6.25 = Rs.1.25

$$loss\% = \left(\frac{loss}{CP} \times 100\right)$$

$$= \left(\frac{1.25}{7.5} \times 100\right)$$

$$= 16.67\%$$

Question 15:

Solution: Let the number of eggs bought be x.

$$Then, CP = Rs.\left(\frac{16}{3} \times x\right) = Rs.\frac{16x}{3}$$

$$SP = Rs.\left(\frac{36}{5} \times x\right) = Rs.\frac{36x}{5}$$

Gain = Rs. 168

Gain = SP – CP

$$\therefore 168 = \frac{36x}{5} - \frac{16x}{3}$$

$$\therefore 168 = \frac{108x - 96x}{15}$$

$$\therefore 12x = 2520$$

$$\therefore x = 210$$

Therefore, number of eggs bought = 210.

Question 16:

Solution:

SP of the camera = Rs.1080

Let x be the CP.

Gain = $Rs.\frac{1}{8}x$ …….(i)

Also, gain = SP – CP = Rs.(1080 - x)……(ii)

From (i) and (ii) we have,

$\frac{1}{8}x = 1080 - x$

$x = 8640 - 8x$

$9x = 8640$

$x = 960$

$\therefore CP = Rs.960$

Now, gain = $Rs.\frac{1}{8}x = \frac{960}{8} = Rs.120$

$gain\% = \left(\frac{120}{960} \times 100\right)\%$

$= 12\frac{1}{2}\%$

Question 17:

Solution:

SP of pen = Rs.54

Let x be the CP of pen

Loss = $Rs.\frac{x}{10}$

SP = CP – loss

$= x - \frac{x}{10}$

$= Rs.\frac{9x}{10}$

Now, we have $\frac{9x}{10} = 54$

$x = 54 \times \frac{10}{9}$

$x = 60$

Therefore, CP of pen = Rs.60

Now, loss = $Rs.\frac{x}{10}$

$= \frac{60}{10} = Rs.6$

Loss% = $\left(\frac{loss}{CP} \times 100\right)$

$= \left(\frac{6}{60} \times 100 \right)$

$= 10\%$

Question 18:

Solution:

Let the CP be x

Loss = 10% of x = $\frac{10}{100} x = Rs. \frac{x}{10}$

SP in case of loss = CP – Loss = $x - \frac{x}{10} = Rs. \frac{9x}{10}$

Gain% = 10% of x = $\frac{10}{100} x = Rs. \frac{x}{10}$

SP in case of profit = CP + Profit = $x + \frac{x}{10} = Rs. \frac{11x}{10}$

It is given that dealer gets Rs.940 more if sold at a profit of 10% instead of loss of 10%.

SP in case of profit – SP in case of loss = 940

$\frac{11x}{10} - \frac{9x}{10} = 940$

$\frac{2x}{10} = 940$

$x = 4700$

Hence, CP of table is Rs.4700.

Question 19:

Solution:

Let x be the CP.

Gain% = $\left(\frac{gain_1}{CP} \times 100 \right)$

$15 = \frac{gain_1}{x} \times 100$

$gain_1 = \frac{15x}{100}$

Similarly,

$$gain_2\% = \left(\frac{gain_2}{x} \times 100 \right)$$

$$8 = \frac{gain_2}{x} \times 100$$

$$gain_2 = \frac{8x}{100}$$

We have,

$$gain_1 - gain_2 = 56$$

$$\frac{15x}{100} - \frac{8x}{100} = 56$$

$$\frac{7x}{100} = 56$$

$$7x = 5600$$

$$x = 800$$

Hence CP of chair is Rs.800.

Question 20:

Solution:

Let CP be x.

SP when gain is 10% = $x + \frac{10}{100}x = \frac{110}{100}$

SP when gain is 14% = $x + \frac{14}{100}x = \frac{114}{100}$

Difference in SP = SP when gain is 14% - SP when gain is 10%

$$\frac{114x}{100} - \frac{110x}{100} = 260$$

$$\frac{4x}{100} = 260$$

$$x = 6500$$

Hence, the CP of cycle is Rs.6500.

Question 21:

Solution:

40 kg of wheat is bought for Rs.12.50/kg

CP of 40 kg wheat = 40 × 12.50 = Rs.500

30 kg of wheat is bought for Rs.14/kg

CP of 30 kg wheat = 30 × 14 = Rs.420

Total CP = 500 + 420 = Rs.920

Profit = 5% of 920 = $\frac{5}{100} \times 920 = Rs.46$

Let SP be x.

Profit = SP – CP

$x - 920 = 46$

$x = Rs.966$

SP of 70 kg wheat is Rs.966

SP of 1 kg wheat = $\frac{966}{70} = Rs.13.80$

Thus, selling price of mixture is Rs.13.80/kg.

Question 22:

Solution:

CP of first bat = Rs.840

Profit % on first bat = 15%

Profit = $\frac{15}{100} \times 840 = Rs.126$

SP of first bat = 840 + 126 = Rs.966

CP of second bat = Rs.360

loss % on second bat = 5%

loss = $\frac{5}{100} \times 360 = Rs.18$

SP of second bat = 360 - 18 = Rs.342

Total CP of bats = CP of first bat + CP of second bat = 840 + 360 = Rs.1200

Total SP of bats = SP of first bat + SP of second bat = 966 + 342 = Rs.1308

Here, SP $>$ CP

Gain = total SP – total CP = 1308 – 1200 = Rs.108

Total gain% = $\frac{gain}{totalCP} \times 100 = \frac{108}{1200} \times 100 = 9\%$

Question 23:

Solution:

CP of first jeans = Rs.1450

Profit % on first bat = 8%

Profit = $\frac{8}{100} \times 1450 = Rs.116$

SP of first jeans = 1450 + 116 = Rs.1566

CP of second jeans = Rs.1450

loss % on second jeans = 4%

loss = $\frac{4}{100} \times 1450 = Rs.58$

SP of second jeans = 1450 - 58 = Rs.1392

Total CP of jeans = CP of first jeans + CP of second jeans = 1450 + 1450 = Rs.2900

Total SP of jeans = SP of first jeans + SP of second jeans = 1566 + 1392 = Rs.2958

Here, SP $>$ CP

Gain = total SP – total CP = 2958 – 2900 = Rs.58

Total gain% = $\frac{gain}{totalCP} \times 100 = \frac{58}{2900} \times 100 = 2\%$

Question 24:

Solution:

CP of 1 kg rice = Rs.25

CP of 200 kg rice = 200 $\times$25 = Rs.5000

CP of 80 kg rice = 25 $\times$ 80 = Rs.2000

CP of 40 kg rice = 25 $\times$ 40 = Rs.1000

SP of 80 kg rice = $\frac{100 + gain\%}{100} \times CP = \frac{110}{100} \times 2000 = Rs.2200$

SP of 40 kg rice = $\frac{100 + gain\%}{100} \times CP = \frac{96}{100} \times 1000 = Rs.960$

SP of 200 kg rice = $\frac{100 + gain\%}{100} \times CP = \frac{108}{100} \times 5000 = Rs.5400$

Remaining quantity of rice = 200 – (80 + 40) = 80 kg

SP of remaining 80 kg rice = 5400 – 2200 – 960 = Rs.2240

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

Question 25:

Solution:

Let the CP of TV be x.

SP of TV set = $\frac{6}{5} CP = Rs.\frac{6}{5} x$

Gain = SP – CP = $\frac{6}{5} x - x = Rs.\frac{x}{5}$

Gain% = $\frac{gain}{CP} \times 100 = \frac{\frac{x}{5}}{x} \times 100 = \frac{100}{5} = 20\%$

Question 26:

Solution:

Let the CP of flower vase be x.

SP of flower vase = $\frac{5}{6}CP = Rs.\frac{5}{6}x$

loss = CP – SP = $x - \frac{5}{6}x = Rs.\frac{x}{6}$

loss% = $\frac{loss}{CP} \times 100 = \frac{\frac{x}{6}}{x} \times 100 = \frac{100}{6} = \frac{50}{3} = 16\frac{2}{3}\%$

Question 27:

Solution:

SP of the bouquet = Rs.322

Gain% = 15%

CP of bouquet = $\left(\frac{100}{100 + gain\%}\right) \times SP$

$= \left(\frac{100}{100+15}\right) \times 322$

$= \frac{100}{115} \times 322$

$= Rs.280$

Question 28:

Solution:

Let the CP of umbrella be x.

SP of umbrella = Rs.336

Loss = 4% of x = $Rs.\frac{4}{100}x$

CP – loss = SP

$x - \frac{4}{100}x = 336$

$\frac{96x}{100} = 336$

$x = Rs.350$

Question 29:

Solution:

Let the original price be x.

SP = Rs.3120

Now, SP = CP – loss

$$3120 = x - \frac{4}{\frac{100}{x}}$$

$$3120 = x - \frac{x}{25}$$

$$3120 = \frac{24x}{25}$$

$$\frac{3120 \times 25}{24} = x$$

$$x = 3250$$

So, CP is Rs.3250

SP $>$ CP

Gain = SP – CP = 3445 – 3250 = Rs.195

$$\text{Gain\%} = \left(\frac{gain}{CP} \times 100 \right) = \frac{195}{3250} \times 100 = 6\%$$

Question 30:

Solution:

SP of first saree = Rs.1980

Loss = 10%

Let the CP of first saree be x.

CP = loss + SP

$$\frac{10}{100}x + 1980 = x$$

$$x - \frac{10}{100}x = 1980$$

$$\frac{90x}{100} = 1980$$

$$x = Rs.2200$$

So, CP of first saree = Rs.2200

SP of second saree = Rs.1980

Gain = 10%

Let the CP of second saree be y

CP = SP – gain

$$1980-\frac{10}{100}y=y$$

$$y+\frac{10}{100}y=1980$$

$$\frac{11}{100}y=1980$$

$$y=Rs.1800$$

So, CP of second saree is Rs.1800

Total CP = 2200 + 1800 = Rs.4000

Total SP = 1980 + 1980 = Rs.3960

Here, SP $<$ CP

Loss = CP – SP = 4000 – 3960 = Rs.40

Loss% = $\frac{loss}{totalCP}\times100=\frac{40}{4000}\times100=1\%$

Question 31:

Solution:

SP of first fan = Rs.1140

Gain = 14%

Let the CP of first fan be x.

CP = SP – gain

$$x=1140-\frac{14x}{100}$$

$$x+\frac{14x}{100}=1140$$

$$\frac{114x}{100}=1140$$

$$x=Rs.1000$$

So, CP of first fan = Rs.1000

SP of second fan = Rs.1140

Loss = 5%

Let the CP of second fan be y.

CP = loss + SP

$$y=\frac{5}{100}y+1140$$

$$y-\frac{5}{100}y=1140$$

$$\frac{95}{100}y=1140$$

$$y=Rs.1200$$

CP of second fan = Rs.1200
Total CP = 1000 + 1200 = Rs.2200
Total SP = 1140 + 1140 = Rs.2280
Here, SP $>$ CP
Gain = total SP – total CP = 2280 – 2200 = Rs.80
Total Gain% = $\frac{gain}{totalCP} \times 100 = \frac{80}{2200} \times 100 = 3.64\%$

Question 32:
Solution:
Let the CP of watch for Vinod be x.
SP = gain + CP
$= \frac{12}{100}x + x$
$= Rs.\frac{112}{100}x$
Now, SP of the watch for Vinod will be CP of the watch for Arun.
SP of watch for Arun = CP – loss
$= \frac{112x}{100} - \frac{5}{100}\left(\frac{112x}{100}\right)$
$= \frac{112x}{100}\left(1 - \frac{5}{100}\right)$
$= \frac{112x}{100}\left(\frac{95}{100}\right)$
SP of watch for Arun will be CP of watch for Manoj.
But CP for Manoj = Rs.3990
So,
$\frac{112x}{100}\left(\frac{95}{100}\right) = 3990$
$x = \frac{3990 \times 100 \times 100}{112 \times 95} = 3750$
Thus, Vinod paid Rs.3750 for the watch.

Question 33:
Solution:
CP of plot of land = Rs.480000
CP of $\frac{2}{5}$ of land = $\frac{2}{5} \times 480000 = Rs.192000$
Loss = 6%

SP of $\frac{2}{5}$ of land = CP – loss

$$= 192000 - \frac{6}{100} \times 480000$$

$$= Rs.180480$$

CP of $\frac{3}{5}$ of land = 480000 – 192000 = Rs.288000

Total gain = 10%

Total gain = $\frac{10}{100} \times 480000 = Rs.48000$

Total SP = CP + gain = 480000 + 48000 = Rs.528000

SP of $\frac{3}{5}$ of land = 528000 – 180480 = Rs.347520

Gain on $\frac{3}{5}$ of land = SP of $\frac{3}{5}$ of land - CP of $\frac{3}{5}$ of land

$$= 347520 - 288000$$

$$= Rs.59520$$

Gain% on remaining part of plot = $\frac{gain}{CP} \times 100 = \frac{59520}{288000} \times 100 = 20\frac{2}{3}\%$

Question 34:

Solution:

CP of sugar = Rs.4500

Profit on one-third of sugar = 10%

CP of one-third sugar = $\frac{4500}{3} = Rs.1500$

SP of one-third sugar = $\frac{100 + gain\%}{100} \times CP = \frac{110}{100} \times 1500 = Rs.1650$

Now, profit = 1650 – 1500 =Rs.150

At a profit of 12% we have,

SP of sugar = $\frac{100 + gain\%}{100} \times CP = \frac{112}{100} \times 4500 = Rs.5040$

Gain = 5040 – 4500 = Rs.540

Profit on remaining amount of sugar = 540 – 150 = Rs.390

CP of remaining sugar = 4500 – 1500 = Rs.3000

Gain% = $\left(\frac{gain}{CP} \times 100 \right)$

$= \left(\frac{390}{3000} \times 100 \right)$

$= 13\%$

Therefore profit on remaining amount of sugar is 13%.

Page number: 138

Exercise 10B

Question 1.

Solution:

Marked price = Rs.4650

Discount = 18% of marked price

$= \frac{18}{100} \times 4650 = Rs.837$

SP = marked price – discount

= 4650 – 837

= Rs.3813

Therefore, selling price of cooler is Rs.3813.

Question 2.

Solution:

Marked price = Rs.960

Selling price = Rs.816

Discount = MP – SP

= 960 – 816

= Rs.144

Rate of discount = $144 \times \frac{100}{960} = 15\%$

Therefore, discount on sweater is 15%.

Question 3.

Solution:

SP of the Shirt = Rs.1092

Discount = Rs.208

MP = SP + discount = 1092 + 208 = Rs.1300

So, rate of discount = $\frac{discount}{MP} \times 100 = \frac{208}{1300} \times 100 = 16\%$

Question 4.

Solution:

SP = Rs.216.20

Rate of discount = 8%

MP = ?

SP = MP – discount

Let MP be x.

Now,

$$x - \frac{8}{100}x = 216.20$$

$$\frac{92x}{100} = 216.20$$

$$92x = 21620$$

$$x = 235$$

So, MP = Rs.235

Question 5.

Solution:

CP = Rs.528

Rate of discount = 12%

MP = ?

SP = MP – discount

Let MP be x.

Now,

$$x - \frac{12}{100}x = 528$$

$$\frac{88x}{100} = 528$$

$$88x = 52800$$

$$x = 600$$

So, MP = Rs.600

Question 6.

Solution:

Let Rs.100 be the CP.

Then, MP = Rs.135

Discount = 20% of MP

$$= \frac{20}{100} \times 135 = Rs.27$$

SP = MP – discount

$= 135 - 27$

$= Rs.108$

Now, gain = SP – CP

$= 108 - 100$

$= Rs.8$

$gain\% = \frac{gain}{CP} \times 100$

$= \frac{8}{100} \times 100$

$= 8\%$

Question 7.

Solution:

Let Rs.100 be the CP.

Then, MP = Rs.140

Discount = 30% of MP

$= \frac{30}{100} \times 140 = Rs.42$

SP = MP – discount

$= 140 - 42$

$= Rs.98$

Now, loss = CP – SP

$= 100 - 98$

$= Rs.2$

$loss\% = \frac{loss}{CP} \times 100$

$= \frac{2}{100} \times 100$

$= 2\%$

Question 8.

Solution:

CP of fan = Rs.1080

Gain% = 25%

$\therefore SP = \left\{ \frac{(100 + gain\%)}{100} \times CP \right\}$

$= \left\{ \frac{(100 + 25)}{100} \times 1080 \right\}$

$= \frac{125}{100} \times 1080$

$= Rs.1350$

Let the MP be x.

Discount = 25% of x = $\frac{25x}{100}$

SP = MP – discount

$1350 = x - \frac{25x}{100}$

$1350 = \frac{100x - 25x}{100}$

$135000 = 75x$

$x = 1800$

Therefore MP of fan = Rs.1800.

Question 9.

Solution:

CP of refrigerator = Rs.11515

Gain% = 20%

$\therefore SP = \left\{ \frac{(100 + gain\%)}{100} \times CP \right\}$

$= \left\{ \frac{(100 + 20)}{100} \times 11515 \right\}$

$= \frac{120}{100} \times 11515$

$= Rs.13818$

Let the MP be x.

Discount = 16% of x = $\frac{16x}{100}$

SP = MP – discount

$$13818 = x - \frac{16x}{100}$$

$$13818 = \frac{100x - 16x}{100}$$

$$1381800 = 84x$$

$$x = 16450$$

Therefore MP of refrigerator = Rs.16450.

Question 10.

Solution:

CP of ring = Rs.1190

Gain% = 20%

$$\therefore SP = \left\{ \frac{(100 + 20\%)}{100} \times CP \right\}$$

$$= \left\{ \frac{(100 + 20)}{100} \times 1190 \right\}$$

$$= \frac{120}{100} \times 1190$$

$$= Rs.1428$$

Let the MP be x.

Discount = 16% of x = $\frac{16x}{100}$

SP = MP – discount

$$1428 = x - \frac{16x}{100}$$

$$1428 = \frac{100x - 16x}{100}$$

$$142800 = 84x$$

$$x = 1700$$

Therefore MP of ring = Rs.1700.

Question 11.

Solution:

Let Rs.100 be the CP.

Gain required = 17%

Therefore, SP = Rs.117

Let the MP be x.

Then, Discount = 10% of MP

$$= \frac{10}{100} \times x = Rs.\frac{x}{10}$$

SP = MP – discount

$$117 = x - \frac{x}{10}$$

$$117 = \frac{9x}{10}$$

$$9x = 1170$$

$$x = 130$$

Hence, MP is 30% above CP.

Question 12.

Solution:

Let Rs.100 be the CP.

Gain required = 8%

Therefore, SP = Rs.108

Let the MP be x.

Then, Discount = 10% of MP

$$= \frac{10}{100} \times x = Rs.\frac{x}{10}$$

SP = MP – discount

$$108 = x - \frac{x}{10}$$

$$108 = \frac{9x}{10}$$

$$9x = 1080$$

$$x = 120$$

Hence, MP is 20% above CP.

Question 13.

Solution:

MP of the TV = Rs.18500

First discount = 20% of MP

$$= \frac{20}{100} \times 18500$$

$$= Rs.3700$$

Price after first discount = 18500 – 3700 = Rs.14800

Second discount = 5% of 14800

$$= \frac{5}{100} \times 14800$$
$$= Rs.740$$

Price after second discount = 14800 – 740 = Rs.14060
Hence, the TV is available for Rs.14060.

Question 14.
Solution:
Let the MP of the article be Rs.100
First discount = 20% of MP = Rs.20
Price after first discount = 100 - 20 = Rs.80
Second discount = 5% of 80

$$= \frac{5}{100} \times 80$$
$$= Rs.4$$

Price after second discount = 80 - 4 = Rs.76
Net selling price = Rs.76
So, single discount equivalent to the given successive discounts = 100 – 76 = 24%.

Page number: 139
Exercise 10C

Question 1.
Solution:
List price of refrigerator = Rs.14650
Sales tax = 6% of 14650

$$= \frac{6}{100} \times 14650$$
$$= Rs.879$$

Bill amount = 14650 + 879 = Rs.15529
Hence, cost of refrigerator is Rs.15529.

Question 2.
Solution:
(i) cost of tie = Rs.250
Sales tax = 6% of 250

$$= \frac{6}{100} \times 250$$

$$= Rs.15$$

Bill amount = 250 + 15 = Rs.265

(ii) cost of medicines = Rs.625

Sales tax = 4% of 625

$$= \frac{4}{100} \times 625$$

$$= Rs.25$$

Bill amount = 625 + 25 = Rs.650

(iii) cost of cosmetics = Rs.430

Sales tax = 10% of 430

$$= \frac{10}{100} \times 430$$

$$= Rs.43$$

Bill amount = 430 + 43 = Rs.473

(iv) cost of clothes = Rs.1175

Sales tax = 8% of 1175

$$= \frac{8}{100} \times 1175$$

$$= Rs.94$$

Bill amount = 1175 + 94 = Rs.1269

Therefore, total amount = 265 + 650 +473 + 1269 = Rs.2657

Question 3.

Solution:

Let the original price of the watch be x.

VAT = 10% of x

$$= \frac{10}{100} x$$

Price including VAT = $x + \frac{x}{10} = Rs.\frac{11x}{10}$

Now,

$$\frac{11x}{10} = 1980$$

$$11x = 19800$$

$$x = 1800$$

So, original price of watch is Rs.1800.

Question 4.

Solution:

Let the original price of the shirt be x.

VAT = 7% of x

$$= \frac{7}{100}x$$

Price including VAT = $x + \frac{7x}{100} = Rs.\frac{107x}{100}$

Now,

$$\frac{107x}{100} = 1337.50$$

$$107x = 133750$$

$$x = 1250$$

So, original price of shirt is Rs.1250.

Question 5.

Solution:

Let the price of 10 g gold be x.

VAT = 1% of x

$$= \frac{1}{100}x$$

Price including VAT = $x + \frac{x}{100} = Rs.\frac{101x}{100}$

Now,

$$\frac{101x}{100} = 15756$$

$$101x = 15756$$

$$x = 15600$$

So, price of 10 g gold is Rs.15600.

Question 6.

Solution:

Let the original price of the computer be x.

VAT = 4% of x

$$= \frac{4}{100}x$$

Price including VAT = $x + \frac{4x}{100} = Rs.\frac{104x}{100}$

Now,

$$\frac{104x}{100} = 37960$$

$$104x = 3796000$$

$$x = 36500$$

So, original price of computer is Rs.36500.

Question 7.

Solution:

Let the original price of the spare parts be x.

VAT = 12% of x

$$= \frac{12}{100}x$$

Price including VAT = $x + \frac{12x}{100} = Rs.\frac{112x}{100}$

Now,

$$\frac{112x}{100} = 20776$$

$$112x = 2077600$$

$$x = 18550$$

So, original price of spare parts is Rs.18550.

Question 8.

Solution:

Let the list price of the TV set be x.

VAT = 8% of x

$$= \frac{8}{100}x$$

Price including VAT = $x + \frac{8x}{100} = Rs.\frac{108x}{100}$

Now,

$$\frac{108x}{100} = 27000$$

$$108x = 27000 \times 100$$

$$x = 25000$$

So, list price of TV set is Rs.25000.

Question 9.

Solution:

Let the rate of VAT be x%.

Then we have,

$840 + x\%of\,840 = 882$

$\frac{x}{100} \times 840 = 882 - 840$

$\frac{84x}{100} = 42$

$84x = 4200$

$x = 5$

Therefore, the rate of VAT is 5%.

Question 10.

Solution:

Let the rate of VAT be x%.

Then we have,

$18500 + x\%of\,18500 = 19980$

$\frac{x}{100} \times 18500 = 19980 - 18500$

$185x = 1480$

$x = 8$

Therefore, the rate of VAT is 8%.

Question 11.

Solution:

Let the rate of VAT be x%.

Then we have,

$34000 + x\%of\,34000 = 382500$

$\frac{x}{100} \times 34000 = 382500 - 34000$

$3400x = 42500$

$x = 12.5$

Therefore, the rate of VAT is 12.5%.

Page number: 140

Exercise 10D

OBJECTIVE QUESTIONS:

Tick (✓) the correct answer in each of the following:

Question 1.

Solution: (c) $33\frac{1}{3}\%$

Question 2.

Solution: (b) $12\frac{1}{2}\%$

Question 3.
Solution: (b) 25%

Question 4.
Solution: (d) Rs.72

Question 5.
Solution: (c) 120%

Question 6.
Solution: (d) 125%

Question 7.
Solution: (c) 20%

Question 8.
Solution: (b) 25%

Question 9.
Solution: (d) 150%

Question 10.
Solution: (d) 25%

Question 11.
Solution: (a) 4%

Question 12.
Solution: (a) 20%

Question 13.
Solution: (b) Rs.1200

Question 14.
Solution: (a) 5%

Question 15.
Solution: (c) 1.5% loss

Question 16.
Solution: (b) Rs.530

Question 17.
Solution: (c) Rs.198

Question 18.
Solution: (a) Rs.50

Question 19.
Solution: (b) 8%

Question 20.
Solution: (c) 1% loss

Question 21.
Solution: (c) Rs.750

Page number: 142
TEST PAPER 10
A. Question 1.
Solution:
SP = Rs.322
Gain = 15%

$$CP = \left\{ \frac{100}{(100 + gain\%)} \times SP \right\}$$

$$= \left\{ \frac{100}{(100+15)} \times 322 \right\}$$

$= Rs.280$
Now, desired SP,

$$SP = \left\{ \frac{(100 + gain\%)}{100} \times CP \right\}$$

$$= \left\{ \frac{(100 + 20)}{100} \times 280 \right\}$$

$$= Rs.336$$

Question 2.

Solution: Let the CP of each pen be $Rs.x$.

CP of 16 pens = $Rs.16x$

SP of 16 pens = CP of 12 pens = $Rs.12x$

i.e., CP $>$ SP

Now, loss = CP – SP

$$= 16x - 12x$$

$$= Rs.4x$$

Therefore, loss percentage = $\frac{loss}{CP} \times 100$

$$= \frac{4x}{16x} \times 100$$

$$= 25\%$$

Question 3.

Solution:

Let the CP be $Rs.x$.

Then, we have:

(12% of x) - (12% of x) = 30

$$\Rightarrow \left(x \times \frac{12}{100} \right) - \left(x \times \frac{8}{100} \right) = 30$$

$$\Rightarrow \left(\frac{12x}{100} - \frac{8x}{100} \right) = 30$$

$$\Rightarrow \frac{4x}{100} = 30$$

$$\Rightarrow x = \left(30 \times \frac{100}{4} \right) = Rs.750$$

Therefore, the cost price of the chair is Rs.750.

Question 4.

Solution:

Let the CP be Rs.100

Then, marked price = Rs.130
Discount = 10% of MP
= (10% of Rs.130)
$= 130 \times \frac{10}{100}$
= Rs.13
Now, SP = MP – discount
= 130 – 13
= Rs.117
Therefore, gain% = (117 – 100)% = 17%.

Question 5.
Solution:
Let the marked price be Rs.100.
Then, first discount on it = Rs.20
Price after first discount = 100 – 20 = Rs.80
Second discount = 10% of Rs.80
$= 80 \times \frac{10}{100}$
$= Rs.8$
Price after second discount = 80 – 8 = Rs.72
Net selling price = Rs.72
Therefore, Single discount equivalent to given successive discounts = (100 – 72)% = 28%

Question 6.
Solution:
Let the original price be $Rs.x$.
VAT = 10% of x
$= \left(x \times \frac{10}{100} \right)$
$= Rs.\frac{x}{10}$
Price including VAT = $Rs.\left(x + \frac{x}{10} \right) = Rs.\frac{11x}{10}$
$\therefore \frac{11x}{10} = 1870$
$\Rightarrow x = 1870 \times \frac{10}{11} = Rs.1700$
Therefore the original price of the watch is Rs. 1700.

B. Mark (✓) against the correct answer in each of the following:

Question 7.

Solution: (b) 25%

Question 8.

Solution: (d) 25%

Question 9.

Solution: (b) 20%

Question 10.

Solution: (c) Rs.920

Question 11.

Solution: (b) 9%

Question 12.

Solution: (c) Rs.750

C. Question 13.

Solution:

(i) The discount is reckoned on the *marked* price.

(ii) Gain or loss is always reckoned on the *cost price*.

(iii) SP = (Marked price) – (*discount*).

(iv) VAT is charged on the *selling price* of the article.

D. Question 14.

Solution:

(i) $SP = \frac{(100 + loss\%)}{100} \times CP.$ - F

(ii) $CP = \frac{100}{(100 + gain\%)} \times SP.$ - T

(iii) Gain is reckoned on the selling price. - F

(iv) The discount is allowed on the marked price. -T