EXERCISE 1(A)

Question 1:

Rajat purchases a wrist costing Rs. 540. The rate of sales tax is 8%. Find the total amount paid by rajat for the watch.

Solution 1:

Sale price of watch= Rs. 540

Rate of sales tax= 8%

Total amount paid by Rajat = Rs. 540 + 8% of Rs. 540

$= \text{Rs. } 540 + \frac{8}{100} \times 540$

= Rs. 540 + Rs. 43.20

= Rs. 583.20 Ans

Question 2:

Ramesh paid Rs. 345.60 as sales tax on a purchase of Rs. 3,840. Find the rate of sales Tax.

Solution 2:

Sale price = Rs. 3,840

Sales tax paid = Rs. 345.60

$\therefore$ Rate of sales tax $= \frac{\text{sales tax}}{\text{sales price}} \times 100\%$

$= \frac{345.60}{3{,}840} \times 100\%$

= 9% Ans.

Question 3:

The price of a washing machine, inclusive of sales tax, is Rs. 13,530/-. If the sales tax is 10%, Find its basic (cost) price.

Solution 3:

Selling price of washing machine = Rs. 13,530

Rate of sales tax = 10%

$\therefore$ Cost Price $= \frac{\text{selling price} \times 100}{100 + \text{Rate of sales tax}}$

$= \frac{13530 \times 100}{100+10}$

$= \frac{1353000}{110}$

= Rs. 12,300

Question 4:

Sarita purchases biscuit costing Rs. 158 on which the rate of sales tax is 6%. She also purchases some cosmetic goods costing Rs. 354 on which the rate of sales tax is 9%. Find the total amount to be paid be sarita.

Solution 4:

Sale price of biscuits = Rs. 158

Rate of sales tax on biscuits = 6%

Amount paid for biscuits = Rs. 158 + 6% of Rs. 158

= Rs. 158 + $\frac{6}{100} \times 158$

= Rs. 158 + Rs. 9.48

= Rs. 167.48

Sale price of cosmetic goods = Rs. 354

Rate of sales tax = 9%

Amount paid for cosmetic goods = Rs. 354 + 9% of Rs. 354

= Rs. 35 + $\frac{9}{100} \times 354$

= Rs. 354 + Rs. 31.86

= Rs. 385.86

Total amount paid by Sarita = Rs. 167.48 + Rs. 385.86

= Rs. 553.34 Ans.

Question 5:

Hamid purchased some articles costing Rs. 5460. The shopkeeper charged sales tax at 8%. As hamid wanted to take the articles purchased outside the state, the shopkeeper charged 3% as central sales tax on the actual price of the articles. Find the total amount Hamid Had to pay for the articles.

Solution 5:

Sale price of articles = Rs. 5,460

Rate of sales tax = 8%

Rate of central sales tax = 3%

Total amount paid by Hamid

= Rs. 5,460 + 8% of Rs. 5,460 + 3% of Rs. 5,460

= Rs. 5,460 + $\frac{8}{100} \times 5{,}460 + \frac{3}{100} \times 5{,}460$

= Rs. 5,460 + Rs. 436.80 + Rs. 163.80

= Rs. 6060.60 Ans

Question 6:

The marked price of two articles A and B together is Rs. 6,000. The sales tax on articles A is 8% and that on article B is 10%. If on selling both the articles, the total sales tax collected is Rs. 552, find the marked price of each of the articles A and B.

Solution 6:

Let the marked price of article A be Rs. x and article B be Rs. y.
The marked price of A and B together is Rs. 6,000.
$\Rightarrow x + y = 6{,}000$ …….. (i)

The sales tax on article A is 8% and that on article B is 10%.
Also the total sales tax collected on selling both the articles is Rs. 552.
$\Rightarrow$ 8% of x + 10% of y = 552
$\Rightarrow 8x + 10y = 55{,}200$ …….. (ii)

Multiply equation (i) by 8 and subtract it from equation (ii) we get,
$2y = 7{,}200$
$\Rightarrow y = 3{,}600$

Substituting y = 3,600 in equation (i) we get,
$x + 3{,}600 = 6{,}000$
$\Rightarrow x = 2{,}400$
The marked price of article A is Rs. 2,400 and article B is Rs. 3,600.

Question 7:

Tanya buys a leather coat costing Rs. 3,600, the rate of sales Tax being 10%. She asks the shopkeeper to reduce the price of the coat to such an extent that she does not have to pay anything more than Rs. 3,366 including sales tax. Calculate:

(i) The reduction needed in the cost price of the coat.
(ii) the reduction as percent.

Solution 7:

(i) Let new sale price of coat = Rs. y
Rate of sales tax = 10%
Total amount paid= Rs3,600
According to question
Y + 10% of Y = Rs. 3,366
$\Rightarrow y + \frac{y}{10} = \text{Rs. } 3{,}366$
$\Rightarrow \frac{11y}{10} = \text{Rs. } 3{,}366$

$\Rightarrow y = \frac{3,366 \times 10}{11} = \text{Rs. } 3,060$

Reduction needed in the price= Rs. 3,600 − Rs. 3,060 = Rs. 540 Ans.

(ii) Reduction % = $\frac{540 \times 100}{3600} = 15\%$

Question 8:

The price of a T.V. set inclusive of sales tax of 9% is Rs. 13,407. Find its marked price. If Sales tax is increased to 13%, how much more does the customer has to pay for the T.V.?

Solution 8:

(i) Total price paid for T.V. = Rs. 13,407

Rate of sales tax = 9%

Let sale price = Rs. y

According to question

Y + 9% of y = Rs. 13,407

$\Rightarrow y + \frac{9y}{100} = \text{Rs. } 13,407$

$\Rightarrow \frac{109y}{100} = \text{Rs. } 13,407$

$\Rightarrow y = \frac{13,407 \times 100}{109} = \text{Rs. } 12,300$

If the sales is increased by 13% then 13% of 12300

= Rs. 12,300 + Rs. 1,599

= Rs. 13,899

More money paid = Rs. 13,899 – Rs. 13,407 = Rs. 492 Ans.

Question 9:

The price of an article is Rs. 8,250 which includes sales tax at 10%. Find how much more or less does a customer pay for the article, if the sales tax on the article:

(i) increases to 15%

(ii) decreases to 6%

(iii) increases by 2%

(iv) decreases by 3%

Solution 9:

Let sale price of article = Rs. y

Total price inclusive of sales tax = Rs.8,250

Rate of sales tax = 10%

According to question

Y + 10 % of y = Rs. 8,250

$\Rightarrow y + \frac{y}{100} = \text{Rs. } 8,250$

$\Rightarrow \frac{11Y}{10} = Rs.8{,}250$

$\Rightarrow y = \frac{8{,}250 \times 10}{11} = Rs.7{,}500$

(i) New rate of sales tax = 15%

New total price = Rs. 7,500 + 15% of Rs. 7,500

= Rs. 7,500 + $\frac{15}{100} \times 7{,}500$

= Rs. 7,500 + Rs. 1,125 = Rs. 8,625

More money paid = Rs. 8,625 – Rs. 8,250 = Rs. 375 Ans.

(ii) New rate of sales tax = 6%

New total price= Rs. 7,500 + 6% of Rs. 7,500

= Rs. 7,500 + $\frac{6}{100} \times 7{,}500$

= Rs. 7,500 + Rs. 450 = Rs. 7,950

Less money paid = Rs. 8,250 – Rs. 7,950 = Rs. 300 Ans.

(iii) New rate of sales tax = (10 + 2)% = 12%

New total price = Rs. 7,500 + 12% of Rs. 7,500

= Rs. 7,500 + $\frac{12}{100} \times 7{,}500$

= Rs. 7,500 + Rs. 900 = Rs. 8,400

More money paid = Rs. 8,400 – Rs. 8,250 = Rs. 150 Ans.

(iv) New rate of sales tax = (10 − 3)% = 7%

New total price = Rs. 7,500 + 7% of Rs. 7,500

= Rs. 7,500 + $\frac{7}{100} \times 7{,}500$

= Rs. 7,500 + Rs. 525 = Rs. 8,025

Less money paid = Rs. 8,250 – Rs. 8,025 = Rs. 225 Ans.

Question 10:

A bicycle is available for Rs. 1,664 including sales tax. If the list price of the bicycle is Rs. 1,600 find:

(i) the rate of sales tax.

(ii) the price, a customer will pay for the bicycle if the sales tax is increased by 6%.

Solution 10:

Price of bicycle inclusive of sales tax = Rs. 1,664

List price of bicycle = Rs. 1,600

(i) Sales tax = Rs. 1,664 – Rs. 1,600 = Rs. 64

$\therefore$ Rate of sales tax = $\frac{\text{sales tax}}{\text{sales price}} \times 100\% = \frac{64}{1{,}600} \times 100\% = 4\%$ Ans.

(ii) New rate of sales tax = (4 + 6)% = 10%

New total price = Rs. 1,600 + 10% of Rs. 1,600

= Rs. 1,600 + $\frac{10}{100} \times 1{,}600$

= Rs. 1,600 + Rs. 160

= Rs. 1,760 Ans.

Question 11:

When the rate of sale – tax is decreased from 9% to 6% for a coloured T.V; mrs. Geeta will save Rs. 780 in buying this T.V. Find the list price of the T.V.

Solution 11:

Let the list price of T.V. = y

Sales tax when the rate is 9% = $\frac{9}{100}\ Y$

$\Longrightarrow$ Sale price is $y + \frac{9y}{100}$

Sales tax when the rate is 6% = $\frac{6}{100}\ y$

$\Longrightarrow$ Sale price is $y + \frac{6}{100}\ y$

Differences of sale prices

= $y + \frac{9y}{100} - \left(y + \frac{6y}{100}\right)$

= $y + \frac{9y}{100} - y - \frac{6y}{100}$

= $\frac{9y}{100} - \frac{6y}{100}$

Savings for Geeta = 784.

Therefore, we have,

$784 = \frac{9y}{100} - \frac{6y}{100}$

$\Longrightarrow \frac{3y}{100} = 78$

$\Longrightarrow y = \frac{78 \times 100}{3}$

$\Longrightarrow y =$ Rs. 26,000

Thus the list price of the T.V. is Rs. 26,000 Ans.

Question 12:

A shopkeeper sells an article for Rs. 21,384 including 10% sales tax. However, the actual rate of sales tax is 8%. Find the extra profit made by the dealer.

Solution 12:

Price of the article inclusive of sales tax = Rs. 21,384

Let y be the list price of the article

Rate of sales tax charged by the shopkeeper = 10%

According to the given statement, we have

$21384 = y + y \times \frac{10}{100}$

$\Longrightarrow y + \frac{y}{10} = 21384$

$\Longrightarrow \frac{11y}{10} = 21384$

$\Longrightarrow y = \frac{21384 \times 10}{11}$

$\Longrightarrow y = \text{Rs. } 19440$

When the sales tax is 8%, the actual sale price

$= 19440 + 19440 \times \frac{8}{100}$

$= \text{Rs. } 20{,}995.2$

Extra profit = Sale price of the article charged by shopkeeper − Actual sale price

$\Longrightarrow$ Extra profit = Rs. 21,384 - Rs. 20.995.2 = Rs. 388.80 Ans.

EXERCISE 1(B)

Question 1:

A trader buys an unfinished article for Rs. 1,800 and spends Rs. 600 on its finishing, packing, transportation, etc. He marks the article at such a price that will give him 20% profit. How much will a customer pay for he article including 12% sales tax.

Solution 1:

Purchase price = Rs. 1,800

Expenditure = Rs. 600

Total price = Rs. 1,800 + Rs. 600 = Rs. 2,400

M.P. of article = Rs. 2,400 + 20% of Rs. 2400

$= \text{Rs. } 2{,}400 + \frac{20}{100} \times 2{,}400$

=Rs. 2,400 + Rs. 480 = Rs. 2,880

Cost price for customer = Rs. 2,880 + 12% of Rs. 2,880

$= \text{Rs. } 2{,}880 + \frac{12}{100} \times 2{,}880S$

= Rs. 2,880 + Rs. 345.60

= Rs. 3,225.60 Ans.

Question 2:

A shopkeeper buys an article for Rs. 800 and spends Rs. 100 on its transportation, etc. He marks the article at a certain price and then sells it for Rs. 1,287 including 10% sales tax. Find this profit as per cent.

Solution 2:

C.P. of an article = Rs. 800

Expenditure = Rs. 100

Total C.P.= Rs. 800 + Rs. 100 = Rs. 900

Let sale price = Rs. y

Sale price inclusive of sales tax = Rs. 1,287

Rate of sales tax = 10%

Then y + 10% of y = Rs. 1,287

$\Longrightarrow y + \frac{y}{10} = Rs.1{,}287$

$\Longrightarrow \frac{11y}{10} = Rs.1{,}287$

$\Longrightarrow y = \text{Rs.}\ \frac{1{,}287 \times 10}{11} = Rs.1{,}170$

His profit = Rs. 1,170 – Rs. 900 = Rs. 270

His profit% = $\frac{270}{900} \times 100\% = 30\%$ Ans

Question 3:

A shopkeeper announces a discount of 15% on his goods. If the marked price of an article, in his shop is Rs. 6,000; how much a customer has to pay for it, if the rate of sales tax is 10%?

Solution 3:

Marked price of article = Rs. 6,000

Sale price after discount = Rs. 6,000 − 15% of Rs. 6,000

= Rs. 6,000 − Rs. 900

Rs. 5,100

Rate of sales tax = 10%

Cost price for customer = Rs. 5,100 + 10% of Rs. 5,100

= Rs. 5,100 + Rs. 510

= Rs. 5,610

Question 4:

The catalogue price of a colour T.V. is Rs. 24,000. The Shopkeeper gives a discount of 8% on the list price. He gives a further off season discount of 5% on the balance. But sales tax at 10% is charged on the remaining amount find:

(a) the sales tax a customer has to pay.

(b) the final price he has to pay for the T.V.

Solution 4:

List price of T.V = Rs. 24,000

Discount % = 8 %

Season discount = 5%

∴ Sale price = Rs. 24,000 $\left(1 - \frac{8}{100}\right)\left(1 - \frac{5}{100}\right)$

= 24,000 $\times \frac{92}{100} \times \frac{95}{100} = Rs.20{,}976$

Rate of sales tax = 10%

Sales tax = Rs. 20,976 $\times \frac{10}{100} = Rs.2{,}097.60$

Final price for customer = Rs. 20,976 + 10% of Rs. 20,976

= Rs. 20,976 + $\frac{10}{100} \times$ 20,976

= Rs. 20,976 + Rs. 2,097.60

= Rs. 23,073.60 Ans

Question 5:

A shopkeeper marks his goods 40% above the cost price and then allows discount of 20% find how much will a customer pay for an article which costs the shopkeeper Rs. 200 and a sales tax of 10% is levied on the sale price of the article. (Give your answer correct to the nearest rupee).

Solution 5:

Cost price = Rs. 200

Marked price = Rs. 200 + 40% of Rs. 200

= Rs.200 + Rs. 80 = Rs. 280

Discount = 20%

Sale price = 280 $\left(1 - \frac{20}{100}\right)$

= 280 $\times \frac{4}{5}$

Rate of sales tax = 10%

Price for customer = 224 + 10% of 224

= 224 + $\frac{10}{100} \times 224$

= 224 + 22.4

= 246.4

= 246 (Approx)

Question 6:

A toy is purchased for Rs. 591.36 which includes 12% rebate on the printed price and 12% sales tax on the sale price of the toy find the printed price of the toy.

Solution 6:

Let printed price = Rs. y

Discount% = 12%

$\therefore$ Sale price = Rs. $y\left(1-\frac{12}{100}\right) = y \times \frac{88}{100} = \text{Rs. } \frac{22\,y}{25}$

Rate of sales tax = 12%

Purchase price= Rs. 591.36

According to question

Sale price + sales tax = Rs. 591.36

Rs. $\frac{22y}{25}$ + 12% of $\frac{22y}{25}$ = Rs. 591.36

$\Longrightarrow \frac{22y}{25} + \frac{66y}{625} = \text{Rs. } 591.36$

$\Longrightarrow \frac{616y}{625} = \text{Rs. } 591.36$

$\Longrightarrow y = \frac{591.36 \times 625}{616} = \text{Rs. } 600$ Ans

Question 7:

The catalogue price of an article is Rs. 20,000. The dealer allows two successive discounts 15% and 10%. If sales tax at the rate of 10% is charged on the remaining amount. Find:

(i) the sales tax amount a customer has to pay.

(ii) the final total price that customer has to pay for the article.

Solution 7:

Catalogue price = Rs. 20,000

Two successive discounts = 15% and 10%

Sale price = $20{,}000\left(1-\frac{15}{100}\right)\left(1-\frac{10}{100}\right)$

$= 20{,}000 \times \frac{17}{20} \times \frac{9}{10}$

Rate of sales tax = 10%

Sales tax = 10% of 15,300

$= \frac{10}{100} \times 15{,}300 = Rs.\, 1{,}530$

Final total price = Rs. 15,300 + Rs. 1,530 = Rs. 16,830

Question 8:

A trader buys an article for Rs. 1,700 at a discount of 15% on its printed price. He raises the printed price of the article by 20% and then sells it for Rs. 2,688 including sales tax on the new marked price. Find:

(i) the rate of sales tax

(ii) the trader's profit as per cent

Solution 8:

Let the printed price = Rs. y

Discount% = 15%

Cost price = Rs. 1,700

∴ list price – discount = Rs. 1,700

$\Rightarrow$ y – 15% of y = Rs. 1,700

$\Rightarrow$ y - $\frac{3y}{20} = Rs.1{,}700$

$\Rightarrow \frac{17y}{20} = Rs.1{,}700$

$\Rightarrow$ y = Rs. $\frac{1{,}700 \times 20}{17} = Rs.2{,}000$

New printed price = Rs. 2,000 + 20% of Rs. 2,000

= Rs. 2,000 + $\frac{20}{100} \times 2{,}000$

= Rs. 2,000 + Rs. 400 = Rs. 2400

Selling price inclusive of sales tax = Rs. 2,688

Sales tax = Rs. 2,688 – Rs. 2,400 = Rs. 288

(i) ∴ Rate of sales tax = $\frac{\text{sales tax}}{\text{sales price}} \times 100\%$

$= \frac{288}{2{,}400} \times 100\% = 12\%$

(ii) Profit = Rs. 2,400 – Rs. 1,700 = Rs. 700

∴ Profit % = $\frac{\text{profit}}{\text{cost price}} \times 100\% = \frac{700}{1{,}700} \times 100\% = 41\ \frac{3}{17}\%$ Ans.

Question 9:

A shopkeeper buys an article at a rebate of 20% on its marked price and then spends Rs. 300 on its transportation, etc. If he sells the article for Rs. 4,160 (Including sales tax at the rate of 4% of the marked price), find the shopkeeper's profit as per cent.

Solution 9:

Sale price including sales tax = Rs. 4,160

Let sale price = Rs. y

Rate of sales tax = 4%

∴ y + 4% of y = Rs. 4160

$\Rightarrow$ y + $\frac{y}{25} = Rs.4{,}160$

$\Longrightarrow \frac{26y}{25} = Rs.4160$

$\Longrightarrow$ y = Rs. $\frac{4{,}160 \times 25}{26}$ = Rs. 4,000

Purchase price = Rs. 4,000 − 20% of Rs. 4,000

=Rs. 4,000 – Rs. 800= Rs. 3,200

Extra expense = Rs. 300

Then total cost price = Rs. 3,200 + Rs. 300 = Rs. 3,500

His profit = Rs. 4,000 – Rs. 3,500 = Rs. 500

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

= $\frac{500}{3{,}500} \times 100\% = \frac{100}{7}\% = 14\frac{2}{7}\%$ Ans

Question 10:

A shopkeeper buy an article for Rs. 2,400 from a wholesaler at 20% rebate on its list price. He marks up the list price of the article bought by 10% and then sells it for Rs. 3,498 including sales tax on the marked up price.

Find: (i) the rate of sales tax

(ii) the shopkeeper's profit as per cent.

Solution 10:

Let the printed price = Rs. y

Discount% = 20%

Cost price = Rs. 2,400

∴ List price – discount = Rs. 2,400

$\Longrightarrow$ y − 20% of y = Rs. 2,400

$\Longrightarrow$ y − $\frac{y}{5} = Rs.2{,}400$

= $\frac{4y}{5} = Rs.2{,}400$

= y = Rs. $\frac{2{,}400 \times 5}{4}$ = Rs. 3,000

New printed price = Rs. 3,000 + 10% of Rs. 3,000

= Rs. 3,000 + Rs. 300 = Rs. 3,300

Selling price inclusive of sales tax = Rs. 3,498

Sales tax = Rs. 3,498 – Rs. 3,300 = Rs. 198

(i) ∴ Rate of sales tax = $\frac{\text{sales tax}}{\text{sales price}} \times 100\%$

= $\frac{198}{3{,}300} \times 100\% = 6\%$

(ii) Profit = Rs. 3,300 – Rs. 2,400 = Rs. 900

∴ Profit% = $\frac{\text{profit}}{\text{cost price}} \times 100\% = \frac{900}{2{,}400} \times 100\% = 37.5\%$ Ans.

EXERCISE 1(C)

Question 1:

A shopkeeper purchases an article for Rs. 6,200 and sells it to a customer for Rs. 8500. If the sales tax (under VAT) is 8%; find the VAT paid by the shopkeeper.

Solution 1:

Purchase price for shopkeeper = Rs. 6,200

Sale price for shopkeeper = Rs. 8,500

Tax paid by the shopkeeper = 8% of 6,200

$= \frac{8}{100} \times 6{,}200 = Rs.496$

Tax charged by the shopkeeper = 8% of 8,500

$= \frac{8}{100} \times 8{,}500 = Rs.680$

Then VAT paid by the shopkeeper = Rs. 680 – Rs. 496 = Rs. 184 Ans.

Question 2:

A purchases an article for Rs. 3,600 and sells it to B for Rs. 4,800. B in turn, sells the article to C for Rs. 5,500. If the sales tax (Under VAT) is 10%, find the V AT levied on A and B.

Solution 2:

Purchase price for A = Rs. 3,600

Tax paid by A = 10% of Rs. 3,600

$= \frac{10}{100} \times 3{,}600 = Rs.360$

Purchase price for B = Rs. 4,800

Tax paid by B to A = 10% of Rs. 4,800

$= \frac{10}{100} \times 4{,}800 = Rs.480$

Purchase price for C = Rs. 5,500

Tax paid by C to B = 10% of Rs. 5,500

$= \frac{10}{100} \times 5{,}500 = Rs.550$

VAT paid by A = Rs. 480 – Rs. 360 = Rs. 120 Ans.

VAT paid by B = Rs. 550 – Rs. 480 = Rs. 70 Ans.

Question 3:

A manufacturer buys raw material for 60,000 and pays 4% tax. He sells the ready stock for Rs. 92000 and charges 12.5% tax. Find the VAT paid by the manufacturer.

Solution 3:

Purchase price for manufacture = Rs. 60,000

Tax paid by manufacturer = 4% of Rs. 60,000

$= \frac{4}{100} \times 60{,}000 = Rs.\,2{,}400$

Sale price for manufacturer = Rs. 92,000

Tax charged by manufacturer = 12.5% of Rs. 92,000

$= \frac{12.5}{100} \times 92{,}000 = Rs.\,11{,}500$

VAT paid by manufacturer= Rs. 11,500 – Rs. 2,400

= Rs. 9,100 Ans.

Question 4:

The cost of an article is Rs. 6,000 to distributor. He sells it to a trader for Rs. 7,500 and trader sells it to a customer for Rs. 8,000. If the VAT rate is 12.5%; find the VAT paid by the

(i) Distributor

(ii) trader

Solution 4:

Cost price for distributor = Rs. 6,000

Tax paid by distributor = 12.5% of Rs. 6,000

$= \frac{12.5}{100} \times 6000 = Rs.\,750$

Sale price for distributor = Rs. 7,500

Tax charged by distributor = 12.5% of Rs. 7,500

$= \frac{12.5}{100} \times 7{,}500 = Rs.\,937.50$

VAT paid by distributor = Rs. 937.50 – Rs. 750

= Rs. 187.50 Ans.

Sale price for trader = Rs. 8,000

Tax charged by trader = 12.5% of Rs. 8,000

$= \frac{12.5}{100} \times 8{,}000 = Rs.\,1{,}000$

VAT paid by trader = Rs. 1,000 – Rs. 937.50 = Rs. 62.50 Ans

Question 5:

The printed price of an article is Rs. 2500. A wholesaler sells it to a retailer at 20% discount and charges sales tax at the rate of 10%. Now the retailer, in turn, sells the article to a customer at its list price and charges the sales tax at the same rate. Find:

(i) the amount that retailer pays to the wholesaler

(ii) the VAT paid by the retailer

Solution 5:

Printed price of an article = Rs. 2,500

Sale price for wholesaler = Rs. 2,500 − 20% of Rs. 2,500

= Rs. 2,500 − $\frac{20}{100} \times 2{,}500$

= Rs. 2,500 – Rs. 500 = Rs. 2,000

Tax charged by wholesaler = 10% of Rs. 2,000

= $\frac{10}{100} \times Rs.2000 = Rs.200$

Cost price for retailer = Rs. 2,000 + Rs. 200 = Rs. 2,200 Ans.

Tax charged by retailer = 10% of Rs. 2,500

= $\frac{10}{100} \times Rs.2500 = Rs.250$

VAT paid by retailer = Rs. 250 – Rs. 200 = Rs. 50 Ans

Question 6:

A retailer buys an article for Rs. 800 and pays the sales tax at the rate of 8%. The retailer sells the same article to a customer for Rs. 1,000 and charges sales tax at the same rate. Find:

(i) the price paid by a customer to buy this article.

(ii) the amount of VAT paid by the retailer

Solution 6:

Cost price for retailer = Rs. 800

Sales tax paid by retailer = 8% of Rs. 800

= $\frac{8}{100} \times Rs.800 = Rs.64$

Sale price for retailer = Rs. 1,000

Tax charged by retailer = 8% of Rs. 1,000

= $\frac{8}{100} \times Rs.1{,}000 = Rs.80$

Price paid by customer = Rs. 1,000 + Rs. 80 = Rs. 1,080 Ans.

VAT paid by retailer = Rs. 80 – Rs. 64 = Rs. 16 Ans

Question 7:

A shopkeeper buys 15 identical articles for Rs. 840 and pays sales tax at the rate of 8%. He sells 6 of these articles at Rs. 65 each and charges sales tax at the same rate. Calculate the VAT paid by the shopkeeper against the sale of these six articles.

Solution 7:

Cost price of 15 articles = Rs. 840

Then cost price of 6 articles = $\frac{840 \times 6}{15} = Rs.336$

Sales tax paid by shopkeeper for 6 articles
= 8% of Rs. 336
$= \frac{8}{100} \times Rs.336 = Rs.26.88$
Sale price of 6 articles= 6 x Rs. 65 = Rs. 390
Tax charged by shopkeeper = 8% of Rs. 390
$= \frac{8}{100} \times Rs.390 = Rs.31.20$
VAT paid by shopkeeper = Rs. 31.20 – Rs. 26.88 = Rs. 4.32 Ans

Question 8:

The marked price of an article is Rs. 900 and the rate of sales tax on it is 6%. If on selling the article at its marked price, a retailer has to pay VAT = Rs. 4.80; Find the money paid by him (including sales tax) for purchasing this article.

Solution 8:

Sale price of an article for retailer = Rs. 900
Tax charged by retailer = 6% of Rs. 900
$= \frac{6}{100} \times Rs.900 = Rs.54$
VAT paid by retailer = Rs. 4.80
$\therefore$ VAT paid = tax charged – Tax paid
$\Longrightarrow$ Rs. 4.80 = Rs. 54 – Tax paid
$\Longrightarrow$ Tax paid = Rs. 54 – Rs. 4.80 = Rs. 49.20
Let cost price = Rs y
$\therefore$ 6% of y = Rs. 49.20
$\Longrightarrow \frac{6}{100} \times y = Rs.49.20$
$\Longrightarrow$ y = Rs. $\frac{49.20 \times 100}{6}$ = Rs. 820
Purchase price for retailer = Rs. 820 + Rs. 49.20 = Rs. 869.20 Ans.

Question 9:

A manufacturer marks an article at Rs. 5,000. He sells this article to a wholesaler at a discount of 25% on the marked price and the wholesaler sells it to a retailer at a discount of 15% on its marked price. If the retailer sells the article without any discount and at each stage the sales tax is 8%, calculate the amount of VAT paid by:

(i) the wholesaler
(ii) the retailer

Solution 9:

Marked price of an article = Rs. 5,000

Sale price for manufacturer = Rs. 5,000 − 25% of Rs. 5,000

= Rs. 5,000 $- \frac{25}{100} \times Rs.5000$

= Rs. 5,000 – Rs. 1,250 = Rs. 3,750

Tax paid by wholesaler = 8% of Rs. 3,750

= $\frac{6}{100} \times 3{,}750 = Rs.300$

Sale price for wholesaler = Rs. 5,000 − 15% of Rs. 5,000

= Rs. 5,000 $- \frac{15}{100} \times Rs.5000$

= Rs. 5,000 – Rs. 750 = Rs. 4,250

Tax paid by retailer = 8% of Rs. 4,250

= $\frac{8}{100} \times 4{,}250 = Rs.340$

Sale price for retailer = Rs. 5,000

Tax paid by customer = 8% of Rs. 5,000

= $\frac{8}{100} \times 5{,}000 = Rs.400$

VAT paid by wholesaler = Rs. 340 – Rs. 300 = Rs. 40 Ans.

VAT paid by retailer = Rs. 400 – Rs. 340 = Rs. 60 Ans.

Question 10:

A shopkeeper buys an article at a discount of 30% and pays sales tax at the rate of 8%. The shopkeeper, in turn, sells the article to a customer at the printed price and charges sales tax at the same rate. If the printed price of the article is Rs. 2,500; find:

(i) the price paid by the shopkeeper

(ii) the price paid by the customer

(iii) the VAT (value added TAX) paid by the shopkeeper.

Solution 10:

Printed price of an article = Rs. 2,500

Purchase price for shopkeeper = Rs. 2,500 − 30% of Rs. 2,500

= Rs. 2,500 $- \frac{30}{100} \times Rs.2{,}500$

= Rs. 2,500 – Rs. 750 = Rs. 1,750

Tax paid by the shopkeeper = 8% of Rs. 1,750

= $\frac{8}{100} \times Rs.\ 1{,}750 = Rs.140$

Price paid by shopkeeper = Rs. 1,750 + Rs. 140 = Rs. 1,890 Ans.

Sale price for shopkeeper = Rs. 2,500

Tax paid by customer = 8% of Rs. 2,500

= $\frac{8}{100} \times Rs.2{,}500 = Rs.200$

Price paid by the customer = Rs. 2,500 + Rs. 200 = Rs. 2,700 Ans.

VAT paid by the shopkeeper = Tax charged − Tax paid
= Rs. 200 – Rs. 140 = Rs. 60 Ans

Question 11:

A shopkeeper sells an article at its list price (Rs. 3,000) and charges sales tax at the rate of 12%. If the VAT paid by the shopkeeper is Rs. 71, at what price did the shopkeeper buy the article inclusive of sales-tax?

Solution 11:

Sale price of an article for retailer = Rs. 3,000
Tax charged by retailer = 12% of Rs. 3,000
$= \frac{12}{100} \times Rs.3{,}000 = Rs.360$
VAT paid by retailer = Rs. 72
∴ VAT paid = Tax charged – Tax paid
$\Longrightarrow$ Rs. 72 = Rs. 360 – Tax paid
Tax paid=Rs 360 - Rs 70 = Rs. 288
Let cost price = Rs. y
∴ 12% of y = Rs. 288
$\Longrightarrow \frac{12}{100} \times y = Rs.288$
$\Longrightarrow$ y = Rs. $\frac{288 \times 100}{12} = Rs.2{,}400$
Purchase price for retailer = Rs. 2,400 + Rs. 288 = Rs. 2,688 Ans

Question 12:

A manufacturer marks an article for Rs. 10,000. He sells it to a wholesaler at 40% discount. The wholesaler sells this article to a retailer at 20% discount on the marked price of the article. If retailer sells the article to a customer at 10% discount and the rate of sales tax is 12% at each stage, find the amount of VAT paid by the:

(i) Wholesaler
(ii) (ii) retailer

Solution 12:

Marked price of an article = Rs. 10,000
Sale price for manufacturer
= 10,000 – 40% of 10,000
$= 10{,}000 - \frac{40}{100} \times 10{,}000$
= 10,000 – 4,000
= 6,000
Tax paid by wholesaler

= 12% of 6,000

$= \frac{12}{100} \times 6{,}000$

= 720

Sale price for the wholesaler

= 10,000 – 20% of 10,000

$= 10{,}000 - \frac{20}{100} \times 10{,}000$

= 10,000 – 2,000

= 8,000

Tax paid by the retailer

= 12% of 8,000

$= \frac{12}{100} \times 8{,}000$

= 960

Sale price for the retailer

= 10,000 – 10% of 10,000

$= 10{,}000 - \frac{10}{100} \times 10{,}000$

= 10,000 – 1,000

= 9,000

Tax paid by the customer = 12% of 9,000

$= \frac{12}{100} \times 9{,}000$

= 1,080

VAT paid by wholesaler = Rs. 960 − Rs. 720 = Rs. 240

VAT paid by retailer = Rs. 1080 − Rs. 960 = Rs. 120

EXERCISE 1(D)

Question 1:

Madan purchases a compact computer system for Rs. 47,700 which includes 10% rebate on the marked price and then 6% sales tax on the remaining price. Find the marked price of the computer.

Solution 1:

Let the marked price be Rs. x.

Rebate = 10%

price after rebate = X – 10% X

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

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

Sales tax = 6%

∴ total money paid $= \frac{9x}{10}$ + 6% of $\frac{9x}{10}$

$\Rightarrow 47{,}700 = \frac{9x}{10} + \frac{6}{100} \times \frac{9x}{10}$

$\Rightarrow 47{,}700 = \frac{9x}{10} + \frac{54x}{1000}$

$\Rightarrow 47{,}700 = \frac{954x}{1000}$

$\Rightarrow x = 50{,}000$

The marked price of the computer is Rs. 50,000

Question 2:

A wholesaler sells an article for Rs. 2,700 at a discount of 10% on the printed price to a retailer. The retailer, in turn, raises the printed price of the article by 15% and sells it for Rs. 3,657 which includes sales tax on the new marked price. Find:

(i) the rate of sales tax.

(ii) the profit, as percent, made by the retailer.

Solution 2:

Let the printed price be Rs. x.

Discount = 10%

Sale price for the wholesaler = Rs. 2,700

∴ x – 10% of x = 2,700

$\Rightarrow \frac{9x}{10} = 2{,}700$

$\Rightarrow x = 3{,}000$

Print price by retailer $= 3{,}000 + 15\%$ of $3{,}000$

$= 3{,}000 + \frac{15}{100} \times 3{,}000$

$= 3{,}000 + 450$

$= 3{,}450$

Sale price by retailer = Rs. 3,657

Sales tax charged by retailer = Rs. 3,657 − Rs. 3,450 = Rs. 207

Rate of sales tax $= \frac{sales\ tax}{print\ price} \times 100\%$

$= \frac{207}{3{,}450} \times 100\%$

$= 6\%$

Profit made by retailer = Rs. 3,450 – Rs. 2,700 = Rs. 750

$$\text{Profit\%} = \frac{profit}{cost\ price} \times 100\%$$
$$= \frac{750}{2{,}700} \times 100\%$$
$$= 27.78\%$$

Question 3:

A shopkeeper buys an article at 70% of its printed price. He spends Rs. 40 on transportation of the article. After charging sales tax at the rate of 10% on the printed price, he sells the article for Rs. 7,040. Find his profit as per cent to the nearest integer.

Solution 3:

Let the printed price be Rs. x

Rate of sales tax = 10%

Selling price inclusive of sales tax = Rs.7,040

∴ x + 10% of x = 7,040

$$\Rightarrow X + \frac{10}{100} \times x = 7{,}040$$

$$\Rightarrow \frac{11x}{10} = 7{,}040$$

$$\Rightarrow x = 6{,}400$$

$$\text{Cost price for shopkeeper} = 70\% \text{ of } 6{,}400$$
$$= \frac{70}{100} \times 6{,}400$$
$$= 4{,}480$$

Expense on transportation = Rs.40

Actual cost price = Rs. 4,480 + Rs. 40 = Rs. 4,520

Profit taken by shopkeeper = Rs. 6,400 − Rs. 4,520 = Rs. 1,880

$$\text{Profit\%} = \frac{profit}{cost\ price} \times 100\%$$
$$= \frac{1{,}880}{4{,}520} \times 100\%$$
$$= 41.59$$
$$= 42 \text{ (nearest integer)}$$

Shopkeeper's makes a profit of 42%

Question 4:

Mrs. Sheela bought a washing machine marked at Rs. 9,375. The rate of sales tax is 6%. She asks the shopkeeper to reduce the price of the washing machine to such an extent that she has to pay Rs. 9,275 inclusive of sales tax. Find the reduction needed in the price of the washing machine.

Solution 4:

Selling price inclusive of sales tax = Rs. 9,275
Rate of sales tax = 6%
Let reduced price be Rs. x
x + 6% of x = 9,275
$\Longrightarrow \frac{106x}{100} = 9{,}275$
$\Longrightarrow x = 8{,}750$
Price reduction needed in the marked price
$=$ Rs. $9{,}375 -$ Rs. $8{,}750 =$ Rs. 625

Question 5:

The catalogue price of a colour T.V. is Rs. 18,000. The shopkeeper sells it to a customer at a discount of 20% on the catalogue price. He gives a further off season discount of 10% on the balance. But sales tax at 10% is charges on the remaining amount find:
(i) the sales tax amount, the customer has to pay.
(ii) the final price he has to pay for the colour T.V.

Solution 5:

Catalogue price of T.V.= Rs. 18,000
Selling price for the shopkeeper
Two discount = 20% and 10%

$$= 18{,}000 \times \left(1 - \frac{20}{100}\right)\left(1 - \frac{10}{100}\right)$$
$$= 18{,}000 \times \frac{80}{100} \times \frac{90}{100}$$
$$= 12{,}960$$

Rate of sales tax = 10%
Sales tax paid by customer = 10% of 12,960
$= \frac{10}{100} \times 12{,}960$
The sales tax amount the customer has to pay is Rs. 1,296.
Final price paid by customer = Rs. 12,960 + Rs. 1,296
= Rs. 14,256
The final price he has to pay for the Rs. 14,256

Question 6:

A shopkeeper buys an article for Rs. 7,500 and increases its price. He sells this article for Rs. 9,156 including 9% sales tax on the increased price. Calculate by how much per cent the shopkeeper increases the price of the article.

Solution 6:

Cost price = Rs. 7,500

Let the marked price by the shopkeeper be = Rs. x

Rate of sales tax = 9%

Sale price inclusive of sales tax = Rs. 9,156

∴ x + 9 % of x = 9,156

$\Longrightarrow \frac{109x}{100} = 9{,}156$

$\Longrightarrow x = 8{,}400$

Price increased by shopkeeper = Rs. 8,400 – Rs. 7,500 = Rs. 900

Increase % = $\frac{increase}{cost\ price} \times 100$

$= \frac{900}{7{,}500} \times 100$

$= 12$

The shopkeeper increases the price of the article by 12%.

Question 7:

An article is marked at Rs. 500. The wholesaler sells it to a retailer at 20% discount and charges sales tax on the remaining price at 12.5%. The retailer in turn sells the article to a customer at its marked price and charges sales tax at the same rate calculate:

(i) the price paid by the customer

(ii) the amount of VAT paid by the retailer

Solution 7:

Marked price of an article = Rs. 500

Discount given by the wholesaler = 20%

Sale price for the wholesaler = 500 – 20% of 500

$= 500 - 20\ 100 \times 500$

= 500 – 100

= 400 Sales tax charged by the wholesaler = 12.5% of 400

$= \frac{12.5}{100} \times 400$

= 50

Sales tax paid by the retailer = Rs. 50

Sale price for the retailer = Rs. 500

Sales tax charged by the retailer = 12.5% of 500 $= \frac{12.5}{100} \times 500$

$= 62.50$

Price paid by the customer = Rs. 500 + Rs. 62.50 = Rs. 562.50

VAT paid by the retailer = Rs. 62.50 − Rs. 50 = Rs. 12.50

Question 8:

An article is marked at Rs. 4,500 and the rate of sales tax on it is 6%. A trader buys this article at some discount and sells it to a customer at the marked price. If the trader pays rs. 81 as VAT; find:

(i) how much per cent discount does the trader get?

(ii) the total money paid by the trader, including tax, to buy the article.

Solution 8:

Selling price for the trader = Rs. 4,500

Sales tax charged by trader = 6% of 4,500

$$= \frac{6}{100} \times 4{,}500$$

$$= 270$$

VAT paid by trader = Rs. 81

$\therefore$ VAT paid by trader = tax charged – tax paid

$\Longrightarrow 81 = 270 - \text{tax paid}$

$\Longrightarrow \text{Tax paid} = 270 - 81 = 189$

Let purchase price for trader = Rs. x

$\therefore$ 6% of x = 189

$\Longrightarrow x = 3{,}150$

Discount in price = Rs. 4,500 – Rs. 3,150 = Rs. 1350

$$\text{Discount\%} = \frac{discount}{marked\ price} \times 100$$

$$= \frac{1{,}350}{4{,}500} \times 100$$

$$= 30$$

The trader get 30% article.

Money paid by the trader = Rs. 3,150 + Rs.189 = Rs. 3,339.

Question 9:

A retailer sells an article for Rs. 5350 including 7% sales tax on the listed price. If he had bought it at a discount and has made a profit of 25% on the whole, find the rate of discount he gets.

Solution 9:

Selling price for the retailer inclusive of sales tax = Rs. 5,350

Rate of sales tax = 7%

Let sale price (list price) for the retailer be Rs. x

$\therefore$ x + 7% of x = 5,350

$$\Longrightarrow \frac{107x}{100} = 5{,}350$$

$\Longrightarrow x = 5{,}000$

Let purchase price for retailer = Rs. a

Profit % = 25%

$\therefore a + 25\%\ of\ a = 5{,}000$

$\Longrightarrow a + \frac{125a}{100} = 5{,}000$

$\Longrightarrow a = 4{,}000$

Discount = Rs. 5,000 – Rs. 4000 = Rs. 1,000

$Dicount\% = \frac{discount}{marked\ price} \times 100$

$= \frac{1{,}000}{5{,}000} \times 100$

$= 20$

The retailer gets a discount of 20%

Question 10:

The printed price of an article is Rs. 9,600. A shopkeeper buys it at a discount of 20% ans sells it at the printed price. Find the amount of VAT paid by the shopkeeper, if the rate of sales Tax is 10%.

Also, find the profit made by the shopkeeper, if he spends Rs. 120 on the transportation of the article.

Solution 10:

Printed price of an article = Rs. 9,600

Discount % = 20%

Sale price of article = 9,600 − 20% of 9,600

= 9,600 – 1,920

= 7,680

Expense on transportation = Rs. 120

Cost price for the shopkeeper = Rs. 7,680 + Rs. 120 = Rs. 7,800

Rate of sales tax =10%

Tax charged paid by the shopkeeper = 10% of 7,680

$= \frac{10}{100} \times 7{,}680$

= 768

Total money paid by the shopkeeper = Rs. 7,800 + Rs. 768

= Rs. 8,568

Selling price for the shopkeeper = Rs. 9,600

Tax charged by the shopkeeper = 10% of Rs. 9,600 = Rs. 960

VAT paid by the shopkeeper = Rs. 960 − Rs. 768 = Rs. 192

Profit made by the shopkeeper = Rs. 9,600 − Rs. 7,800 = Rs. 1,800

Question 11:

A shopkeeper buys a camera at a discount of 20% from the wholesaler. The printed price of the camera being Rs. 1,600 and the rate of sales tax is 6%, The shopkeeper sells it to the buyer at the printed price and charges tax at the same rate fin:

(i) the price at which the camera can be bought from the shopkeeper

(ii) the VAT (value added tax) paid by the shopkeeper

Solution 11:

Printed price of camera = Rs. 1,600
Discount% = 20%
Print price by wholesaler = 1,600 – 20 % of 1,600

$$= 1{,}600 - \frac{20}{100} \times 1{,}600$$
$$= 1{,}600 - 320$$
$$= 1{,}280$$

Tax charged by the wholesaler = 6% of 1,280

$$= \frac{6}{100} \times 1{,}280$$
$$= 76.80$$

Purchase price for the shopkeeper
= Rs. 1,280 + Rs. 76.80 = Rs. 1,356.80
Selling price for the shopkeeper = Rs. 1,600
Tax charged by the shopkeeper = 6% of 1,600

$$= \frac{6}{100} \times 1{,}600$$

Purchase price for a customer = Rs. 1,600 + Rs. 96
= Rs. 1,696
The price at which the camera can be bought from the shopkeeper is Rs. 1,696.
VAT paid by the shopkeeper = Tax charged - Tax paid
= Rs. 96 – Rs. 76.80= Rs. 19.20
The VAT (Value Added Tax) paid by the shopkeeper is Rs. 19.20.

Question 12:

Tarun bought an article for Rs. 8,000 and spent Rs. 1,000 for transportation. He marked the article at Rs. 11, 700 and sold it to a customer. If the customer had to pay 10% sales tax, Find:
(i) the customer's price
(ii) tarun's profit percent

Solution 12:

Purchase price for = Rs. 8,000
Expense on transportation = Rs. 1,000
Cost price for Tarun = Rs. 8,000 + Rs. 1,000 = Rs. 9,000
Marked price by Tarun = Rs. 11,700
Sales tax charged by tarun = 10% of 11,700

$$= \frac{10}{100} \times 11{,}700$$
$$= 1{,}170$$

The customer's price = Rs. 11,700 + Rs. 1,170 = Rs. 12,870
Profit made by Tarun = Rs. 11,700 - Rs. 9,000 = Rs. 2,700

$$\text{Profit \%} = \frac{profit}{cost\ price} \times 100$$
$$= \frac{2{,}700}{9{,}000} \times 100$$

Tarun's profit is 30%