

# Value Added Tax

## 1.1 Introduction :

The government of every state and the government at centre need money :

- (i) to meet their administrative expenses,
- (ii) to execute their welfare and development schemes,
- (iii) to meet the expenses on salaries of their employees, *etc.*

In order to collect money (revenue), different state governments levy tax on the sale of goods within their respective territories. This tax is known as **Sales Tax** or **Trade Tax**. For the movement of goods from one state to another, the Union Government also levies Sales Tax, known as **Central Sales Tax** (C.S.T).

## 1.2 Some Important Terms :

1. **Cost (basic) Price (C.P.)** : It is the price at which a trader buys goods. The **cost price** is also termed **basic price**.
2. **Selling Price (S.P.)** : It is the price at which a trader sells his goods (without including any tax). **Selling-price** is also called **sale-price**.
3. **Profit or Loss** : (i) Profit = S.P. - C.P. and Loss = C.P. - S.P.  
(ii) Profit% =  $\frac{\text{Profit}}{\text{C.P.}} \times 100\%$  and Loss% =  $\frac{\text{Loss}}{\text{C.P.}} \times 100\%$
4. **List Price** : It is the price at which the article is marked. List price is also known as **marked price (M.P.)**, **printed price**, **quoted price**, *etc.*
5. **Discount** : In order to sell out the old stock or for some other reason(s), shopkeepers give certain percentage of the list price as discount. This discount is always calculated on list price / marked price.

When an article is sold without any discount, its sale-price = its M.P.

## 1.3 Computation of Sales Tax :

The calculation of Sales Tax is very easy as it involves very simple concepts of percentage.

The rates of Sales Tax depend upon the nature of goods purchased and are different for different goods (items). Different states have different rates of Sales Tax even on the same items (goods). Some items of necessity and / or of daily use for common people are completely or partially exempted from Sales Tax.

1. Sales Tax is calculated on the Sale Price.

$$2. \text{ Sales Tax} = \frac{\text{Rate of Sales Tax} \times \text{Sale Price}}{100}$$

$$3. \text{ Rate of Sales Tax} = \frac{\text{Sales Tax}}{\text{Sale Price}} \times 100\%$$

If the rate of Sales-Tax is  $x\%$ ,  
then price paid for the item

$$= \text{Its sale-price} \times \left( \frac{100+x}{100} \right)$$

The amount of money paid by a customer for an article

= The Sale Price of the article + Sales Tax on it, if any.

- 1** Rohit purchased a pair of shoes costing ₹ 850. Calculate the total amount to be paid by him, if the rate of Sales Tax is 6%.

**Solution :**

Sale price of shoes = ₹ 850

and, Sales Tax = 6% of ₹ 850 = ₹ 51

∴ **Total amount to be paid by Rohit**

$$= ₹ 850 + ₹ 51 = ₹ 901 \quad \text{Ans.}$$

**Direct method :**

**Amount paid by Rohit**

$$= ₹ 850 \left( \frac{100+6}{100} \right)$$

$$= ₹ 901 \quad \text{Ans.}$$

- 2** Mr. Gupta purchased an article for ₹ 702 including Sales Tax. If the rate of Sales Tax is 8%, find the sale price of the article.

**Solution :**

Let the sale price of the article be ₹  $x$

$$\therefore x + 8\% \text{ of } x = ₹ 702$$

$$\Rightarrow x = ₹ 702 \times \frac{100}{108}$$
$$= ₹ 650$$

∴ **Sale price of the article = ₹ 650 Ans.**

**Direct method :**

$$₹ 702 = \text{Sale-price} \left( \frac{100+8}{100} \right)$$

$$\Rightarrow ₹ 702 \times \frac{100}{108} = \text{Sale-price}$$

$$\Rightarrow \text{Sale-price} = ₹ 650 \quad \text{Ans.}$$

- 3** Geeta purchased a face-cream for ₹ 79.10 including Sales Tax. If the printed price of the face-cream is ₹ 70; find the rate of Sales Tax.

**Solution :**

Total price (including Sales Tax) = ₹ 79.10 and, printed price = ₹ 70

$$\therefore \text{Sales Tax paid} = ₹ 79.10 - ₹ 70 = ₹ 9.10$$

$$\text{and, the rate of Sales Tax} = \frac{9.10}{70} \times 100\% = 13\%$$

**Ans.**

- 4** Mrs. Sharma purchased confectionery goods costing ₹ 165 on which the rate of Sales Tax is 6% and some tooth-paste, shaving-cream, soap, etc., costing ₹ 230 on which the rate of Sales Tax is 10%. If she gives a five-hundred rupee note to the shopkeeper, what money will he return to Mrs. Sharma ?

**Solution :**

Price of confectionery goods including Sales Tax

$$= ₹ 165 + 6\% \text{ of } ₹ 165 = ₹ 174.90$$

Price of tooth-paste, shaving-cream, soap, etc. including Sales Tax

$$= ₹ 230 + 10\% \text{ of } ₹ 230 = ₹ 253$$

∴ Total amount to be paid by Mrs. Sharma

$$= ₹ 174.90 + ₹ 253 = ₹ 427.90$$

Since Mrs. Sharma gave a five-hundred rupee note to the shopkeeper, **the money that the shopkeeper will return to Mrs. Sharma**

$$= ₹ 500 - ₹ 427.90 = ₹ 72.10 \quad \text{Ans.}$$

### 1.4 Problems Involving Overhead Charges and Discounts :

- 5** A trader from Meerut buys an article for ₹ 3,600 (inclusive of all taxes) from Kanpur. He spends ₹ 1,200 on travelling, transportation of the article, etc. If he desires a profit of 15 percent, how much will a customer pay for the article ? The rate of Sales Tax paid by the customer is 8%.

**Solution :**

**For the trader :**

$$\text{Price paid for the article} = ₹ 3,600$$

$$\text{Overheads} = ₹ 1,200$$

$$\therefore \text{Cost price of the article} = ₹ 3,600 + ₹ 1,200 = ₹ 4,800$$

$$\text{And, sale-price} = \left( \frac{100+15}{100} \right) \text{ of } ₹ 4,800 \quad [\text{As, profit desired} = 15\%]$$

$$= \frac{115}{100} \times ₹ 4,800 = ₹ 5,520$$

∴ **Money paid by the customer**

$$= \text{Sale-price of the article} + \text{Sales Tax on it}$$

$$= ₹ 5,520 + 8\% \text{ of } ₹ 5,520 = ₹ 5,961.60 \quad \text{Ans.}$$

- 6** A shopkeeper buys an article for ₹ 1,500 and spends 20% of the cost on its packing, transportation, etc. Then he marks the article at a certain price. If he sells the article for ₹ 2,452.50 including 9% Sales Tax on the price marked, find his profit as percent.

**Solution :**

Let marked price of the article be ₹  $x$

$$\therefore ₹ x + ₹ \frac{9x}{100} = ₹ 2,452.50 \quad [\because \text{Sales-tax} = 9\%]$$

On solving, we get :  $x = 2,250$

$$\therefore \text{Marked price of the article} = ₹ 2,250 = \text{Its selling price}$$

Since, the shopkeeper buys the article for ₹ 1,500 and spends 20% of the cost as overheads,

$$\begin{aligned}\therefore \text{Total cost price of the article} &= ₹ 1,500 + 20\% \text{ of } ₹ 1,500 \\ &= ₹ 1,500 + ₹ 300 = ₹ 1,800\end{aligned}$$

$$\begin{aligned}\text{Profit} &= \text{Selling price} - \text{Total cost price} \\ &= ₹ 2,250 - ₹ 1,800 = ₹ 450\end{aligned}$$

$$\text{Profit \%} = \frac{₹ 450}{₹ 1800} \times 100\% = 25\%$$

Ans.

**7** The catalogue price of a computer set is ₹ 45,000. The shopkeeper gives a discount of 7% on the listed price. He gives a further off-season discount of 4% on the balance. However, Sales Tax at 8% is charged on the remaining amount. Find :

- (i) the amount of Sales Tax a customer has to pay,
- (ii) the final price he has to pay for the computer set.

[2005]

**Solution :**

Since, the list price = ₹ 45,000

Discount = 7% of ₹ 45,000 = ₹ 3,150

$$\begin{aligned}\Rightarrow \text{Price after discount} &= \text{List price} - \text{Discount} \\ &= ₹ 45,000 - ₹ 3,150 = ₹ 41,850\end{aligned}$$

Off-season discount = 4% of ₹ 41,850 = ₹ 1,674

$$\therefore \text{Sale-price} = ₹ 41,850 - ₹ 1,674 = ₹ 40,176$$

(i) **The amount of Sales Tax a customer has to pay**

$$= 8\% \text{ of } ₹ 40,176 = ₹ 3,214.08$$

Ans.

(ii) **The final price, the customer has to pay for the computer**

$$\begin{aligned}&= \text{Sale-price} + \text{Sales Tax} \\ &= ₹ 40,176 + ₹ 3,214.08 \\ &= ₹ 43,390.08\end{aligned}$$

Ans.

**8** Dinesh bought an article for ₹ 374, which included a discount of 15% on the marked price and a sales-tax of 10% on the reduced price. Find the marked price of the article. [2007]

**Solution :**

Let the marked price be ₹ 100

$$\therefore \text{Discount} = 15\% \text{ of } ₹ 100 = ₹ 15$$

$$\Rightarrow \text{Sale-price} = ₹ 100 - ₹ 15 = ₹ 85$$

$$\text{Sales-tax} = 10\% \text{ of } ₹ 85 = ₹ 8.50$$

$$\therefore \text{Price paid by Dinesh for the article} = ₹ 85 + ₹ 8.50 = ₹ 93.50$$

$$\text{When Dinesh paid} = ₹ 93.50, \quad \text{M.P.} = ₹ 100$$

$$\Rightarrow \text{When Dinesh paid} = ₹ 1, \quad \text{M.P.} = ₹ \frac{100}{93.50}$$

$$\Rightarrow \text{When Dinesh paid} = ₹ 374, \quad \text{M.P.} = ₹ \frac{100}{93.50} \times 374 = ₹ 400 \quad \text{Ans.}$$

**Alternative method :**

Let the marked price of the article be ₹  $x$

$$\therefore \text{Discount} = 15\% \text{ of } ₹ x = ₹ \frac{15}{100} \times x = ₹ \frac{3x}{20}$$

$$\Rightarrow \text{Sale-price} = ₹ x - ₹ \frac{3x}{20} = ₹ \frac{17x}{20}$$

$$\therefore \text{Price paid by Dinesh} = \left( \frac{100+10}{100} \right) \times ₹ \frac{17x}{20} = ₹ \frac{187x}{200} \quad [\because \text{Sales-tax} = 10\%]$$

$$\text{Given :} \quad \frac{187x}{200} = 374 \quad \Rightarrow x = 374 \times \frac{200}{187} = 400$$

$$\therefore \text{Marked price} = ₹ 400 \quad \text{Ans.}$$

**Direct method :**

Since, discount = 15% and sales-tax = 10%

$$\text{Price-paid} = \text{Marked price} \times \left( \frac{100-15}{100} \right) \times \left( \frac{100+10}{100} \right)$$

$$\Rightarrow ₹ 374 = \text{M.P.} \times \frac{85}{100} \times \frac{110}{100}$$

$$\Rightarrow \text{M.P.} = ₹ 374 \times \frac{100}{85} \times \frac{100}{110} = ₹ 400 \quad \text{Ans.}$$

### EXERCISE 1(A)

1. Rajat purchases a wrist-watch costing ₹ 540. The rate of Sales Tax is 8%. Find the total amount paid by Rajat for the watch.
2. Ramesh paid ₹ 345.60 as Sales Tax on a purchase of ₹ 3,840. Find the rate of Sales Tax.
3. The price of a washing machine, inclusive of Sales Tax, is ₹ 13,530/-. If the Sales Tax is 10%, find its basic (cost) price. [2003]
4. Sarita purchases biscuits costing ₹ 158 on which the rate of Sales Tax is 6%. She also purchases some cosmetic goods costing ₹ 354 on which the rate of Sales Tax is 9%. Find the total amount to be paid by Sarita.
5. The marked price of two articles A and B together is ₹ 6,000. The sales tax on article A is 8% and that on article B is 10%. If on selling both the articles, the total sales tax collected is ₹ 552, find the marked price of each of the articles A and B.
6. The price of a T.V. set inclusive of Sales Tax of 9% is ₹ 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. ? [2002]
7. The price of an article is ₹ 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% ?

8. A bicycle is available for ₹, 1,664 including Sales Tax. If the list price of the bicycle is ₹ 1,600, find :
- the rate of Sales Tax.
  - the price, a customer will pay for the bicycle if the Sales Tax is increased by 6%.
9. When the rate of sale-tax is decreased from 9% to 6% for a coloured T.V.; Mrs Geeta will save ₹ 780 in buying this T.V. Find the list price of the T.V.
10. A trader buys an unfinished article for ₹ 1,800 and spends ₹ 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 the article including 12% sales tax ?
11. A shopkeeper buys an article for ₹ 800 and spends ₹ 100 on its transportation, etc. He marks the article at a certain price and then sells it for ₹ 1,287 including 10% sales tax. Find this profit as percent.
12. A shopkeeper announces a discount of 15% on his goods. If the marked price of an article, in his shop, is ₹ 6,000; how much a customer has to pay for it, if the rate of Sales Tax is 10% ?
13. The catalogue price of a music system is ₹ 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 :
- the Sales Tax a customer has to pay.
  - the final price he has to pay for the music system.
- [2001]

## 1.5 Value - Added Tax (VAT) :

VAT (value added tax) is a new method of realising tax on the sale / purchase of goods. In the earlier form of Sales Tax, the tax used to be realised at single point only. The manufacturer or wholesaler or retailer was liable to pay Sales Tax to the government. But in the VAT system, the tax is realised by the government at every point right from the manufacturer to the retailer.

- Unlike sales tax, VAT is also collected by the state governments.
- It is not in addition to the existing Sales Tax, but is the replacement of Sales Tax. Presently, a majority of state governments have accepted the VAT system.
- It is a tax on the value added at each transfer of goods, from the original manufacturer to the retailer.

Assuming that the rate of tax is 10% and a trader purchases an article for ₹ 800, the tax he pays = 10% of ₹ 800 = ₹ 80

Now, if he sells the same article for ₹ 1,150

the tax he recovers (gets) = 10% of ₹ 1,150 = ₹ 115

$$\begin{aligned} \therefore \text{VAT} &= \text{Tax recovered on the sale} - \text{Tax paid on the purchase} \\ &= ₹ 115 - ₹ 80 = ₹ 35 \end{aligned}$$

- The difference of tax recovered on the sale value and paid on the purchase value is deposited with the government as VAT.

To make the concept more clear, please see the following table carefully (assuming the rate of tax to be 10% and the cost of material of an article to be ₹ 600 for the manufacturer) :

	In case of Sales-Tax	In case of VAT
<b>For manufacturer :</b> Purchase price = ₹ 600  Sale price = ₹ 1,000	Tax paid = Nil  Tax charged = Nil	<b>Tax paid</b> = 10% of ₹ 600 = ₹ 60 <b>Tax charged</b> = 10% of ₹ 1,000 = ₹ 100 ∴ <b>VAT</b> = ₹(100 – 60) = ₹ 40
<b>For 1st dealer :</b> Purchase Price = ₹ 1,000 Sale price = ₹ 1,200	Tax paid = Nil Tax charged = Nil	Tax paid = ₹ 100 Tax charged = 10% of ₹ 1,200 = ₹ 120 ∴ <b>VAT</b> = ₹(120 – 100) = ₹ 20
<b>For 2nd dealer :</b> Purchase price = ₹ 1,200 Sale price = ₹ 1,450	Tax paid = Nil Tax charged = Nil	Tax paid = ₹ 120 Tax charged = 10% of ₹ 1,450 = ₹ 145 ∴ <b>VAT</b> = ₹(145 – 120) = ₹ 25
<b>For retailer :</b> Purchase price = ₹ 1,450 Sale price = ₹ 1,680	Tax paid = Nil Tax charged = 10% of 1,680 = ₹ 168 Tax deposited to State Govt. = ₹ 168	Tax paid = ₹ 145 Tax charged = 10% of ₹ 1,680 = ₹ 168 ∴ <b>VAT</b> = ₹(168 – 145) = ₹ 23

**Important :** According to the old procedure, the sales tax is charged only by the retailer and the sales tax charged by the retailer in the above case = 10% of ₹ 1680 = ₹ 168. Under VAT system, the sum of the taxes charged and deposited with the government = ₹ (60 + 40 + 20 + 25 + 23) = ₹ 168.

⇒ VAT = ₹ 168, which is just equal to the Sales Tax.

Thus, total VAT charged and paid at different stages is the tax on the price paid by the customer.

From the table given above, you will notice that under VAT system,

VAT = Tax on value added at each transfer.

(i) In the case of 1st dealer, the value added = ₹ (1,200 – 1,000) = ₹ 200

∴ **VAT paid by 1st dealer** = 10% of ₹ 200  
= ₹ 20

(ii) In the case of 2nd dealer, the value added = ₹ (1,450 – 1,200) = ₹ 250

∴ **VAT paid by 2nd dealer** = 10% of ₹ 250  
= ₹ 25 and so on.

- 9** A shopkeeper buys an article from the wholesaler at a discount of 30% (the printed price of the article being ₹ 2,000) and paid sales-tax at the rate of 8%. The shopkeeper sells the article to a buyer at the printed price and charges tax at the same rate. Find the VAT (Value Added Tax) paid by the shopkeeper.

**Solution :**

Given : Printed price of the article = ₹ 2,000

and, discount = 30% of ₹ 2,000

$$= \frac{30}{100} \times ₹ 2,000 = ₹ 600$$

∴ Sale price for the wholesaler = ₹ (2,000 – 600) = ₹ 1,400

Sales-tax paid by the shopkeeper = 8% of ₹ 1,400

$$= \frac{8}{100} \times ₹ 1,400 = ₹ 112$$

∴ The shopkeeper sells the article for ₹ 2,000

∴ Tax charged by the shopkeeper = 8% of ₹ 2,000

$$= \frac{8}{100} \times ₹ 2,000 = ₹ 160$$

∴ **VAT paid by the shopkeeper** = Tax charged – Tax paid

$$= ₹ 160 - ₹ 112 = ₹ 48$$

**Ans.**

**Alternative method :**

**For the shopkeeper :**

C.P. of the article = ₹ 2,000 – 30% of ₹ 2,000 = ₹ 1,400

S.P. of the article = ₹ 2,000

**VAT** = Tax charged – Tax paid

= Tax on S.P. – Tax on C.P.

= 8% of ₹ 2,000 – 8% of ₹ 1,400

= ₹ 160 – ₹ 112 = ₹ 48

**Ans.**

**Third method :**

Since, VAT = Tax on value added

and value added by the shopkeeper

$$= \text{S.P.} - \text{C.P.} = ₹ 2,000 - ₹ 1,400 = ₹ 600$$

∴ **VAT** = Tax on ₹ 600

$$= 8\% \text{ of } ₹ 600 = ₹ 48$$

**Ans.**

**10** A shopkeeper sells an article at its marked price (₹ 7,500) and charges sales-tax at the rate of 12% from the customer. If the shopkeeper pays a VAT of ₹ 180; calculate the price (inclusive of tax) paid by the shopkeeper.

**Solution :**

Since, the shopkeeper sells the article for ₹ 7,500 and charges sales-tax at the rate of 12%.

∴ Tax charged by the shopkeeper = 12% of ₹ 7,500

$$= \frac{12}{100} \times ₹ 7,500 = ₹ 900$$

∴ VAT = Tax charged – Tax paid

$$\Rightarrow ₹ 180 = ₹ 900 - \text{Tax paid}$$

$$\Rightarrow \text{Tax paid by the shopkeeper} = ₹ 900 - ₹ 180 = ₹ 720$$

If the shopkeeper buys the article for ₹  $x$

$$\text{Tax on it} = 12\% \text{ of } ₹ x = ₹ 720 \Rightarrow x = ₹ 6,000$$

$$\begin{aligned} \therefore \text{The price (inclusive of tax) paid by the shopkeeper} \\ = ₹ 6,000 + ₹ 720 = ₹ 6,720 \end{aligned}$$

Ans.

*Alternatively :*

$$\begin{aligned} \text{The price (inclusive of tax) paid by the shopkeeper} \\ = ₹ 6,000 + 12\% \text{ of } ₹ 6,000 \\ = ₹ 6,000 + ₹ 720 = ₹ 6,720 \end{aligned}$$

Ans.

- 11** Shyam buys an article for ₹ 10,000 and pays 7% tax. He sells the same article for ₹ 13,000 and charges 9% tax. Find the VAT paid by Shyam.

*Solution :*

$$\text{Cost price of the article} = ₹ 10,000$$

$$\begin{aligned} \text{Tax paid by Shyam} &= 7\% \text{ of } ₹ 10,000 \\ &= \frac{7}{100} \times ₹ 10,000 = ₹ 700 \end{aligned}$$

$$\text{Selling price of the article} = ₹ 13,000$$

$$\begin{aligned} \text{Tax charged at } 9\% &= 9\% \text{ of } ₹ 13,000 \\ &= \frac{9}{100} \times ₹ 13,000 = ₹ 1,170 \end{aligned}$$

$$\begin{aligned} \therefore \text{VAT} &= \text{Tax recovered on sale} - \text{Tax paid on purchase} \\ &= ₹ 1,170 - ₹ 700 = ₹ 470 \end{aligned}$$

Ans.

- 12** A manufacturer sells a washing machine to a wholesaler for ₹ 15,000. The wholesaler sells it to a trader at a profit of ₹ 1,200 and the trader, in turn, sells it to a consumer at a profit of ₹ 1,800. If the rate of VAT is 8% find :
- (i) the amount of VAT received by the State Government on the sale of this machine from the manufacturer and the wholesaler.
- (ii) the amount that the consumer pays for the machine. [2011]

*Solution :*

$$\begin{aligned} \text{(i) On selling machine for } ₹ 15,000; \text{ the tax received by the manufacture} \\ = 8\% \text{ of } ₹ 15,000 \\ = \frac{8}{100} \times ₹ 15,000 = ₹ 1,200 \end{aligned}$$

$$\therefore \text{VAT received from the manufacturer} = ₹ 1,200$$

Ans.

$$\text{For wholesaler, C.P.} = ₹ 15,000 \text{ and}$$

$$\text{S.P.} = ₹ 15,000 + ₹ 1,200 = ₹ 16,200$$

$$\text{and, tax charged} = 8\% \text{ of } ₹ 16,200 = ₹ 1,296$$

∴ **VAT received from wholesaler**

$$\begin{aligned} &= \text{Tax charged} - \text{Tax paid} \\ &= ₹ 1,296 - ₹ 1,200 = ₹ 96 \end{aligned}$$

**Ans.**

**Direct method :**

Since, value added by the wholesaler = his profit = ₹ 1,200.

$$\therefore \text{VAT} = 8\% \text{ of } ₹ 1,200 = ₹ 96$$

**Ans.**

(ii) **For the trader :**

$$\begin{aligned} \text{Total sale-price} &= ₹ 15,000 + ₹ 1,200 + ₹ 1,800 \\ &= ₹ 18,000 \end{aligned}$$

$$\therefore \text{Tax charged} = 8\% \text{ of } ₹ 18,000 = ₹ 1,440$$

∴ **The amount paid by the customer**

$$= ₹ 18,000 + ₹ 1,440 = ₹ 19,440$$

**Ans.**

**13** During a financial year, a shopkeeper purchased goods worth ₹ 4,15,000 and paid a total tax of ₹ 38,000. During the same financial year, he sold all the goods purchased as below :

- (i) goods worth ₹ 50,000 at 5% tax,
- (ii) goods worth ₹ 3,20,000 at 12% tax and
- (iii) goods worth ₹ 45,000 which are exempted from tax.

Calculate the tax liability (under VAT) for the financial year under consideration.

**Solution :**

$$\therefore \text{Turnover of goods taxable at } 5\% = ₹ 50,000$$

$$\begin{aligned} \therefore \text{Tax charged} &= 5\% \text{ of } ₹ 50,000 \\ &= \frac{5}{100} \times ₹ 50,000 = ₹ 2,500 \end{aligned}$$

$$\therefore \text{Turnover of goods taxable at } 12\% = ₹ 3,20,000$$

$$\begin{aligned} \therefore \text{Tax charged} &= 12\% \text{ of } ₹ 3,20,000 \\ &= \frac{12}{100} \times ₹ 3,20,000 = ₹ 38,400 \end{aligned}$$

$$\text{*Tax exempted sale} = ₹ 45,000$$

$$\text{Total tax charged} = ₹ 2,500 + ₹ 38,400 = ₹ 40,900$$

$$\text{Tax paid} = ₹ 38,000$$

$$\begin{aligned} \therefore \text{Tax liability (under VAT)} &= \text{Total tax charged} - \text{Tax paid} \\ &= ₹ 40,900 - ₹ 38,000 = ₹ 2,900 \end{aligned} \quad \text{Ans.}$$

\* [Tax exempted sale means the sale which is not liable for tax under VAT.]

**14** An article was bought by a distributor for ₹ 15,000 (excluding tax). He sold it to a trader for ₹ 20,000. The trader sold the article to a retailer for ₹ 22,000 (excluding tax). Find the VAT paid by the distributor and by the trader if the tax rate was 10 percent.

**Solution :**

(i) **For the distributor :**

Cost of the article = ₹ 15,000

Tax paid = 10% of ₹ 15,000

$$= ₹ \frac{10 \times 15,000}{100} = ₹ 1,500$$

Selling price of the article = ₹ 20,000

Tax charged = 10% of ₹ 20,000

$$= ₹ \frac{10 \times 20,000}{100} = ₹ 2,000$$

∴ **VAT paid by distributor** = Tax recovered on sale – Tax paid on purchase  
= ₹ 2,000 – ₹ 1,500 = ₹ 500 **Ans.**

$$\begin{aligned} \text{VAT paid by distributor} &= \text{Tax on (S.P. – C.P.)} \\ &= 10\% \text{ of } (₹ 20,000 - ₹ 15,000) \\ &= \frac{10}{100} \times ₹ 5,000 = ₹ 500 \end{aligned} \quad \text{Ans.}$$

(ii) **For the trader :**

Cost of the article = ₹ 20,000 [ $\because$  S.P. of distributor = C.P. of trader]

Tax paid = 10% of ₹ 20,000 = ₹ 2,000

Selling price of the article = ₹ 22,000

Tax charged = 10% of ₹ 22,000 = ₹  $\frac{10 \times 22,000}{100}$  = ₹ 2,200

∴ **VAT paid by the trader** = Tax recovered on sale – Tax paid on purchase  
= ₹ 2,200 – ₹ 2,000 = ₹ 200 **Ans.**

**Alternatively :**

∴ **VAT paid by the trader** = Tax on (S.P. – C.P.)  
= 10% of (₹ 22,000 – ₹ 20,000)  
=  $\frac{10}{100} \times ₹ 2,000 = ₹ 200$  **Ans.**

**15** A manufacturing company sold a commodity to its distributor for ₹ 22,000 including VAT. The distributor sold the commodity to a retailer for ₹ 22,000 excluding tax and the retailer sold it to a consumer for ₹ 25,000 plus tax under VAT. If the rate of tax at each stage is 10%, what was the :

- (i) sale price of the commodity for the manufacturer ?
- (ii) the amount of VAT paid by the retailer ?

**Solution :**

(i) Let the sale price of the commodity for the manufacturer be ₹  $x$ .

$$\therefore x + \frac{10x}{100} = 22,000 \quad [\because \text{Tax} = 10\%]$$

On solving, we get :  $x = 20,000$

∴ **The sale price of the commodity for the manufacturer**

$$= ₹ 20,000$$

**Ans.**

(ii) **For the retailer :**

$$\text{C.P.} = \text{S.P. for distributor} = ₹ 22,000$$

and,  $\text{S.P.} = ₹ 25,000$

∴ **VAT** = Tax on (S.P. – C.P.)

$$= \frac{10}{100} \times ₹ (25,000 - 22,000)$$

$$= ₹ 300$$

**Ans.**

**16** The printed price of an article is ₹ 60,000. The wholesaler allows a discount of 20% to the shopkeeper. The shopkeeper sells the article to the customer at the printed price. Sales tax (under VAT) is charged at the rate of 6% at every stage. Find :

- (i) the cost to the shopkeeper inclusive of tax.
- (ii) VAT paid by the shopkeeper to the Government.
- (iii) the cost to the customer inclusive of tax.

**[2012]**

**Solution :**

**For wholesaler :**

$$\text{Printed price} = ₹ 60,000$$

$$\text{Discount} = 20\% \text{ of } ₹ 60,000$$

$$= ₹ 12,000$$

∴  $\text{Sale-price} = ₹ 60,000 - ₹ 12,000$

$$= ₹ 48,000$$

$$\text{Sales-tax} = 6\% \text{ of } ₹ 48,000 = ₹ 2,880$$

∴  $\text{Price charged by wholesaler} = ₹ 48,000 + ₹ 2,880$

$$= ₹ 50,880$$

(i) **The cost to the shopkeeper inclusive of tax**

$$= ₹ 50,880$$

**Ans.**

(ii) **For shopkeeper :**

$$\text{Sale-price} = ₹ 60,000$$

$$\text{Tax charged} = 6\% \text{ of } ₹ 60,000 = ₹ 3,600$$

∴ **VAT paid** = Tax charged – Tax paid

$$= ₹ 3,600 - ₹ 2,880 = ₹ 720$$

**Ans.**

(iii) **For customer :**

$$\text{Cost inclusive of tax} = ₹ 60,000 + ₹ 3,600 = ₹ 63,600$$

**Ans.**

## EXERCISE 1(B)

[In this exercise, all the prices are excluding tax/VAT unless specified].

1. A shopkeeper purchases an article for ₹ 6,200 and sells it to a customer for ₹ 8,500. If the sales-tax (under VAT) is 8%; find the VAT paid by the shopkeeper.
2. A purchases an article for ₹ 3,600 and sells it to B for ₹ 4,800. B, in turn, sells the article to C for ₹ 5,500. If the sales-tax (under VAT) is 10%, find the VAT levied on A and B.
3. A manufacturer buys raw material for ₹ 60,000 and pays 4% tax. He sells the ready stock for ₹ 92,000 and charges 12.5% tax. Find the VAT paid by the manufacturer.
4. The cost of an article is ₹ 6,000 to a distributor. He sells it to a trader for ₹ 7,500 and the trader sells it to a customer for ₹ 8,000. If the VAT rate is 12.5%; find the VAT paid by the :  
(i) distributor (ii) trader.
5. The printed price of an article is ₹ 2,500. 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.
6. A retailer buys an article for ₹ 800 and pays the sales-tax at the rate of 8%. The retailer sells the same article to a customer for ₹ 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.
7. A shopkeeper buys 15 identical articles for ₹ 840 and pays sales-tax at the rate of 8%. He sells 6 of these articles at ₹ 65 each and charges sales-tax at the same rate. Calculate the VAT

paid by the shopkeeper against the sale of these six articles.

8. The marked price of an article is ₹ 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 = ₹ 4.80; find the money paid by him (including sales-tax) for purchasing this article.
9. A manufacturer marks an article at ₹ 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. [2010]
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 ₹ 2,500; find :  
(i) the price paid by the shopkeeper.  
(ii) the price paid by the customer.  
the VAT (Value Added Tax) paid by the shopkeeper.
11. A shopkeeper sells an article at its list price (₹ 3,000) and charges sales-tax at the rate of 12%. If the VAT paid by the shopkeeper is ₹ 72, at what price did the shopkeeper buy the article inclusive of sales-tax ?
12. A manufacturer marks an article for ₹ 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) retailer

## EXERCISE 1(C)

[In this exercise, all the prices are excluding tax/VAT unless specified].

1. Madan purchases a compact computer system for ₹ 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.

2. An article is marked at ₹ 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.
3. An article is marked at ₹ 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 ₹ 81 as VAT; find :
- (i) how much percent discount does the trader get ?
  - (ii) the total money paid by the trader, including tax, to buy the article.
4. A retailer sells an article for ₹ 5,350 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.
5. A shopkeeper buys a camera at a discount of 20% from the wholesaler, the printed price of the camera being ₹ 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. Find :
- (i) the price at which the camera can be bought from the shopkeeper.
  - (ii) the VAT (Value Added Tax) paid by the shopkeeper. **[2008]**
6. Tarun bought an article for ₹ 8,000 and spent ₹ 1,000 for transportation. He marked the article at ₹ 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 **[2010]**
7. A shopkeeper sells an article at the listed price of ₹ 1,500 and the rate of VAT is 12% at each stage of sale. If the shopkeeper pays a VAT of ₹ 36 to the Government, what was the price, inclusive of Tax, at which the shopkeeper purchased the article from the wholesaler ? **[2013]**
8. A shopkeeper bought a washing machine at a discount of 20% from a wholesaler, the printed price of the washing machine being ₹ 18,000. The shopkeeper sells it to a consumer at a discount of 10% on the printed price. If the rate of VAT (or sales tax) is 8%, find :
- (i) the VAT paid by the shopkeeper.
  - (ii) the total amount that the consumer pays for the washing machine. **[2014]**
9. Mohit, a dealer in electronic goods, buys a high class TV set for ₹ 61,200. He sells this TV set to Geeta, Geeta to Rohan and Rohan sells it to Manoj. If the profit at each stage is ₹ 2,000 and the rate of VAT at each stage is 12.5%, find :
- (i) total amount of tax (under VAT) paid to the Government.
  - (ii) Money paid by Manoj to buy the TV set.
10. A shopkeeper buys an article at a discount of 30% of the list price which is ₹ 48,000. In turn, the shopkeeper sells the article at 10% discount. If the rate of VAT is 10%, find the VAT to be paid by the shopkeeper.
11. A company sells an article to a dealer for ₹ 40,500 including VAT (sales-tax). The dealer sells it to some other dealer for ₹ 42,500 plus tax. The second dealer sells it to a customer at a profit of ₹ 3,000. If the rate of sales-tax under VAT is 8%, find :
- (i) the cost of the article (excluding tax) to the first dealer.
  - (ii) the total tax (under VAT) received by the Government.
  - (iii) the amount that a customer pays for the article.
12. A wholesaler buys a TV from the manufacturer for ₹ 25,000. He marks the price of the TV 20% above his cost price and sells it to a retailer at 10% discount on the marked price. If the rate of VAT is 8%, find the :
- (i) marked price.
  - (ii) retailer's cost price inclusive of tax.
  - (iii) VAT paid by the wholesaler. **[2015]**