## CHAPTER 9

## INVENTORY VALUATION - KNOW YOUR COSTSTO SELL AT A PROFIT!

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## 59 BOOKS OF ACCOUNTS - A QUICK RECAP

In Chapter 5, we have discussed the Books of Accounts which are normally used in Accounting of inventory items. Of these, only the Inventory Ledger will be used in this Chapter to explain valuation techniques. However, where required, we will also use other Books of Accounts if they are considered necessary to show the Accounting entries.

In this Chapter, we will discuss valuation techniques of all inventories irrespective of whether these inventories have been purchased or manufactured. What we will not discuss here is how Accounting is done during the manufacturing process.

## 60 WHAT IS INVENTORY?

Inventory (or stocks) is a commonly used term to refer to any of the following:

- Raw material.
- Work in process.
- Finished goods.

You will also remember from Chapter 5 that stocks are those items which are held for re-sale purposes by a Business, whether in existing form or shape, or changed after a manufacturing process.

Besides the different types of inventories (listed above), Businesses also have:

- Spares
- Stores
- Loose tools
- Consumables

These are items which are although not inventory but are used within the manufacturing process to facilitate production \& processing of inventory items. Businesses generally hold a large number of these items in their possession which also necessitates the need to have inventory records for these items as well.

The valuation techniques discussed in this Chapter can be equally applied to both types of inventories. However, for the purposes of this Chapter, we will restrict our discussions to raw material, work in process and finished goods, each of which are now briefly explained below:

### 60.1 RAW MATERIALS

Raw materials are those items which are used to manufacture a product such that the original form and shape of the raw material is changed i.e. can not be separately identified in the finished product. Typically, raw materials are used by a manufacturing
entity.

### 60.2 FINISHED GOODS (WHICH HAVE BEEN MANUFACTURED)

Finished goods refer to those inventory items which have been subjected to a manufacturing process and have been produced from one or more raw materials. In addition, various non-separable expenses have also been incurred in this process e.g. salaries \& wages.

The following picture captures the essence of a manufacturing process.


This process will be discussed in more detail in Chapter 10.

### 60.3 FINISHED GOODS (WHICH ARE PURCHASED FOR RE-SALE)

These are those inventory items which are not required to be subjected to any manufacturing process. The original form and shape is retained by these inventory items.

Typically, these are used by Retail, Wholesale and Distributor Businesses.

### 60.4 WORK IN PROCESS

A manufacturing process, depending on each product, will take some time from start to finish. In between this time, some raw materials will have been mixed and some expenses will also have been incurred. At any time between the start and end of the process, the status of the product is called work in process.

## 61 WHY HAVE DIFFERENT VALUATION TECHNIQUES?

By now, you will have understood the difference between Raw Material, Work in

Process and Finished Goods Purchased for Re-Sale compared to M anufactured Goods. You will now also have an understanding of why valuation of manufactured goods requires a separate discussion altogether. But, do bear in mind that the valuation concepts that we learn in this Chapter will also be applied in valuation of manufactured goods - in fact, we can safely say that the contents of this Chapter are the back bone for our subsequent discussions in Chapter 10 where we discuss costing of manufactured products.
In the remaining sections of this Chapter, when we refer to non-manufactured inventory, we will use the word "Inventory" to collectively refer to "raw material" as well as to "finished goods held for re-sale".
So, why have different valuation techniques? Some of the reasons are:

- Cost of inventory changes over time - inventory valuation enables Businesses to keep abreast of changes.
- There are various other costs associated with purchasing items - valuation techniques help Businesses to keep track of these costs.
- Where prices have changed over time, valuation techniques help Businesses to know the cost of sale and, therefore, the profitability.
- Raw material items do not necessarily get consumed in totality - where parts of an items are consumed from a bigger lot, these techniques help to determine the cost to be charged.
- Profitability of a Business has a strong correlation with inventory valuation.

Different valuation techniques are adopted so that Businesses can choose to value inventories in a manner which best suits their Business environment, and more importantly, a Business should continue with the same valuation technique in subsequent years - you will recall that we discussed the Consistency concept in Chapter 2 which, in the context of inventories, requires that if a valuation technique is adopted once, it should be consistently used in subsequent years, unless of course, that there are strong reasons to change.

## 62 WHAT IS COST OF INVENTORY?

Recording inventory at the correct cost is one of the major concerns for a Business. To help Businesses with this, Accounting rules have given guidance on what should be included within cost.

## What is Cost?

Cost of inventory includes all costs which have been incurred to bring the inventory to its present location, condition and intended use.

The following example summarizes some of the typical costs which will get included as part of inventory costs.

| 1 | Invoice price | Included |
| :--- | :--- | :--- |
| 2 | Transportation costs | Included |
| 3 | Insurance during shipment | Included |
| 4 | Import charges | Included |
| 5 | Financial cost \& bank charges | Included - if directly incurred to finance purchase |
| 6 | Sales tax, duties \& | Sometimes - Chapter 16 \& 17 will explain this |
|  | government levies |  |
| 7 | Unloading charges | Included |

The following example will further explain this:

## EXAM PLE \# 9.1

## Cost of Inventory

Hussain Khaddar received an order for Khaddar against which purchase of yarn was negotiated with a supplier costing Rs. 600,000 for 75 bags. A transporter was hired to bring yarn from Multan at a total cost of Rs. 5,000. Insurance was also arranged for the time that yarn was being brought to Lahore which cost an additional Rs. 7,500.

Based on this example, cost of yarn bags is:

| Cost of inventory |  |  |
| :--- | :--- | :--- |
|  |  | Rs. |
| Invoice Price | 600,000 |  |
| Insurance | 7,500 |  |
| Delivery Charges | 5,000 |  |
| Total Cost of Inventory |  | $\underline{612,500}$ |
| Bags purchased | Rs. | $\underline{\underline{75}}$ |
| Cost per bag |  |  |

## 63 HOW IS INVENTORY VALUED?

In this section, we will focus on basic valuation techniques that will enable Businesses to value inventory in an effective manner.

### 63.1 FIFO (FIRST IN FIRST OUT)

This method assumes that the inventory items which are purchased first get consumed or are sold first - and hence, the name "First In First Out". In other words, the oldest inventory is taken out first, which also means that the inventory left behind is stated at the most recent prices.

## EXAMPLE \#9.2

## FIFO

On 25/5/06 Hanif Auto Engineering bought 60 clutch plates @ Rs. 500 per plate. He sold 40 clutch plates to a local buyer on the same day @ Rs. 550 per plate. On 29/5/06, he bought 10 more clutch plates @ Rs. 510 per plate and sold 25 clutch plates on the same day @ Rs. 535 per plate. Hanif Auto Engineering uses FIFO method to value its inventory of spare parts.

Purchase of 60 clutch plates on 25/5/06: Clutch plates have been purchased at Rs. 500 each which will be recorded as a "Receipt" in the Ledger:

| INVENTORY LEDGER |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CLUTCH PLATES IL-6 |  |  |  |  |  |  |  |  |  |  |
| Date | Ref No. | Receipt |  |  | Issue |  |  | Balance |  |  |
|  |  | Quantity | Rate (Rs.) | Amount (Rs.) | Quantity | Rate (Rs.) | Amount (Rs.) | Quantity | Rate (Rs.) | Amount (Rs.) |
| 25/5/06 | $\begin{aligned} & \text { GRN } \\ & 020 / 06 \end{aligned}$ | 60 | 500 | 30,000 |  |  |  | 60 |  | 30,000 |

Sold 40 clutch plates @ Rs. 550 per plate on 25/5/06:
Since Rs. 550 per clutch plate is the selling price, this will not be entered in the inventory ledger - this amount will be recorded as a sale transaction as explained in Chapter 6. Here, in case of sale, we are looking to determine the cost of clutch plates which have now been sold as well as to determine the cost (or value) on which the remaining clutch plates will be stated. To record this, the sale of 40 clutch plates will be recorded as an "Issue".

Applying the FIFO technique, since we have only had one purchase of clutch plates, i.e. 60 clutch plates on $25 / 5 / 06$, we will use cost of these clutch plates to determine cost of 40 clutch plates which have now been sold.

This will be shown in the Inventory Ledger as follows:

| INVENTORY LEDGER |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CLUTCH PLATES IL-6 |  |  |  |  |  |  |  |  |  |  |
| Date | Ref No. | Receipt |  |  | Issue |  |  | Balance |  |  |
|  |  | Quantity | Rate <br> (Rs.) | Amount (Rs.) | Quantity | Rate <br> (Rs.) | Amount (Rs.) | Quantity | Rate <br> (Rs.) | Amount (Rs.) |
| 25/5/06 | $\begin{aligned} & \text { GRN } \\ & 020 / 06 \end{aligned}$ | 60 | 500 | 30,000 |  |  |  | 60 | 500 | 30,000 |
| 25/5/06 | $\begin{aligned} & \text { DN } \\ & 085 / 06 \end{aligned}$ |  |  |  | 40 | 500 | 20,000 | 20 | 500 | 10,000 |

We have already explained the Accounting entries that are required to be made when inventory items are purchased. In this section, we will show the accounting entries which will be made when inventory items are sold.

Taking the above example in which 40 clutch plates were sold, the double entry will be as follows:

GENERAL LEDGER

| COST OF GOODS SOLD ACCOUNT |  |  |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Debit | Folio | Description | Amount <br> (Rs.) | Date | Folio | Description | Amount <br> (Rs.) |
| Date | 25/5/06 | GL- <br> 10 | Inventory <br> Control <br> Account | 20,000 |  |  |  |

## GENERAL LEDGER

| INVENTORY CONTROLACCOUNT |  |  |  |  | GL-10 |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Debit |  |  |  | Credit |  |  |  |
| Date | Folio | Description | Amount <br> (Rs.) | Date | Folio | Description | Amount <br> (Rs.) |

And, the memorandum Inventory Ledger would also get updated as was shown above.

Purchased 20 more clutch plates on 29/5/06:

| INVENTORY LEDGER |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CLUTCH PLATES IL-6 |  |  |  |  |  |  |  |  |  |  |
| Date | Ref No. | Receipt |  |  | Issue |  |  | Balance ${ }^{\text {IL-6 }}$ |  |  |
|  |  | Quantity | $\begin{array}{\|l} \hline \text { Rate } \\ \text { (Rs.) } \end{array}$ | Amount (Rs.) | Quantity | Rate <br> (Rs.) | Amount (Rs.) | Quantity | Rate <br> (Rs.) | Amount (Rs.) |
| 25/5/06 | $\begin{aligned} & \text { GRN } \\ & 020 / 06 \end{aligned}$ | 60 | 500 | 30,000 |  |  |  | 60 | 500 | 30,000 |
| 25/5/06 | $\begin{aligned} & \text { DN } \\ & 085 / 06 \end{aligned}$ |  |  |  | 40 | 500 | 20,000 | 20 | 500 | 10,000 |
| 29/5/06 | GRN 029/06 | 10 | 510 | 5,100 |  |  |  | $\begin{aligned} & 20 \\ & 10 \\ & 30 \end{aligned}$ | $\begin{aligned} & 500 \\ & 510 \end{aligned}$ | $\begin{aligned} & 10,000 \\ & 5,100 \\ & 15,100 \end{aligned}$ |

The recording will be as follows:
You will now note that since we are using FIFO method, when there is a change in cost price, we need to monitor and keep track of "new" and "old" prices - this will help us to determine correct cost of clutch plates which needs to be charged on subsequent sales.

Sold 25 more clutch plates on 29/5/06:
The number of clutch plates in hand is 30 which are made up of purchases made on two different cost prices. Since we have now sold 25 , these will be taken out on a First in First Out basis.

The following inventory ledger will show this:

| INVENTORY LEDGER |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CLUTCH PLATES |  | Receipt |  |  | Issue |  |  | Balance ${ }^{\text {IL-6 }}$ |  |  |
| Date | Ref No. |  |  |  |  |  |  |  |  |  |
|  |  | Quantity | Rate <br> (Rs.) | Amount (Rs.) | Quantity | Rate <br> (Rs.) | Amount <br> (Rs.) | Quantity | Rate (Rs.) | Amount <br> (Rs.) |
| 25/5/06 | $\begin{aligned} & \text { GRN } \\ & 020 / 06 \end{aligned}$ | 60 | 500 | 30,000 |  |  |  | 60 | 500 | 30,000 |
| 25/5/06 | $\begin{aligned} & \text { DN } \\ & 085 / 06 \end{aligned}$ |  |  |  | 40 | 500 | 20,000 | 20 | 500 | 10,000 |
| 29/5/06 | $\begin{aligned} & \text { GRN } \\ & 029 / 06 \end{aligned}$ | 10 | 510 | 5,100 |  |  |  | $\begin{aligned} & 20 \\ & 10 \\ & 30 \end{aligned}$ | $\begin{gathered} 500 \\ 510 \end{gathered}$ | $\begin{aligned} & 10,000 \\ & 5,100 \\ & 15,100 \end{aligned}$ |
| 29/5/06 | $\begin{aligned} & \text { DN } \\ & 100 / 06 \end{aligned}$ |  |  |  | $\begin{aligned} & 20 \\ & 5 \\ & 25 \end{aligned}$ | $\begin{aligned} & 500 \\ & 510 \end{aligned}$ | $\begin{aligned} & 10,000 \\ & 2,550 \\ & 12,550 \end{aligned}$ | $\begin{aligned} & 5 \\ & 5 \end{aligned}$ | 510 | $\begin{aligned} & 2,550 \\ & 2,550 \end{aligned}$ |

On this basis the accounting entries for sale of clutch plates on 29/5/06 will be as follows:

## GENERAL LEDGER

| COST OF GOODS SOLD ACCOUNT |  |  |  |  | GL-37 |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Debit | Folio | Description | Amount <br> (Rs.) | Date | Folio | Description | Amount <br> (Rs.) |
| Date | GL- <br> 10 | Inventory <br> Control Account | 12,550 |  |  |  |  |

## GENERAL LEDGER

| INVENTORY CONTROLACCOUNT |  |  |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Credit |  |  |  |  |  |  |  |

### 63.2 Weighted average method

Under this method, inventory valuation is changed (but only if the rate has also changed) every time that a new purchase is made. Using the quantity purchased each time, a weighted average purchase rate is worked out which is then used to value:

- Cost of sale.
- Closing inventory.

Calculation of weighted average rate is done by using the following:

| Weighted |
| :--- |
| Average |$=$| Cost of existing inventory +cost of new purchases/ |
| :--- |
| Quantity of existing inventory + Quantity of new inventory |

## EXAMPLE \#9.3

## Weighted Average

Using the data in Example \#9.2, if we consider the two purchases only i.e. 60 clutch plates on 25/5/06 for Rs. 30,000 and 10 clutch plates on 29/5/06 for Rs. 5,100, the weighted average rate will be worked as shown below.

Applying these numbers to the weighted average rate formula, we get:

Weighted $=$\begin{tabular}{l}
$30,000+5,100 /$ <br>
$60+10$

$=$

$35,100 /$ <br>
Average
\end{tabular}$=$ Rs. 501.42 per plate

Having understood the calculation of weighted average rate, we will now use Example \# 9.2 to show the recording of accounting entries - for the sake of convenience, we have repeated Example \# 9.2 below:

## EXAM PLE \#9.4

## Weighted Average

On 25/5/06 Hanif Auto Engineering bought 60 clutch plates @ Rs. 500 per plate. He sold 40 clutch plates to a local buyer on the same day @ Rs. 550 per plate. On 29/5/06, he bought 10 more clutch plates @ Rs. 510 per plate and sold 25 clutch plates on the same day @ Rs. 535 per plate. Hanif Auto Engineering uses Weighted Average rate method to value its inventory.

Purchase of 60 clutch plates on 25/5/06:
Clutch plates have been purchased at Rs. 500 each which will be recorded as a "Receipt" in the Ledger:

| INVENTORY LEDGER |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CLUTCH PLATES IL-6 |  |  |  |  |  |  |  |  |  |  |
| Date | Ref No. | Receipt |  |  | Issue |  |  | Balance |  |  |
|  |  | Quantity | Rate <br> (Rs.) | Amount (Rs.) | Quantity | Rate <br> (Rs.) | Amount (Rs.) | Quantity | Rate (Rs.) | Amount (Rs.) |
| 25/5/06 | $\begin{aligned} & \text { GRN } \\ & 020 / 06 \end{aligned}$ | 60 | 500 | 30,000 |  |  |  | 60 | 500 | 30,000 |

Sold 40 clutch plates @ Rs. 550 per plate on 25/5/06:
Since there has been only one purchase of inventory, there is no need to calculate the weighted average rate. In this case, the rate will be same as that recorded above for the "receipt", i.e., a cost of Rs. 500 per clutch plate.The Inventory Ledger will appear as follows:


And, the double entry will be as follows:
GENERAL LEDGER

|  | COST OF GOODS SOLD ACCOUNT |  |  |  | GL-37 |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Debit | Folio | Description | Amount <br> (Rs.) | Date | Folio | Description | Amount <br> (Rs.) |
| Date | GL- <br> 10 | Inventory <br> Control Account | 20,000 |  |  |  |  |


| GENERAL LEDGER |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Debit |  | INVENTORY CONTROLACCOUNT |  |  |  | GL-10 |  |
|  |  | Credit |  |  |  |  |  |
| Date | Folio | Description | Amount (Rs.) | Date | Folio | Description | Amount (Rs.) |
|  |  |  |  | 25/5/06 | $\begin{aligned} & \text { GL- } \\ & 37 \end{aligned}$ | Cost of Goods Sold Account | 20,000 |

Purchased 20 more clutch plates on 29/5/06:
Here, because the purchase price has changed, there will now be a difference in inventory valuations when we apply the weighted average method.

Applying the weighted average determination formula, we get:

Weighted $=$\begin{tabular}{l}
$10,000+5,100 /$ <br>
$20+10$

$=$

$15,100 /$ <br>
Average
\end{tabular}$=$ Rs. 503.33 per plate 10

This is shown in the following manner in the Inventory Ledger:

| INVENTORY LEDGER |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CLUTCH PLATES IL-6 |  |  |  |  |  |  |  |  |  |  |
| Date | $\begin{aligned} & \text { Ref } \\ & \text { No. } \end{aligned}$ | Receipt |  |  | Issue |  |  | Balance |  |  |
|  |  | Quantity | Rate <br> (Rs.) | Amount (Rs.) | Quantity | Rate (Rs.) | Amount (Rs.) | Quantity | Rate <br> (Rs.) | Amount (Rs.) |
|  | $\begin{aligned} & \text { GRN } \\ & 020 / 06 \end{aligned}$ | 60 | 500 | 30,000 |  |  |  | 60 | 500 | 30,000 |
| 25/5/06 | $\begin{aligned} & \text { DN } \\ & 085 / 06 \end{aligned}$ |  |  |  | 40 | 500 | 20,000 | 20 | 500 | 10,000 |
| 29/5/06 | $\begin{aligned} & \text { GRN } \\ & 029 / 06 \end{aligned}$ | 10 | 510 | 5,100 |  |  |  | 30 | 503 | 15,100 |

Sold 25 more clutch plates on 29/5/06:
For this sale, the relevance of weighted average rate will be more obvious. This weighted average rate will now be used to value all "cost of sale" transactions until a time that there is a further purchase of same inventory item. In that case, the weighted average rate may vary once again, depending on the rate at which the next purchase is made.

| INVENTORY LEDGER |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CLUTCH PLATES IL-6 |  |  |  |  |  |  |  |  |  |  |
| Date | Ref No. | Receipt |  |  | Issue |  |  | Balance ${ }^{\text {IL-6 }}$ |  |  |
|  |  | Quantity | Rate <br> (Rs.) | Amount (Rs.) | Quantity | Rate <br> (Rs.) | Amount (Rs.) | Quantity | Rate <br> (Rs.) | Amount (Rs.) |
| 25/5/06 | $\begin{aligned} & \text { GRN } \\ & 020 / 06 \end{aligned}$ | 60 | 500 | 30,000 |  |  |  | 60 | 500 | 30,000 |
| 25/5/06 | $\begin{aligned} & \text { DN } \\ & 085 / 06 \end{aligned}$ |  |  |  | 40 | 500 | 20,000 | 20 | 500 | 10,000 |
| 29/5/06 | GRN 029/06 | 10 | 510 | 5,100 |  |  |  | 30 | 503 | 15,100 |
| 29/5/06 | $\begin{aligned} & \text { DN } \\ & 100 / 06 \end{aligned}$ |  |  |  | 25 | 503 | 12,575 | 5 | 503 | 2,515 |

This sale transaction will be recorded as follows in the inventory ledger:
On this basis the accounting entries will be as follows:
GENERAL LEDGER

| COST OF GOODS SOLD ACCOUNT |  |  |  |  |  | GL-37 |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :---: |
| Debit | Folio | Description | Amount <br> (Rs.) | Date | Folio | Description | Amount <br> (Rs.) |  |
| Date | GL- <br> 10 | Inventory <br> Control Account | 12,575 |  |  |  |  |  |

## GENERALLEDGER

| INVENTORY CONTROLACCOUNT |  |  |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Debit |  |  | Credit |  |  |  |  |
| Date | Folio | Description | Gate | Folio | Description | Amount <br> (Rs.) |  |

## 64 IS INVENTORY ALWAYS SHOWN AT COST?

You now understand that the basic principle is to record inventory at cost. However, this
may not always be the case.
In Chapter 2, we discussed the Prudence concept which says that expected and foreseeable losses and / or expenses should be recognized and pre-empted. There may be instances where, for various reasons, a Business is not able to sell a product even at a price which is lower than the original cost of the product itself. Or, there may be a case where a Business has to incur substantial expenditure in order to make a sale. In both cases, the Net Realizable Value i.e. the net price which the Business receives from selling the inventory may not be enough to even cover its actual cost.

In such cases, Accounting rules require Businesses to show such inventories at lower of cost and Net Realizable Value. The example in section 6.2 below will illustrate this concept in more detail.

### 64.1 Net realizable value (NRV)

The concept underlying NRV is that when an item is sold, there are certain costs attached to selling that item - these are costs which otherwise would not be incurred if the item was not sold.

Some of the circumstances which may affect the realizable value are:

- Agent's commission.
- Freight \& transportation costs.
- Discount to a customer.
- Claim against defective / poor quality.
- Fire \& theft.

Where these costs are significant, there may be a situation in which NRV actually works out to be less than the original cost. NRV is, therefore, calculated as follows:

NRV $\quad=$ Selling price - Costs directly attributed to selling that item
In situations where NRV is lower than cost, Prudence concept requires that the value at which that particular item should be recorded in the accounts should be the NRV. In those cases, since the inventory will already be stated at "cost", an adjustment, i.e. a decrease needs to be made to bring down the "cost" of that inventory to its NRV.

This will be illustrated by the following example:

## EXAMPLE \#9.5

Lower of Cost \& NRV
Hussain Khaddar has an inventory of 100 meters of a Khaddar which cost a total of Rs. 50,000. This khaddar was made specifically for a customer and the selling price was agreed at Rs. 90,000. The customer's business has been closed down and Hussain Khaddar has been unable to sell the khaddar to another customer. After much effort, a customer, based in Karachi, has agreed to buy all of the Khaddar but at a price of Rs. 55,000 and has asked Hussain Khaddar to bear the transportation cost of Rs. 7,500. Accounts are being prepared for the month of June 2006 and Khaddar was still in inventory on this date.
In this example, NRV is:

```
NRV = 55,000-7,500
    = 47,500
```

Since cost of Khaddar was Rs. 50,000 and NRV is Rs. 47,500 (and is lower than cost), inventory should be valued at Rs. 47,500. This means that inventory cost has to be reduced by Rs. 2,500 and this reduction will be charged as an expense.
The following accounting entries will be passed:

## GENERAL LEDGER

| REDUCTION IN INVENTORY VALUE ACCOUNT |  |  |  | GL-45 |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Debit | Folio | Description | Amount <br> (Rs.) | Date | Folio | Description | Amount <br> (Rs.) |
| Date | GL-2 | Inventory <br> Account | 2,500 |  |  |  |  |

## GENERAL LEDGER

| INVENTORY CONTROLACCOUNT |  |  |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Credit |  |  |  |  |  |  |  |$\quad$ GL-38

And, the memorandum Inventory Ledger will also get updated:

| INVENTORY LEDGER |
| :--- |
| KHADDAR <br> Date <br> Ref <br> No. |

In case of an adjustment for NRV, because quantities are not changing, the reduction is shown by only an amount which will be processed using a Journal Voucher. The result is simply a reduction in the total value with a consequential reduction in the rate also.

## 65 HOW CAN INVENTORY COSTS BE REDUCED?

Inventory management requires considerable knowledge of the Business by its management. Holding too much inventory costs money while not holding enough inventories may result in customers being turned away. The Businesses, therefore, need to find the best strategy to minimize costs and yet not have to say "no" to its customers as well.

### 65.1 FORECAST YOUR SALES ACCURATELY

M ost Businesses are driven by their sales team, i.e. the number, size and frequency of orders determine the size of operations for most Businesses. The quantum of sales orders determines how much to buy, when to buy, how many people to employ, how many machines are required, etc.

Ability of Businesses to forecast their sales may not be easy always. However, Businesses which have been in existence for some time do have the market and product knowledge to be able to forecast sales with some degree of certainty.

### 65.2 HOLDING \& STORAGE COSTS

Not very easily understood, Businesses incur substantial costs in holding and storage of inventory. Examples of some of these costs are:

- M ark up costs on working capital financing.
- Electricity cost in storage facilities.
- M anpower cost in supervision.
- Insurance cost.


## - Depreciation of godown.

These costs can add up to sizeable numbers! The trick to managing these costs is to ensure that minimal inventory levels are kept at all times. But be aware that some of these costs are fixed, i.e. these costs will be incurred irrespective of the size of inventory while other costs vary, i.e. costs increase or decrease as inventory levels vary.

### 65.3 Buffer stocks

While a Business shall endeavor to save on holding and storage costs by minimizing its inventory levels, there remains a risk that inventory may not be available, or be enough, if an order is received. At that time, there may not be enough time to purchase inventories because the supplier requires more time to make the delivery. Consequently, the Business may have to turn away a lucrative and a profitable order.
Practically speaking, a Business should always keep an acceptable number of inventory items at all times, also called the "Buffer Stock". The purpose of this buffer stock is to cater for eventualities (such as the one mentioned above) but the question remains, What should my Buffer Stock be?

### 65.4 ECONOMIC ORDER QUANTITY (EOQ)

M athematically proven, EOQ is one of the management techniques used by Businesses to facilitate decision making on inventory management. What EOQ does is that it calculates a feasible quantity of inventory for which the Business should be placing an order - at that order size, inventory costs will be minimized.
Calculation of EOQ has been simplified into the following formula which can be applied to any type of a Business:
Non-manufacturing $\mid$ Manufacturing
$\mathrm{EOQ}=\sqrt{\frac{2 \mathrm{CO}}{\mathrm{C}}}$
$\mathrm{S}=$ Annual Sales
$\mathrm{U}=$ Annual raw material requirements
$\mathrm{O}=$ Order cost per order
$\mathrm{C}=$ carrying cost per unit of item being evaluated

You should also be aware that there are various assumptions which may have been made in arriving at the EOQ model - before you apply this model to your Business,
please consult your financial advisor.

## EXAMPLE \#9.6

EOQ
Suppose, Hussain Khaddar has an annual Raw M aterial Requirement of 1,000 bags of Yarn. He bears Rs. 100 cost per order (Order Cost) and Carrying Cost per unit amounted to Rs. 80.
Using the formula given above, EOQ is calculated as follows:


Thus, Economic Order Quantity is 50 Bags.

## CHAPTER HIGHLIGHTS

What have we covered?

1. Inventories are assets which include raw materials, work in process and finished goods.
2. Cost of an inventory includes all costs incurred to bring the item to its present condition of use and intended purpose.
3. Two commonly used methods to value raw material and finished goods purchased for re-sale are FIFO and weighted average.
4. Under FIFO, inventory purchased first is sold first.
5. Weighted average method determines the valuation in proportion to the quantity of inventory held at various price levels.
6. Inventories should be stated at the lower of cost and NRV.
7. Sales forecast is a convenient way to project how much inventory may be required.
8. There are hidden costs called Holding \& Storage costs, associated with holding too much inventory.
9. Buffer stocks are normally kept by Businesses to cater for unforeseen demand.
10. Determining the optimal level of inventory to be held can be determined by using EOQ.
11. EOQ model enables Businesses to determine optimal inventory order sizes.
