

# Depreciation

## LEARNING OBJECTIVES

*After studying this Chapter, you should be able to understand :*

- Meaning of Depreciation
- Causes of Depreciation
- Need for Providing Depreciation
- Factors Determining the amount of Depreciation
- Methods of Providing Depreciation :
  - Straight Line Method : Meaning, Merits, Demerits and Suitability
  - Written Down Value Method : Meaning, Merits, Demerits and Suitability
- Distinction between Straight Line Method and Written Down Value Method
- Methods of Recording Depreciation :
  - By Charging to Asset Account
  - By Creating Provision for Depreciation Account
- Asset Disposal Account

**Meaning :**— In every business there are certain assets of a fixed nature that are needed for the conduct of business operations. Some examples of such assets are Building, Plant and Machinery, Motor Vehicles, Furniture, Office equipments etc. These assets have a definite span of life after the expiry of which the assets will lose their usefulness for the business operations. (Fall in the value and utility of such assets due to their constant use and expiry of time is termed as depreciation. In other words, the process of allocation of the cost of a fixed asset over its useful life is known as depreciation.)

**Definitions :**— Some of the well-known definitions of depreciation are given below :—

1. "Depreciation is the gradual and permanent decrease in the value of an asset from any cause." — **R.N. Carter**
2. "Depreciation may be defined as the permanent and continuing diminution in the quality, quantity or the value of an asset." — **William Pickles**
3. "Depreciation is the measure of the exhaustion of the effective life of an asset from any cause during a given period." — **Spicer & Peglar**
4. "It is a matter of common knowledge that all fixed assets such as plant, machinery, building, furniture etc. gradually diminish in value as they get older and become worn out by constant use in the business." — **J.R. Batliboi**



### Special features or Characteristics of Depreciation :—

1. Depreciation is decline in the value of fixed assets (except land).
2. Such fall is of a permanent nature. Once the value of an asset is reduced due to depreciation, it cannot be restored to its original cost.
3. Depreciation is a gradual and continuing process because the value of the assets will decline either by their constant use or obsolescence due to expiry of time.
4. Depreciation is not the process of valuation of asset but process of allocation of the cost of an asset to its effective span of life.
5. It decreases only the book value of the asset, not the market value.
6. The term depreciation is used only in respect of tangible fixed assets. The term is not used for wasting assets such as mines, oil-wells etc.
7. It is a non-cash expense. It does not involve any cash outflow.

**Causes of Depreciation :—** Main causes of depreciation are as follows :—

(1) **By Constant Use :—** Due to the constant use of fixed assets in business operations wear and tear arise in them which results in the reduction of their values.

(2) **By Expiry of Time :—** The value of majority of assets decreases with the passage of time even if they are not being put to use in the business. Natural forces such as rain, winds, weather etc. contribute to the deterioration of their values.

(3) **By Expiry of Legal Rights :** There are certain assets which have a definite span of life such as Lease. For example, if a lease has been obtained for 20 years for ₹5,00,000, it will lose 1/20th, i.e., ₹25,000 of its value each year whether utilised or not, so that at the end of 20th year its value is reduced to zero.

(4) **By Obsolescence :—** Quite often, due to new inventions and improved techniques the old assets become obsolete and may have to be discarded even if they can be put to use physically.

(5) **By Accident :—** Sometimes a machine may be destroyed due to fire, earthquake, flood etc. or a vehicle may be damaged due to accident.

(6) **By Depletion :—** Depletion is the decrease in the value of wasting assets such as mines, oil-wells etc. due to their constant working.

(7) **By Permanent fall in Market Price :—** Though, the fluctuations in the market value of fixed assets are not recorded because such assets are not meant for resale but for use in the business, sometimes the fall in the value of certain fixed assets is treated as depreciation such as permanent fall in the value of investments.

### Need, Importance or Objects of Providing Depreciation

(1) **For ascertaining the true profit or loss :—** The true profit of a business can be ascertained only when all costs incurred for the purpose of earning revenues have been debited to the Profit and Loss Account. As the Assets are used in earning revenues, the depreciation in the value of an asset is as much an expense as any other, such as wages, salary, rent etc.

(2) **For showing the 'true and fair view' of the financial position :—** If the depreciation is not charged, the assets will be shown in the Balance Sheet at an amount which is in excess of their true values. As such, the Balance Sheet will not present the 'true and fair view' of the financial position of a business.



(3) **To ascertain the accurate cost of production** :— As depreciation is also an item of expense, the correct cost of production cannot be calculated unless it is also taken into account. Sale price chargeable from customers is determined on the basis of cost of production and hence if the depreciation is not included in Cost of Production, the sale price will be fixed at lower rates and this in turn will lead to reduced profits.

(4) **To provide funds for replacement of assets** :— Depreciation though debited to Profit & Loss Account, is not paid in cash like other expenses. Hence, the amount of depreciation is retained in the business and is used for the replacement of fixed assets after the expiry of their estimated span of life.

(5) **To prevent the distribution of profits out of capital** :— If the depreciation is not charged, the profit shown by the Profit and Loss Account will be in excess of the actual profits. Such an excess profit may be wholly withdrawn by the proprietor or may be distributed among the shareholders as dividend. Hence, the amount of dividend distributed will also include the amount of depreciation which is actually a part of capital.

(6) **For avoiding over payment of Income Tax** :— Depreciation is a deductible expense for tax purposes. If depreciation is not debited to Profit and Loss Account, the net profit shown by it will be in excess of actual profits. Hence, we will also have to pay more income tax.

(7) **Other Objectives** : If the depreciation is not charged, the net profit shown by Profit & Loss Account will exceed the actual profits and as a result :

- (I) Employees may demand an increase in wages and bonus,
- (II) It may also result in extravagance,
- (III) It may lead to increase in competition in that type of business.

### Factors determining the amount of Depreciation

It is impossible to calculate the actual and true amount of depreciation. It can only be estimated by keeping the following factors into consideration :—

(1) **Total Cost of the Asset** :— The cost of a fixed asset is determined after adding all expenses incurred for bringing the asset to usable condition, such as freight, transit insurance and installation costs etc.

(2) **Estimated Useful Life of Asset** :— Useful life of an asset is estimated in terms of number of years, it can be effectively used for business operations. For example, if a machine can work for 25 years but is likely to become obsolete in 15 years on account of availability of a better type of machine due to improved technology, its useful life will be considered as only 15 years.

(3) **Estimated Scrap Value** :— It is the estimated sale value of the asset at the end of its useful life. It is also known as residual value or break-up value. For example, a machine is purchased for ₹60,000 and ₹4,000 are spent on its freight and ₹1,000 for installation. It is estimated that its serviceable life will be 10 years at the end of which period it will have a scrap value of ₹8,000. Depreciation in this case will be calculated on ₹57,000 (*i.e.*, ₹60,000 + ₹4,000 + ₹1,000 – ₹8,000).

Depreciation charged on this machine will be  $\frac{57,000}{10} = ₹5,700$  every year.



### Methods of Providing or Allocating Depreciation

Various methods have been devised for providing depreciation. Different methods are suitable for different assets depending upon the nature and type of the asset. These methods are enumerated as under :—

1. Straight Line Method
2. Written Down Value Method
3. Annuity Method
4. Depreciation Fund Method
5. Insurance Policy Method
6. Revaluation Method
7. Depletion Method
8. Machine Hour Rate Method

The first two methods are discussed below :—

#### (1) Straight Line Method

This method is also termed as '**Original Cost Method**' because under this method depreciation is charged at a fixed percentage on the original cost of the asset. The amount of depreciation remains equal from year to year and as such the method is also known as '**Equal Instalment Method**' or '**Fixed Instalment Method**'. Under this method, the amount of depreciation is calculated by deducting the scrap value from the original cost of the asset and then by dividing the remaining balance by the number of years of its estimated life. The depreciation so calculated and charged annually will reduce the original cost of the asset to zero, or its scrap value, as the case may be, at the end of its estimated life. Under this method, the amount of depreciation is calculated by the following formula :—

$$\text{Yearly Depreciation} = \frac{\text{Original Cost of the Asset} - \text{Estimated Scrap Value}}{\text{Estimated Life of the Asset}}$$

For example, if the original cost of the asset is ₹1,00,000 and its scrap value is likely to be ₹15,000 after its estimated life of 10 years, the depreciation written off will be  $\frac{1,00,000 - 15,000}{10} = ₹8,500$  every year.

#### Merits of Straight Line Method :—

(1) **Simplicity** :— Calculation of depreciation under this method is very simple and as such the method is widely popular.

(2) **Equality of Depreciation Burden** :— Under this method, equal amount of depreciation is debited to the Profit and Loss Account of each year. Hence, the burden of depreciation on each year's net profit is equal.

(3) **Assets can be completely written off** :— Under this method, the book value of an asset can be reduced to net scrap value or zero value, which is not possible under some other methods.

(4) **Knowledge of Original Cost and Up-to-date depreciation** :— Under this method, the original cost of the asset is shown in the Balance Sheet and the up-to-date depreciation is shown as a direct deduction from it. As such, the information of Original Cost of the asset and its up-to-date depreciation is available at any time. Various assets also maintain their separate identity under this method.



**Demerits :—**

(1) **Difficulty in Computation** :— When there are different machines having different life-spans, the computation of depreciation becomes complicated because the depreciation on each machine will have to be calculated separately.

(2) **Unequal charge against income** :— Repair charges go on increasing year by year as the asset becomes older but as the equal depreciation is charged under this method each year, the total burden charged to Profit and Loss Account in respect of depreciation and repairs put together will not be equal each year. The total burden will be lighter in earlier years and heavier during the later years.

(3) **Undue pressure in later years** :— It is a well-known fact that the efficiency and usefulness of a machine is more in the earlier years in comparison to later years. As such, more depreciation should be charged in earlier years in comparison to the later years, whereas, depreciation remains constant from year to year under this method.

(4) **Omission of Interest Factor** :— This method does not take into consideration the loss of interest on the amount invested in the asset. The amount would have earned interest, had it been invested outside the business.

(5) **Unrealistic to Write off the Value of asset to Zero** :— Sometimes, even after the value of an asset is reduced to zero in the books, it continues to be used in the business in actual practice.

(6) **Difficulty in the determination of scrap value** :— It is quite difficult to assess the true scrap value of the asset after a long period, say 15 or 20 years from the date of its installation.

**Suitability** :— This method is suitable for those assets whose useful life can be estimated accurately and which do not require much expenses on repairs and renewals.

**Accounting Treatment :—**

Following entries are passed in this method :—

1. Entry for purchase of Asset :—

Asset A/c	Dr.
To Bank/Vendor A/c	

2. Entry for providing depreciation at the end of each year :—

Depreciation A/c	Dr.
To Asset A/c	

3. Entry for the amount realised on sale of Asset :—

Bank A/c	Dr.
To Asset A/c	

4. Entry in case of loss on sale of Asset :—

Profit & Loss A/c / Statement of Profit & Loss*	Dr.
To Asset A/c	

5. Entry in case of profit on sale of Asset :—

Asset A/c	Dr.
To Profit & Loss A/c / Statement of Profit & Loss*	

\*In case of Companies, a 'Statement of Profit & Loss' is prepared in place of 'Profit & Loss A/c'

**ILLUSTRATION 1.**

On 1st April, 2009, Atul Glass Limited purchased a Machine for ₹90,000 and spent ₹6,000 on its carriage and ₹4,000 on its erection. On the date of purchase, it was estimated that the effective life of the machine will be 10 years and after 10 years its scrap value will be ₹20,000.

Prepare Machine A/c and Depreciation A/c for 4 years after providing depreciation on Fixed Instalment Method. Accounts are closed on 31st March every year.

**SOLUTION**



**ILLUSTRATION 2.**

On 1st April, 2009, X Ltd. purchased a Plant and Machinery for ₹43,000. It was estimated that the effective life of the Plant and Machinery will be 10 years and after 10 years its scrap value will be ₹3,000.

On 1st April, 2010, the Company purchased additional machine for ₹25,000, of which the effective life will be 15 years and scrap value ₹2,500.

On 1st October, 2011, a new machine was purchased for ₹12,000, of which the scrap value will be ₹2,000 and effective life 20 years.

Show the Plant and Machinery A/c upto 31st March 2013, if depreciation is provided on Straight Line Method. The accounts are closed on 31st March every year.

**SOLUTION :**

### ILLUSTRATION 3.

On 1st April, 2009, Ashoka Ltd. purchased furniture costing ₹50,000. On July 1, 2012, the furniture was sold for ₹20,000. Prepare furniture account calculating depreciation @ 10% p.a. on Original Cost Method. Accounts are closed on 31st March each year.



#### ILLUSTRATION 4.

On 1st April, 2005, a Company purchased a plant for ₹60,000. On 1st October in the same year, it purchased additional plant worth ₹18,000 and spends ₹2,000 on its erection. On 1st October, 2007, the plant purchased on 1st April, 2005 having become obsolete, is sold off for ₹27,000. On 1st January, 2009, fresh plant was purchased for ₹64,000 and on the same date the plant purchased on 1st October, 2005 was sold for ₹10,000.

Depreciation is provided at 10% per annum on Original cost on 31st March, every year.

Show the Plant Account upto 31st March, 2009.



### ILLUSTRATION 6.

A company whose accounting year is the calendar year, purchased on 1st April, 2008, machinery costing ₹30,000. It purchased further machinery on 1st October, 2008, costing ₹20,000 and on 1st July, 2009, costing ₹10,000.

On 1st January, 2010, one-third of the machinery which was installed on 1st April, 2008 became obsolete and was sold for ₹3,000.

Show how the machinery account would appear in the books of the company, it being given that machinery was depreciated by Fixed Instalment at 10 per cent p.a.

*(KVS 2011)*



### ILLUSTRATION 8.

On 1st April, 2007 Manas Ltd., purchased 10 machines of ₹30,000 each. On 30th June 2008, one machine out of the 10 machines purchased on 1st April 2007, was sold for ₹24,000 and on 31st Dec. 2009 one more machine was sold for ₹22,500. A new machine was purchased on 30th Sept. 2010 for ₹32,000. The company has adopted the practice of providing depreciation at 10% p.a. on original cost of machine. The company closes its books on 31st March every year. You are required to prepare Machinery Account upto 31st March 2011.

(Delhi 2010)

### SOLUTION :

Dr.

MACHINERY ACCOUNT

Cr.



## (2) Written Down Value Method

Under this method, as the value of asset goes on diminishing year after year, the amount of depreciation charged every year also goes on declining. For example, if a machine is purchased for ₹10,000 and depreciation is to be charged at 10% p.a. according to 'Written Down Value Method', the depreciation will be charged as under :—

	₹
1st Year on ₹10,000 @ 10%	= 1,000
2nd Year on ₹9,000, i.e., $10,000 - 1,000 = 9,000 \times \frac{10}{100}$	= 900
3rd Year on ₹ 8,100, i.e., $9,000 - 900 = 8,100 \times \frac{10}{100}$	= 810
4th Year on ₹ 7,290, i.e., $8,100 - 810 = 7,290 \times \frac{10}{100}$	= 729

and so on.

It will be observed from the above calculations that each year's depreciation is calculated on the book value of the asset at the beginning of that year, rather than on



the original cost. As the value of the asset and also the depreciation charged on it goes on reducing year after year, the method is also known as '**Reducing Instalment Method**' or '**Diminishing Balance Method**'.

#### Merits :—

(1) **Easy Calculation** :— It is easy to calculate the depreciation under this method, even if some new assets are purchased year after year. Different assets are grouped for the purpose of providing depreciation.

(2) **Equal charge against income** :— In this method, the total burden on Profit & Loss Account in respect of depreciation and repairs put together remains almost equal year after year. This is so because in the initial years depreciation is more in comparison to repair charges whereas, in the later years, as the asset gets older, the amount of depreciation goes on decreasing while the expenses on repairs go on increasing, thus keeping the combined charge of depreciation and repairs almost uniform.

(3) **No undue pressure in later years** :— The efficiency and usefulness of a machine is more in the earlier years than in later years. Hence, the depreciation in first few years should be more in comparison to the later years. This is ensured by adopting the Diminishing Balance Method.

(4) **Balance of asset is never written off to zero** :— This method ensures that the asset is never reduced to zero so that some depreciation, however small, is debited to Profit & Loss Account so long as the asset remains in use.

(5) **Approved method by Income Tax Authorities** :— This method of providing depreciation is permissible under Income Tax regulations.

#### Demerits :—

(1) **Asset cannot be completely written off** :— Under this method, the value of an asset, even if it becomes obsolete and useless, cannot be reduced to zero and some balance, however small, would continue on Asset Account.

(2) **Omission of Interest Factor** :— As with the original cost method, this method also does not take into consideration the loss of interest on the amount invested in the asset.

(3) **Difficulty in determining the rate of depreciation** :— Under this method, the rate of providing depreciation cannot be easily decided. The rate is generally kept higher because it takes a very long time to write an asset down to its scrap value. If the rate of depreciation is kept lower, the asset may become obsolete earlier.

(4) **Knowledge of Original Cost and upto-date depreciation not possible** :— Under this method, the original cost of various assets is not shown in the Balance Sheet. Sometimes, the assets are grouped in such a way that it becomes difficult to know their specific identity. The residue balance of some assets may continue in the Balance Sheet even after they have been actually scrapped.

**Suitability** :— This method is very suitable in case of assets having a comparatively long life and which require considerable repairs in the later years when they become older, such as building, plant etc.



**Distinction between the two methods**

<i>Basis of Distinction</i>	<i>Straight Line or Original Cost Method</i>	<i>Written Down Value Method</i>
1. Amount of depreciation.	Equal depreciation is charged every year.	Depreciation goes on decreasing year after year.
2. Basis of calculation of depreciation.	Depreciation is charged on the original cost of the asset.	Depreciation is charged on the reducing balance of the asset.
3. Zero level.	The book value of the asset can be reduced to zero.	The book value of the asset can never be reduced to zero.
4. Combined effect of depreciation and repairs on P & L A/c.	Combined burden on account of depreciation and repairs will be lighter in earlier years and heavier during the later years.	Combined burden on account of depreciation and repairs will be almost equal over different years.
5. Rate of depreciation.	Rate of depreciation is kept low in comparison to diminishing balance method.	Rate of depreciation is kept high in comparison to original cost method.
6. Approval of Income Tax authorities.	This method is not approved by Income Tax authorities.	This method is approved by Income Tax authorities.
7. Suitability	It is suitable for assets in which repair charges are less and the possibility of obsolescence is less such as land and buildings, patents, trade marks etc.	It is suitable for assets which require more repair expenses with passage of time and where possibility of obsolescence is more due to technological changes such as plant and machinery, vehicles etc.

In practice, the Written Down Value Method is more widely used. This is so because the depreciation in this method goes on reducing according to the shrinking value of the asset.

### ILLUSTRATION 10.

Rohini Cement Limited purchased on 1st April, 2003 a plant for ₹80,000. On 1st July, 2004, it purchased additional plant costing ₹48,000. On 1st December, 2005, the plant purchased on 1st April, 2003 was sold off for ₹42,000 and on the same date fresh plant was purchased at the cost of ₹75,000.

Depreciation is provided at 10% per annum on the Diminishing Balance Method every year. Accounts are closed each year on 31st March.

Show the Plant account for 3 years.

*(Chandigarh 2007)*



## ILLUSTRATION 15.

On 1st April, 2005, Z Ltd. purchased machinery for ₹1,20,000 and on 30th September 2006, it acquired additional machinery for ₹20,000. On 30.06.2007 one of the original machine (purchased on 1.4.2005) which had cost ₹5,000 was found to have become obsolete and was sold as scrap for ₹500. On the same date a new machine was purchased for ₹8,000. Depreciation is to be charged @15% p.a. on written down value. Accounts are closed on 31st March each year. Show machinery account for the first three years.

*(Chandigarh 2011)*

## Methods of Recording Depreciation

There are two methods of recording depreciation in the books :

(i) **First Method : By Charging to Asset Account** : In this case 'Provision for Depreciation Account is not maintained and the depreciation is directly credited to the 'Asset A/c'. Hence the Asset A/c appears in the Ledger at a written down value.

(ii) **Second Method : By Creating Provision for Depreciation Account** : In such a case, the depreciation is credited to 'Provision for Depreciation A/c' instead of 'Asset A/c' and hence the Asset A/c always appears in the Ledger at its original cost. The balance on the credit side of 'Provision for Depreciation A/c' shows the total amount of depreciation accumulated to date. However, when the asset is sold or



discarded, the total accumulated depreciation for that asset is transferred to the credit side of the Asset A/c with the help of the following entry :

Provision for Depreciation A/c or Accumulated Depreciation A/c	Dr.
To Asset A/c	

After making the above entry, the balance in the provision for depreciation account will indicate the accumulated depreciation on the assets in service or unsold assets.

### ILLUSTRATION 16.

X Ltd. purchased on April 1, 2008 a second hand plant for ₹4,00,000 and immediately spent ₹80,000 for its overhauling and ₹20,000 for its installation. On Oct., 1, 2011 the plant became obsolete and was sold for ₹2,00,000. Depreciation is provided at 10% p.a. on original cost method. Accounts are closed each year on 31st March.

Show the necessary Ledger Accounts assuming that :

- (a) 'Provision for Depreciation Account' is not maintained, and
- (b) 'Provision for Depreciation Account' is maintained.

## ILLUSTRATION 18.

On 1st April, 2009, X Ltd. purchased 5 machines for ₹60,000 each. The accounting year of the Company ends on 31st March. Depreciation at the rate of 10% p.a. on initial cost is charged to Profit & Loss Account and Credited to a separate 'provision for depreciation account'. On 1st April 2011, one machine was sold for ₹40,000 and on 1st July, 2012 a second machine was sold for ₹28,000. Another machine with a higher capacity costing ₹1,00,000 was purchased on 1st Oct. 2012. You are required to prepare Machinery Account, Depreciation Account and Provision for Depreciation Account.

**SOLUTION :**