

CONCEPT AND ACCOUNTING OF DEPRECIATION

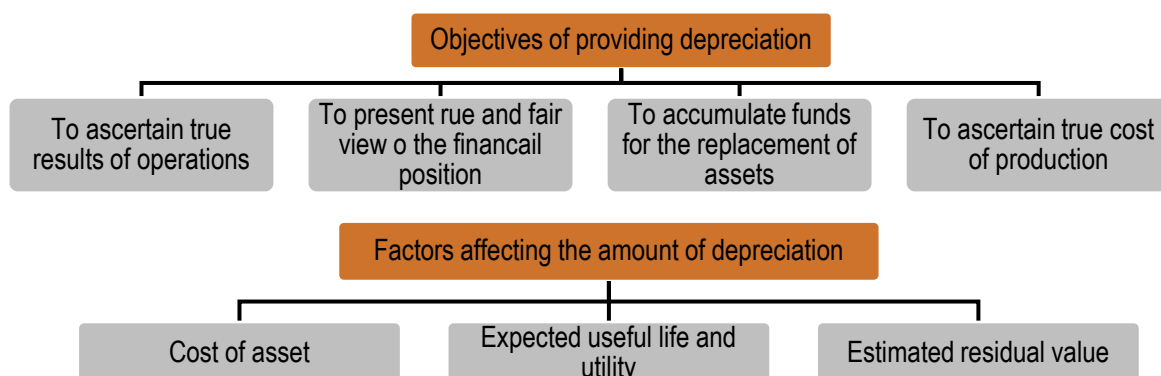


LEARNING OUTCOMES

After studying this chapter, you will be able to:

- ◆ Understand the meaning and nature of depreciation.
- ◆ Understand how to determine the amount of depreciation from the total value of Property, Plant and Equipment and its useful life.
- ◆ Understand various methods of depreciation and learn advantages and disadvantages of such methods.
- ◆ Understand how to calculate the amount of profit or loss resulting from the sale/disposal of Property, Plant and Equipment.
- ◆ Familiarize with the accounting treatment for change in the method of depreciation from Straight Line Method to Reducing Balance method.
- ◆ Familiarize with the accounting treatment for change in estimated useful life and residual value of property, plant and equipment.

CHAPTER OVERVIEW





1. INTRODUCTION

1.1 Concept of Depreciation

Property, plant and equipment are tangible items that:

- (a) are held for use in the production or supply of goods or services, for rental to others, or for administrative purposes; and
- (b) are expected to be used during more than a period of twelve months.

These are also called fixed assets in common parlance. When a fixed asset is purchased, it is recorded in books of account at its original or acquisition/purchase cost. However fixed assets are used to earn revenues for a number of accounting periods in future with the same acquisition cost until the concerned fixed asset is sold or discarded. It is therefore necessary that a part of the acquisition cost of the fixed assets is treated or allocated as an expense in each of the accounting period in which the asset is utilized. The amount or value of fixed assets allocated in such manner to respective accounting period is called depreciation. Value of such assets decreases with passage of time mainly due to following reasons.

1. Wear and tear due to its use in business
2. Efflux of time even when it is not being used
3. Obsolescence due to technological or other changes
4. Decrease in market value
5. Depletion mainly in case of mines and other natural reserves

It is important to account for value of portion of property, plant and equipment utilized for generating revenue during an accounting year to ascertain true income. This portion of cost of Property, Plant & Equipment allocated to an accounting year is called depreciation.

As per Schedule II under the Companies Act, 2013, Depreciation is the systematic allocation of the depreciable amount of an asset over its useful life. The depreciable amount of an asset is the cost of an asset or other amount substituted for cost, less its residual value. The useful life of an asset is the period over which an asset is expected to be available for use by an entity, or the number of production or similar units expected to be obtained from the asset by the entity.

Thus, there are 3 important factors for computing depreciation:

- Estimated useful life of the asset
- Cost of the asset
- Residual value of the asset at the end of the of its estimated useful life

Depreciation of an asset begins when it is available for use, i.e., when it is in the location and condition necessary for it to be capable of operating in the manner intended by management. Thus it is not necessary that an asset must be used to be depreciated. There is decrease in value of assets due to normal wear and tear even when these are not physically used. Accordingly, value of such wear and tear should be estimated and accounted for.

Depreciation is allocated so as to charge a fair proportion of the depreciable amount in each accounting period during the expected useful life of the asset. Depreciation for a period helps to charge that portion of the cost of the asset against the revenues earned, which is expired for that period and hence follows matching principle. In other words the total cost of the asset is reflected in form of a) Expired cost (depreciation) and b) Unexpired Cost which shall be the written down value of the asset being reflected in balance sheet. Also charging depreciation every year reduces the distributable profits and hence ensuring the availability of funds whenever the replacement is required.

The depreciation is type of loss in the value of assets employed for carrying on a business. Being an essential element of business expenditure, it is necessary to calculate the amount of such loss and to make a provision, and therefore, arrive at the amount of profit or loss made by the business.

Basically, the cost of an asset used for purpose of business has to be written off over its economic (not physical) life which must be estimated. A point to remember is that usually, at the end of the economic life, an asset has some value as scrap or otherwise. The amount to be written off in each year should be as such which will reduce the book value of the asset, at the end of its economic life, to its estimated scrap value.

1.2 Depreciation on components of an assets

It may be noted that Accounting Standards as well as the Companies Act, 2013 requires depreciation to be charged on a component basis. Each part of an item of Property, Plant and Equipment with a cost that is significant in relation to the total cost of the item should be depreciated separately. An enterprise should allocate the amount initially recognised in respect of an item of property, plant and equipment to its significant parts/components and should depreciate each such part separately based on the useful life and residual value of each particular component. For Example- Aircraft is a classic example of such an asset. The airframe (i.e. the body of the aircraft), the engines and the interiors have different individual useful lives. If the life of the airframe (being the longest of the individual lives of the three major types of components) is taken as the life of the aircraft, it is important that other two major components i.e. engine and interiors are depreciated over their respective useful life and not over the life of airframe. Other components (usually small and low value) which will require replacement very frequently may be depreciated over the useful life of airframe and their frequent replacement cost may be charged to expense as and when it is incurred.

Here it is important to note that a part of Property, Plant & Equipment to be identified as a separate component should have both

- (a) significant cost when compared to overall cost of item of property, plant and equipment and
- (b) and estimated useful life or depreciation method different from rest of the parts of the property plant and equipment.

A significant part of an item of property, plant and equipment may have a useful life and a depreciation method that are the same as the useful life and the depreciation method of another significant part of that same item. Such parts may be grouped in determining the depreciation charge.

1.3 Objectives for Providing Depreciation

Prime objectives for providing depreciation are:

- (1) *Correct income measurement:* Depreciation should be charged for proper estimation of periodic profit or loss. In case an enterprise does not account for depreciation on Property, Plant & Equipment, it will not be considering loss in value of property, plant & equipment due to their use in production or operations of the enterprise and will not result in true profit or loss for the period.
- (2) *True position statement:* Value of the Property, Plant & Equipment should be adjusted for depreciation charged in order to depict the actual financial position. In case depreciation is not accounted for appropriately, the property, plant and equipment would be disclosed in financial statements at a value higher than their true value. Whereas we should always present the same at its unexpired cost which is after charging the expired cost as depreciation.
- (3) *Funds for replacement:* Generation of adequate funds in the hands of the business for replacement of the asset at the end of its useful life. Depreciation is a good indication of the amount an enterprise should set aside to replace a fixed asset after its economic useful life is over. However, the replacement cost of a fixed asset may be impacted by inflation or other technological changes.
- (4) *Ascertainment of true cost of production:* For ascertaining the cost of the production, it is necessary to charge depreciation as an item of cost of production.

Further depreciation is a non-cash expense and unlike other normal expenditure (e.g. wages, rent, etc.) does not result in any cash outflow. Further depreciation by itself does not create funds it merely draws attention to the fact that out of gross revenue receipts, a certain amount should be retained for replacement of assets used for carrying on operation which is achieved by charging depreciation that reduces the distributable profits.

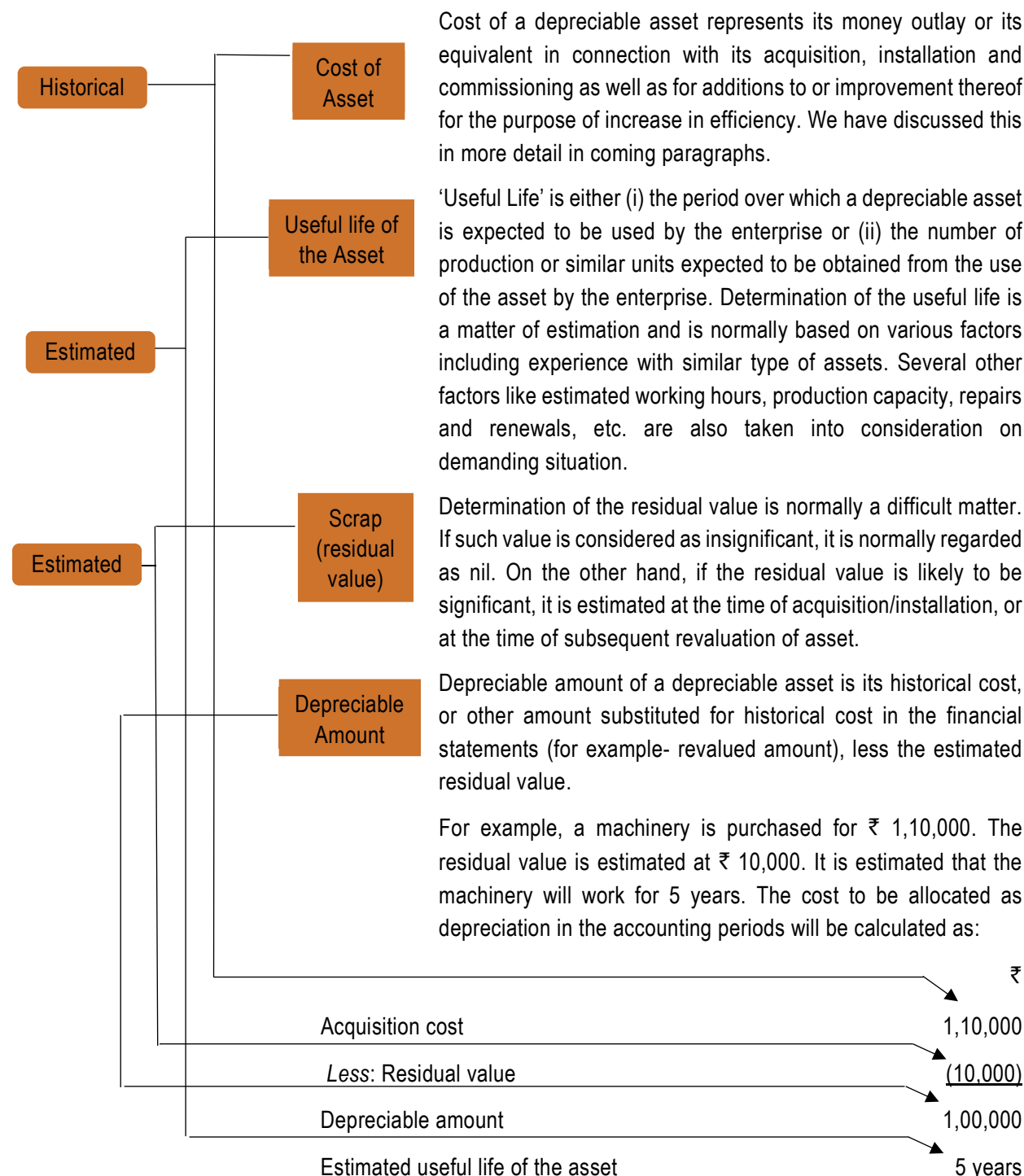


2. FACTORS IN THE MEASUREMENT OF DEPRECIATION

Estimation of exact amount of depreciation is not easy as it involves lot of estimation. Generally following factors are taken into consideration for calculation of depreciation.

1. Cost of asset including expenses for installation, commissioning, trial run etc.
2. Estimated useful life of the asset (both in terms of time & also utility/units).
3. Estimated scrap value (if any) at the end of useful life of the asset.

The above mentioned factors can be explained, in detail, as follows:



$$\text{Depreciation} = \frac{\text{Depreciable amount}}{\text{Estimated useful life}} \text{ i.e. } ₹ 1,00,000 / 5 = ₹ 20,000 \text{ per year}$$

Cost of Property, Plant and Equipment comprises:

- (a) its purchase price, including non-refundable import duties and purchase taxes, after deducting trade discounts and rebates.
- (b) any cost directly attributable to bring the asset to the location and condition necessary for it to be capable of operating in a manner intended by the enterprise.
- (c) the initial estimate of the costs of dismantling, removing, the item and restoring the site on which an asset is located.

Examples of costs directly attributable costs are:

- (a) cost of employee benefits arising directly from acquisition or construction of an item of property, plant and equipment.
- (b) cost of site preparation
- (c) initial delivery and handling costs
- (d) installation and assembly costs
- (e) cost of testing whether the asset is functioning properly, after deducting the net proceeds from selling the items produced while testing (such as samples produced while testing)
- (f) professional fees e.g. engineers hired for helping in installation of a machine

Thus, all the expenses which are necessary for asset to bring it in condition and location of desired used will become part of cost of the asset. However, following expenses should not become part of cost of asset:

- (a) costs of opening new facility or business, such as inauguration costs;
- (b) cost of introducing new product or service (for example cost of advertisement or promotional activities).
- (c) cost of conducting business in a new location or with a new class of customer (including cost of staff training); and
- (d) administration and other general overhead costs.

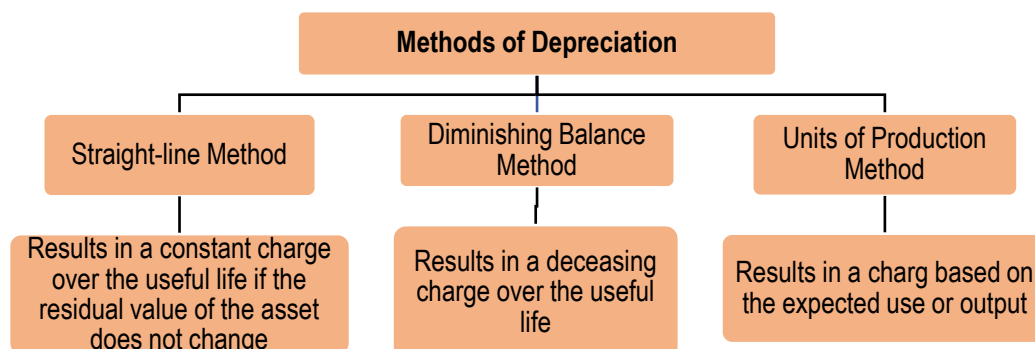
Once an asset has been brought to its intended condition and location of use, no cost should be recognized as part of cost of the asset unless there is major repair or addition which increases the useful life of the asset or improves the production capacity of the asset. Accordingly, cost incurred while an item is capable of operating in intended manner but it is not yet put to use or is used at less than full capacity should not be capitalized as part of cost of the asset. Similarly, cost of relocation of an asset should not be capitalized.

Any additions made to a particular item of property, plant and equipment after it is initially put to use are depreciated over the remaining useful life of the asset. Any addition or extension which has a separate identity and is capable of being used after the existing asset is disposed of, is accounted for separately. Therefore, it is important to maintain an asset register capturing asset wise details of cost, rate of depreciation, date of capitalization etc. All these details need to be captured for any additions to existing assets as well. In the absence of the adequate information, it will be very difficult to compute depreciation expense year on year. Also, at the time of disposal or discard of a particular asset, it will not be possible to compute gain or loss on such disposal/discard.



3. METHODS FOR PROVIDING DEPRECIATION

Generally, methods for providing depreciation are based on formula, developed on a study of the behavior of the assets over a period of years for readily computing the amount of depreciation suffered by different forms of assets. Each of the methods, however, should be applied only after carefully considering nature of the asset and the conditions under which it is being used.



The Income Tax Rules, however, prescribe the Diminishing Balance Method except in the case of assets of an undertaking engaged in generation and distribution of power.

3.1 Straight Line Method

According to this method, an equal amount is written off every year during the working life of an asset so as to reduce the cost of the asset to nil or its residual value at the end of its useful life. The advantage of this method is that it is simple to apply and gives accurate results especially in case of leases, and also in case of plant and machinery. This method is also known as Fixed Instalment Method.

$$\text{Straight Line Depreciation} = \frac{\text{Cost of Asset} - \text{Scrap Value}}{\text{Useful life}}$$

$$\text{Straight Line Depreciation Rate} = \frac{\text{Straight Line Depreciation}}{\text{Cost of Asset}} \times 100$$

The underlying assumption of this method is that the particular tangible asset generates equal utility during its lifetime. But this cannot be true under all circumstances. The expenditure incurred on repairs and maintenance will be low in earlier years, whereas the same will be high as the asset becomes old. Apart from this the asset may also have varying capacities over the years, indicating logic for unequal depreciation provision. However, many assets have insignificant repairs and maintenance expenditures for which straight line method can be applied.

While using this method the period of use of an asset in a particular year should also be considered. In the year of purchase of an asset it may have been available for use for part of the year only, accordingly depreciation should be proportioned to reflect the period for which it was available for use. For example, if an asset was purchased on March 1, 2017 and the enterprise prepares financial statements for the year ending on March 31, 2017 depreciation will be provided for a period of 1 month only. Similar situation will arise in the year in which an asset is retired from its intended used or is sold. However, under income tax rules depreciation is provided for full year if the asset was used for more than 180 days in a particular financial year.

3.2 Reducing or Diminishing Balance Method or Written Down Value (WDV) Method

Under this system, a fixed percentage of the diminishing value of the asset is written off each year so as to reduce the asset to its residual value at the end of its life. Repairs and small renewals are charged to revenue. This method is commonly used for plant, fixtures, etc. Under this method, the annual charge for depreciation decreases from year to year, so that the earlier years suffer to the benefit of the later years. Also, under this method, the value of asset can never be completely extinguished, which happens in the earlier explained Straight Line Method. However, it is very simple to operate. This method is based on the assumption that cost of repairs will increase as the asset get old, therefore, depreciation in earlier years should be high when the repair cost is expected to be low and depreciation in later years should be low when the repair cost is expected to be high. Therefore, this method will result in almost equal burden in all the years of use of the asset as depreciation will reduce with increase in repair costs will increase with every passing year. On the other hand, under the Straight Line Method, the charge for depreciation is constant, while repairs tend to increase with the life of the asset. Among the disadvantages of this method is the danger that too low a percentage may be adopted as depreciation with the result that over the life of the asset full depreciation may not be provided; also if assets are grouped in such a way that individual assets are difficult to identify, the residue of an asset may lie in the asset account even after the asset has been scrapped. The last mentioned difficulty could be, however, over come if a Plant register is maintained.

The rate of depreciation under this method may be determined by the following formula:

$$1 - \sqrt[n]{\frac{\text{Residual Value}}{\text{Cost of Assets}}} \times 100$$

where, n = useful life

Similar to straight line method, in this method also period of use in a particular year e.g. year of purchase or sale an item of property plant and equipment needs to be considered while computing the depreciation amount.

Accounting Entries under Straight Line and Reducing Balance Methods:

There are two alternative approaches for recording accounting entries for depreciation.

First Alternative

A provision for depreciation or Accumulated Depreciation account is opened to accumulate the balance of depreciation and the assets are carried at historical cost. This method is preferred by most of the organizations as it presents both the gross investment and the current value of the assets.

Accounting entry

Depreciation Account	Dr.
To Provision for Depreciation Account or Accumulated Depreciation	
Profit and Loss Account	Dr.
To Depreciation Account	

Second Alternative

Amount of Depreciation is credited to the Asset Account every year and the Asset Account is carried at historical cost less depreciation.

Accounting entries:

Depreciation Account Dr.
 To Asset Account

Profit and Loss Account Dr.
 To Depreciation Account

 **ILLUSTRATION 1**

Jain Bros. acquired a machine on 1st July, 2018 at a cost of ₹ 14,00,000 and spent ₹ 1,00,000 on its installation. The firm writes off depreciation at 10% p.a. of the original cost every year. The books are closed on 31st December every year.

Required

Show the Machinery Account and Depreciation Account for the year 2018 and 2019.

Machinery Account

		₹			₹
2018			2018		
July 1	To Bank A/c	14,00,000	Dec. 31	By Depreciation A/c	
July 1	To Bank A/c - Installation Expenses	1,00,000		10% on ₹ 15,00,000 for 6 months	75,000
			Dec. 31	By Balance c/d	14,25,000
		15,00,000			15,00,000
2019			2019		
Jan. 1	To Balance b/d	14,25,000	Dec. 31	By Depreciation A/c	
				10% on ₹ 15,00,000	1,50,000
			Dec. 31	By Balance c/d	12,75,000
		14,25,000			14,25,000

Depreciation Account

		₹			₹
2018			2018		
Dec. 31	To Machinery A/c	75,000	Dec. 31	By Profit & Loss A/c	75,000
2019			2019		
Dec. 31	To Machinery A/c	1,50,000	Dec. 31	By Profit & Loss A/c	1,50,000

ILLUSTRATION 2

Jain Bros. acquired a machine on 1st July, 2018 at a cost of ₹ 14,00,000 and spent ₹ 1,00,000 on its installation. The firm writes off depreciation at 10% p.a. every year. The books are closed on 31st December every year.

Required

Show the Machinery Account on diminishing balance method for the year 2018 and 2019.

SOLUTION

As per Reducing Balance Method

Machinery Account

Date	Particulars	₹	Date	Particulars	₹
2018			2018		
July 1	To Bank A/c	14,00,000	Dec. 31	By Depreciation A/c	75,000
July 1	To Bank A/c -	1,00,000		(₹ 15,00,000 x 10% x 6/12) for	
				6 months	
			Dec. 31	By Balance c/d	14,25,000
		15,00,000			15,00,000
2019			2019		
Jan. 1	To Balance b/d	14,25,000	Dec. 31	By Depreciation A/c	1,42,500
				(₹ 14,25,000 x 10%)	
			Dec. 31	By Balance c/d	12,82,500
		14,25,000			14,25,000

3.3 Sum of Years of Digits Method

It is variation of the "Reducing Balance Method". In this case, the annual depreciation is calculated by multiplying the original cost of the asset less its estimated scrap value by the fraction represented by:

The number of years (including the present year) of remaining life of the asset

Total of all digits of the life of the asset (in years)

Suppose the estimated life of an asset is 10 years; the total of all the digits from 1 to 10 is 55 i.e., 10 + 9 + 8 + 7 + 6 + 5 + 4 + 3 + 2 + 1, or by the formula:

$$\frac{n(n+1)}{2} = \frac{10 \times 11}{2} = 55$$

The depreciation to be written off in the first year will be 10/55 of the cost of the asset less estimated scrap value; and the depreciation for the second year will be 9/55 of the cost of asset less estimated scrap value and so on.

The method is not yet in vogue; and its advantages are the same as those of the Reducing Balance Method.

ILLUSTRATION 3

M/s Akash & Co. purchased a machine for ₹ 10,00,000. Estimated useful life and scrap value were 10 years and ₹ 1,20,000 respectively. The machine was put to use on 1.1.2014.

Required

Show Machinery Account and Depreciation Account in their books for 2019 by using sum of years digits method.

SOLUTION

**In the books of M/s Raj & Co.
Machinery Account**

		₹			₹
2019			2019		
Jan. 1	To Balance b/d (w.n.2)	3,60,000	Dec. 31	By Depreciation A/c (w.n.3)	80,000
			Dec. 31	By Balance c/d	2,80,000
		3,60,000			3,60,000
2020					
Jan.1	To Balance b/d	2,80,000			

Depreciation Account

		₹			₹
2019			2019		
Dec. 31	To Machinery A/c	80,000	Dec. 31	By Profit and Loss A/c	80,000
		80,000			80,000

Working Notes:

- (1) **Total of sum of digit of depreciation for 2014-18**

$$= (\text{₹ } 10,00,000 - \text{₹ } 1,20,000) \times \frac{10 + 9 + 8 + 7 + 6}{2 \times 10(10 + 1)}$$

$$= \text{₹ } 8,80,000 \times \frac{40}{55} = \text{₹ } 6,40,000$$

- (2) **Written down value as on 1-1-2019**

$$\text{₹ } 10,00,000 - \text{₹ } 6,40,000 = \text{₹ } 3,60,000$$

- (3) **Depreciation for 2019**

$$(\text{₹ } 10,00,000 - \text{₹ } 1,20,000) \times \frac{5}{55} = \text{₹ } 80,000.$$

3.4 Machine Hour Method

Where it is practicable to keep a record of the actual running hours of each machine, depreciation may be calculated on the basis of hours that the concerned machine worked. The machine hour rate of the depreciation, is calculated after estimating the total number of hours that machine would work during its whole life; however, it may have to be varied from time to time, on a consideration of the changes in the economic and technological conditions which might take place, to ensure that the amount provided for depreciation corresponds to that considered appropriate in the changed circumstances. It would be observed that the method is only a slight variation of the Straight Line Method under which depreciation is calculated per year. Under this method it is calculated for each hour the machine works.

Schedule II to the Companies Act 2013, prescribes estimated useful life of different assets for companies, also recognizes this method to some extent. It prescribes that depreciation should be charged using estimate useful life suggested in it, however, in certain category of plant and machinery it prescribes to charge higher amount of depreciation if these assets are used for 2 shifts or 3 shifts. In a way, schedule II combines straight line method and machine hour method.

ILLUSTRATION 4

A machine was purchased for ₹ 30,00,000 having an estimated total working of 24,000 hours. The scrap value is expected to be ₹ 2,00,000 and anticipated pattern of distribution of effective hours is as follows :

Year

1 – 3 3,000 hours per year

4 - 6 2,600 hours per year

7 - 10 1,800 hours per year

Required

Determine Annual Depreciation under Machine Hour Rate Method.

SOLUTION

Statement of Annual Depreciation under Machine Hours Rate Method

Year	Annual Depreciation
1 - 3	$\frac{3,000}{24,000} \times (\text{₹ } 30,00,000 - \text{₹ } 2,00,000) = \text{₹ } 3,50,000$
4 - 6	$\frac{2,600}{24,000} \times (\text{₹ } 30,00,000 - \text{₹ } 2,00,000) = \text{₹ } 3,03,333$
7 - 10	$\frac{1,800}{24,000} \times (\text{₹ } 30,00,000 - \text{₹ } 2,00,000) = \text{₹ } 2,10,000$

3.5 Production Units Method

Under this method depreciation of the asset is determined by comparing the annual production with the estimated total production. The amount of depreciation is computed by the use of following method:

$$\text{Depreciable Amount} \times \frac{\text{Production during the period}}{\text{Estimated total production}}$$

The method is applicable to machines producing product of uniform specifications.

ILLUSTRATION 5

A machine is purchased for ₹ 20,00,000. Its estimated useful life is 10 years with a residual value of ₹ 2,00,000. The machine is expected to produce 1.5 lakh units during its life time. Expected distribution pattern of production is as follows:

Year	Production
1-3	20,000 units per year
4-7	15,000 units per year
8-10	10,000 units per year

Required

Determine the value of depreciation for each year using production units method.

SOLUTION

Statement showing Depreciation under Production Units Method

Year	Annual Depreciation
1-3	$\frac{20,000}{1,50,000} \times (\text{₹ } 20,00,000 - \text{₹ } 2,00,000) = \text{₹ } 2,40,000$
4-7	$\frac{15,000}{1,50,000} \times (\text{₹ } 20,00,000 - \text{₹ } 2,00,000) = \text{₹ } 1,80,000$
8-10	$\frac{10,000}{1,50,000} \times (\text{₹ } 20,00,000 - \text{₹ } 2,00,000) = \text{₹ } 1,20,000$

3.6 Depletion Method

Depletion is the allocation of the cost of wasting natural resources such as oil, gas, timber, and minerals to the production process. This method is used in case of mines, quarries etc. containing only a certain quantity of product. The depreciation rate is calculated by dividing the cost of the asset by the estimated quantity of product likely to be available to be extracted. Annual depreciation will be the quantity extracted multiplied by the rate per unit.

 **ILLUSTRATION 6**

M/s Surya & Co. took lease of a quarry on 1-1-2017 for ₹1,00,00,000. As per technical estimate the total quantity of mineral deposit is 2,00,000 tonnes. Depreciation was charged on the basis of depletion method. Extraction pattern is given in the following table:

Year Quantity of Mineral extracted

2017	2,000 tonnes
2018	10,000 tonnes
2019	15,000 tonnes

Required

Show the Quarry Lease Account and Depreciation Account for each year from 2017 to 2019.

 **SOLUTION**
Quarry Lease Account

		₹			₹
2017			2017		
Jan.	To Bank A/c	1,00,00,000	Dec. 31	By Depreciation A/c [(2,000/2,00,000) × ₹ 1,00,00,000]	1,00,000
			Dec. 31	By Balance c/d	99,00,000
		1,00,00,000			1,00,00,000
2018			2018		
Jan. 1	To Balance b/d	99,00,000	Dec. 31	By Depreciation A/c	5,00,000
			Dec. 31	By Balance c/d	94,00,000
		99,00,000			99,00,000
2019			2019		
Jan. 1	To Balance b/d	94,00,000	Dec. 31	By Depreciation A/c	7,50,000
			Dec. 31	By Balance c/d	86,50,000
		94,00,000			94,00,000

Depreciation Account

		₹			₹
2017			2017		
Dec. 31	To Quarry lease A/c	1,00,000	Dec. 31	By Profit & Loss A/c	1,00,000
		1,00,000			1,00,000
2018			2018		
Dec. 31	To Quarry lease A/c	5,00,000	Dec. 31	By Profit & Loss A/c	5,00,000

2019		5,00,000	2019		5,00,000
Dec. 31	To Quarry lease A/c	7,50,000	Dec. 31	By Profit & Loss A/c	7,50,000
		7,50,000			7,50,000

4. PROFIT OR LOSS ON THE SALE/DISPOSAL OF PROPERTY, PLANT AND EQUIPMENT

Whenever any depreciable asset is sold during the year, depreciation is charged on it for the period it has been used in the sale year. The written down value after charging such depreciation is used for calculating the profit or loss on the sale of that asset. The resulting profit or loss on sale of the asset is ultimately transferred to profit and loss account. Thus, all entries related to sale and profit or loss on sale of asset are posted in the respective asset account. Alternatively, a new account titled Asset disposal Account may also be opened in the ledger for the purpose of calculating profit or loss on sale of asset. In that case the book value of the asset will be transferred from the asset account to the asset disposal account and all entries related to sale like sale proceeds and calculation of profit or loss on sale will be posted in the Asset disposal account.

For example: The book value of the asset as on 1st January, 2019 is ₹ 50,00,000. Depreciation is charged on the asset @10%. On 1st July 2019, the asset is sold for ₹ 32,00,000. In such a situation, profit or loss on the sale will be calculated as follows:

	₹
Book value as on 1st Jan., 2019	50,00,000
Less: Depreciation for 6 months @10% (from 1st Jan., 2019 to 30th June, 2019)	(2,50,000)
Written down value as on 1st July, 2019	47,50,000
Less: Sale proceeds as on 1st July, 2019	(32,00,000)
Loss on sale of the asset	15,50,000

ILLUSTRATION 7

A firm purchased on 1st January, 2018 certain machinery for ₹ 5,82,000 and spent ₹ 18,000 on its erection. On July 1, 2018 another machinery for ₹ 2,00,000 was acquired. On 1st July, 2019 the machinery purchased on 1st January, 2018 having become obsolete was auctioned for ₹ 3,86,000 and on the same date fresh machinery was purchased at a cost of ₹ 4,00,000.

Depreciation was provided for annually on 31st December at the rate of 10 per cent p.a. on written down value.

Required

Prepare machinery account.

 SOLUTION

Machinery Account

		₹			₹
2018			2018		
Jan. 1	To Bank A/c	5,82,000	Dec. 31	By Depreciation A/c	70,000
Jan. 1	To Bank A/c – erection charges	18,000		By Balance c/d	7,30,000
July 1	To Bank A/c	2,00,000			
		8,00,000			8,00,000
2019			2019		
Jan. 1	To Balance b/d	7,30,000	July 1	By Depreciation on sold machine	27,000
July 1	To Bank A/c	4,00,000		By Bank A/c	3,86,000
				By Profit and Loss A/c	1,27,000
			Dec. 31	By Depreciation A/c	39,000
				By Balance c/d	5,51,000
		11,30,000			11,30,000

Working Note:

Book Value of Machines

	Machine I ₹	Machine II ₹	Machine III ₹
Cost	6,00,000	2,00,000	4,00,000
Depreciation for 2018	(60,000)	(10,000)	
Written down value	5,40,000	1,90,000	
Depreciation for 2019	(27,000)	(19,000)	(20,000)
Written down value	5,13,000	1,71,000	3,80,000
Sale Proceeds	(3,86,000)		
Loss on Sale	1,27,000		

 ILLUSTRATION 8

On April 1, 2018 Shubra Ltd. purchased a machinery for ₹ 12,00,000. On Oct 1, 2020, a part of the machinery purchased on April 1, 2018 for ₹ 80,000 was sold for ₹ 45,000 and a new machinery at a cost of ₹ 1,58,000 was purchased and installed on the same date. The company has adopted the method of providing 10% p.a. depreciation on the written down value of the machinery.

Required : Show the necessary ledger accounts for the years ended 31st March 2019 to 2021 assuming that (a) 'Provision for Depreciation Account' is not maintained (b) Provision for Depreciation Account is maintained.

 **SOLUTION**

(a) When 'Provision for Depreciation Account' is not maintained.

Dr.			Machinery Account			Cr.		
Date	Particulars	₹	Date	Particulars	₹	Date	Particulars	₹
01.04.2018	To Bank A/c	12,00,000	31.03.2019	By Depreciation A/c	1,20,000			
				By Balance c/d	10,80,000			
		12,00,000			12,00,000			
01.04.2019		10,80,000	31.03.2020	By Depreciation A/c	1,08,000			
				By Balance c/d	9,72,000			
		10,80,000			10,80,000			
01.04.2020	To Balance b/d	9,72,000	01.10.2020	By bank A/c	45,000			
01.10.2020	To Bank A/c	1,58,000		By Profit & Loss A/c	16,560			
				By Depreciation A/c	3,240			
			31.3.2020	By Depreciation A/c (7,900+ 90,720)	98,620			
				By Balance c/d (8,16,480 + 1,50,100)	9,66,580			
		11,30,000			11,30,000			

(b) When 'Provision for Depreciation Account' is maintained

Dr.			Machinery Account (at original cost)			Cr.		
Date	Particulars	₹	Date	Particulars	₹	Date	Particulars	₹
01.04.2018	To Bank A/c	12,00,000	31.03.2019	By Balance c/d	12,00,000			
01.04.2019	To Balance b/d	12,00,000	31.03.2020	By Balance c/d	12,00,000			
01.04.2020	To Balance b/d	12,00,000	01.10.2020	By Machinery Disposal A/c	80,000			
01.10.2020	To Bank A/c	1,58,000	31.03.2021	By Balance c/d	12,78,000			
		13,58,000			13,58,000			

Dr.			Provision for Depreciation Account			Cr.		
Date	Particulars	₹	Date	Particulars	₹	Date	Particulars	₹
31.03.2019	To Balance c/d	1,20,000	31.03.2019	By Depreciation A/c	1,20,000			
31.03.2020	To Balance c/d	2,28,000	1.04.2019	By Balance b/d	1,20,000			
			31.03.2020	By Depreciation A/c	1,08,000			
		2,28,000			2,28,000			
01.10.2020	To Machinery Disposal A/c	18,440	01.04.2020	By Balance b/d	2,28,000			

31.03.2021	To Balance c/d	3,11,420	01.10.2020	By Depreciation A/c	3,240
			31.03.2021	By Depreciation A/c	98,620
		3,29,860			3,29,860

Dr.			Cr.		
Machinery Disposal Account					
Date	Particulars	₹	Date	Particulars	₹
01.10.2020	To Machinery Disposal A/c	80,000	01.10.2020	By Provision for Depreciation A/c	18,440
				By Bank A/c	45,000
				By Profit and Loss A/c	16,560
		80,000			80,000

Working Notes:**1. Calculation of Profit/Loss on Sale of Machinery**

Particulars	₹
A. Original Cost	80,000
B. Less : Depreciation @ 10% WDV p.a. for 2 ½ years	18,440
C. Book Value as on date of Sale (A – B)	61,560
D. Less : Sale proceeds	45,000
E. Loss on Sale (C – D)	16,560

2. Calculation of Depreciation for Current Year on Machines (other than sold)

Particulars	₹
A. On Old Machines of ₹ 9,07,200 for 1 year (10% WDV)	90,720
B. On New Machine of ₹ 1,58,000 for ½ year	7,900
	98,620

 **ILLUSTRATION 9**

A firm purchased second hand machinery on 1st January, 2018 for ₹ 3,00,000, subsequent to which ₹ 60,000 and ₹ 40,000 were spent on its repairs and installation, respectively. On 1st July, 2019 another machinery was purchased for ₹ 2,60,000. On 1st July, 2020, the first machinery having become outdated was auctioned for ₹ 3,20,000 and on the same date, another machinery was purchased for ₹ 2,50,000.

On 1st July, 2021, the second machinery was also sold off and it fetched ₹ 2,30,000.

Depreciation was provided on machinery @ 10% on the original cost annually on 31st December, under the straight line method.

Required

Prepare the following accounts in the books of the company: (i) Machinery Account for the years ending Dec. 31 2018 to 2021 and (ii) Machinery Disposal Account.

 SOLUTION

Dr.			Machinery Account			Cr.		
Date	Particulars	₹	Date	Particulars	₹			
01.01.2018	To Bank A/c (A) – Cost	3,00,000	31.12.2018	By Depreciation (A)	40,000			
	- Repairs	60,000		By Balance c/d (A)	3,60,000			
	- Installation	40,000						
		4,00,000			4,00,000			
01.01.2019	To Balance b/d	3,60,000	31.12.2019	By Depreciation (A) 40,000				
				(B) <u>13,000</u>	53,000			
01.07.2019	To Bank A/c (B)	2,60,000		By Balance b/d (A) 3,20,000				
				(B) <u>2,47,000</u>	5,67,000			
		6,20,000			6,20,000			
01.01.2020	To Balance b/d	5,67,000	01.07.2020	By Machinery Disposal A/c (A)	3,00,000			
01.07.2020	To Bank A/c (C)	2,50,000		By Depreciation A/c (A) 20,000				
				(B) 26,000				
		5,67,000		(C) <u>12,500</u>	58,500			
				By Balance c/d (B) 2,21,000				
		8,17,000		(C) <u>2,37,500</u>	4,58,500			
01.01.2021	To Balance b/d	4,58,500	01.07.2021	By Machinery Disposal A/c (B)	2,08,000			
				By Depreciation A/c (B) 13,000				
				(C) <u>25,000</u>	38,000			
				By Balance c/d	2,12,500			
		4,58,500			4,58,500			

Machinery Disposal Account

Date	Particulars	₹	Date	Particulars	₹
01.07.2020	To Machinery A/c (A)	3,00,000	01.07.2020	By Bank A/c	3,20,000
	To Profit Loss A/c (Profit)	20,000			
		3,20,000			3,20,000
01.07.2021	To Machinery A/c (B)	2,08,000	01.07.2021	By Bank A/c	2,30,000
	To P & L A/c (Profit)	22,000			
		2,30,000			2,30,000



5. CHANGE IN THE METHOD OF DEPRECIATION

The depreciation method applied to an asset should be reviewed at least at each financial year-end and, if there has been a significant change in the expected pattern of consumption of the future economic benefits embodied in the asset, the method should be changed to reflect the changed pattern. Whenever any change in depreciation method is made, such change in method is treated as change in accounting estimate as per Accounting Standards. Its effect needs to be quantified and disclosed separately. A change in an accounting estimate may affect the current period only or both the current period and future periods.

Example:

Cost of Machine	₹ 10,50,000
Residual Value	₹ 50,000
Useful life	10 years.

The company charges depreciation on straight line method for the first two years and thereafter decides to adopt written down value method by charging depreciation @ 25%. (calculated based on useful life). You are required to calculate depreciation for the 3rd year.

Depreciation already charged for the first 2 years as per straight line method is ₹ 2,00,000. Therefore, WDV for 2nd year is ₹ 8,50,000

Therefore, in the profit and loss account of the 3rd year, the depreciation of ₹ 2,12,500 (25% of ₹ 850,000) should be debited. In case the entity would have continued with Straight Line Method, depreciation for 3rd year would have been ₹ 1,00,000.



ILLUSTRATION 10

M/s Anshul & Co. commenced business on 1st January 2015, when they purchased plant and equipment for ₹ 7,00,000. They adopted a policy of charging depreciation at 15% per annum on diminishing balance basis and over the years, their purchases of plant have been:

Date	Amount ₹
1-1-2016	1,50,000
1-1-2019	2,00,000

On 1-1-2019 it was decided to change the method and rate of depreciation to straight line basis. On this date remaining useful life was assessed as 6 years for all the assets purchased before 1.1.2019 with no scrap value and 10 years for the asset purchased on 1.1.2019.

Required

Calculate the difference in depreciation to be adjusted in the Plant and Equipment Account for the year ending 31st December, 2019.

 SOLUTION

Depreciation on written down value basis

		Purchased on Jan. 1, 2015 ₹	Purchased on Jan. 1, 2016 ₹	Total Depreciation ₹
2015	Cost	7,00,000		1,05,000
	Depreciation	(1,05,000)		
	Written Down Value (WDV)	5,95,000		
2016	Cost	-	1,50,000	1,11,750
	Depreciation	(89,250)	(22,500)	
	W.D.V.	5,05,750	1,27,500	
2017	Depreciation	(75,863)	(19,125)	94,988
	W.D.V.	4,29,887	1,08,375	
2018	Depreciation	(64,483)	(16,256)	80,739
	W.D.V.	3,65,404	92,119	
2019	Depreciation	(60,900)	(15,353)	76,253
		3,04,504	76,766	

Plant and Equipment Account

		₹			₹
2019 Jan. 1	To Balance b/d	4,57,523	2019 Dec. 31	By Depreciation (60,900+15,353+20,000)	96,253
	To Bank	2,00,000		By Balance c/d	5,61,270
		6,57,523			6,57,523
2020 Jan. 1	To Balance b/d	5,61,270			

 6. REVISION OF THE ESTIMATED USEFUL LIFE OF PROPERTY, PLANT AND EQUIPMENT

The residual value and the useful life of an asset should be reviewed at least at each financial year-end and, if expectations differ from previous estimates, the change(s) should be accounted for as a change in an accounting estimate in accordance with Accounting Standards.

Whenever there is a revision in the estimated useful life of the asset, the written down value or the balance depreciable amount should be charged over the revised remaining estimated useful life of the asset.

 **ILLUSTRATION 11**

A Machine costing ₹ 6,00,000 is depreciated on straight line basis, assuming 10 years working life and Nil residual value, for three years. The estimate of remaining useful life after third year was reassessed at 5 years.

Required

Calculate depreciation for the fourth year.

 **SOLUTION**

Depreciation per year = ₹ 6,00,000 / 10 = ₹ 60,000

Depreciation on SLM charged for three years = ₹ 60,000 x 3 years = ₹ 1,80,000

Book value of the computer at the end of third year = ₹ 6,00,000 – ₹ 1,80,000 = ₹ 4,20,000.

Remaining useful life as per previous estimate = 7 years

Remaining useful life as per revised estimate = 5 years

Depreciation from the fourth year onwards = ₹ 4,20,000 / 5 = ₹ 84,000 per annum

 **7. REVALUATION OF PROPERTY, PLANT AND EQUIPMENT**

After recognizing an asset initially, the asset whose fair value could be reliably measured should be carried at the revalued amount, being the fair value at revaluation date and reduced by successively accumulated depreciation and successive accumulated impairment losses (permanent decline in value) (if any).

- (a) Revaluations must be made at adequate intervals (say yearly) for ensuring that carrying amount doesn't differ substantially from that which would be determined if fair value at end of the reporting period is used
- (b) In case an item of PPE is revalued, whole class of such PPE to which such asset belongs should be revalued
- (c) In case the carrying amount of an asset increases due to revaluation, such increase should be credited to revaluation surplus and should be accumulated in equity. However, such increase should be recognized in Profit and Loss statement to the extent of reversal of a previous decrease of that asset that was recognized in the Profit and Loss account.
- (d) In case the carrying amount of an asset is decreased due to revaluation, such decrease should be recognized in the Profit and Loss account. However, such decrease should be debited to the revaluation surplus to the extent of reversal of a previous increase that was recognized in revaluation surplus for that asset.

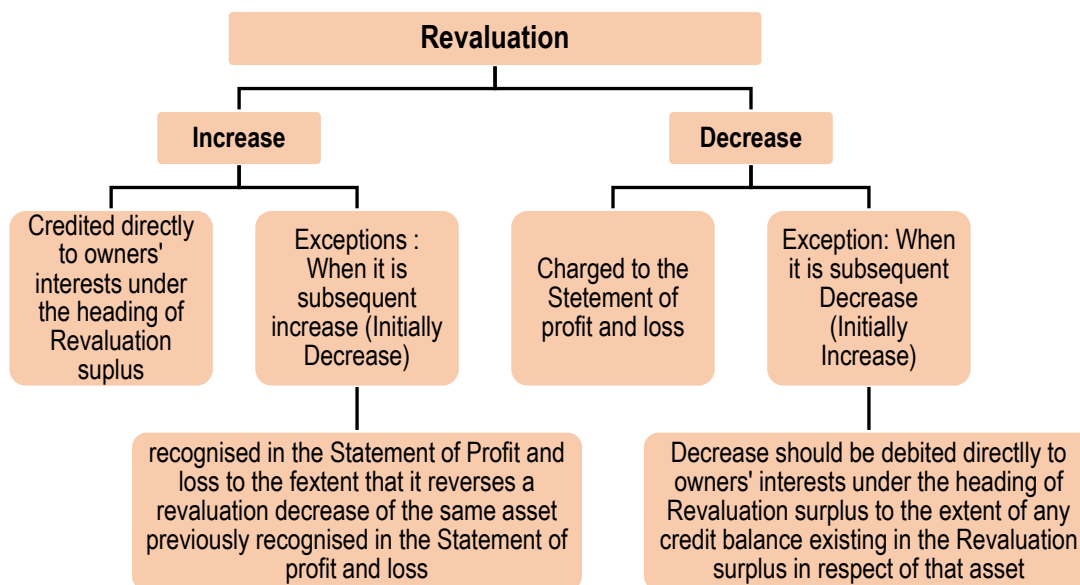


ILLUSTRATION 12

A machine of cost ₹ 12,00,000 is depreciated straight-line assuming 10 year working life and zero residual value for three years. At the end of third year, the machine was revalued upwards by ₹ 60,000 the remaining useful life was reassessed at 9 years.

Required

Calculate depreciation for the fourth year.

SOLUTION

Depreciation per year charged for three years = ₹ 12,00,000 / 10 = ₹ 1,20,000

WDV of the machine at the end of third year = ₹ 12,00,000 – ₹ 1,20,000 × 3 = ₹ 8,40,000.

Depreciable amount after revaluation = ₹ 8,40,000 + ₹ 60,000 = ₹ 9,00,000

Remaining useful life as per previous estimate = 7 years

Remaining useful life as per revised estimate = 9 years

Depreciation for the fourth year onwards = ₹ 9,00,000 / 9 = ₹1,00,000.

SUMMARY

- ◆ Depreciation is the systematic allocation of the depreciable amount of an asset over its useful life.
- ◆ Objectives for providing depreciation are:
 - ✦ Correct income measurement by matching the charge for the year
 - ✦ True financial position statement by showing PP&E at their current value
 - ✦ Funds for replacement

- ✦ Ascertainment of true cost of production.
- ◆ Factors in the measurement of depreciation:
 - ✦ Cost of asset
 - ✦ Estimated useful life of the asset
 - ✦ Estimated scrap value (if any) at the end of useful life of the asset.
- ◆ Methods for providing depreciation:
 - ✦ Straight line method
 - ✦ Reducing balance method
 - ✦ Sum of years of digits method
 - ✦ Machine hour method
 - ✦ Production units' method
 - ✦ Depletion method
- ◆ The resulting profit or loss on sale of the tangible asset is ultimately transferred to profit and loss account.
- ◆ The depreciation method residual value & useful life applied to an asset should be reviewed at least at each financial year-end and, if there has been a significant change in the expected pattern of consumption of the future economic benefits embodied in the asset, on account of the above, they should be changed to reflect the changed pattern.
- ◆ Whenever there is a revision in the estimated useful life of the asset, the balance depreciable amount should be charged to the asset over the revised remaining estimated useful life of the asset.
- ◆ Whenever the depreciable asset is revalued, the depreciation should be charged on the revalued amount on the basis of the remaining estimated useful life of the asset.

TEST YOUR KNOWLEDGE

True and False

1. Increase in market value of a fixed asset is one of the reasons for depreciation being charged.
2. Depreciation of an asset begins when it is available for use in the location & condition necessary for it to be capable of being operated.
3. Cost of property, plant and equipment includes purchase price, refundable taxes & import duties after deducting any discount or rebate.
4. Cost of fixed asset should also include cost of opening a new facility such as inauguration costs.
5. Depreciation is charged with a constant amount under straight line method and charged with a constant percentage under diminishing balance method.
6. In case an item of Property, Plant & Equipment is revalued, whole class of assets to which that asset being revalued belongs should be revalued.
7. In case the carrying amount of an asset is decreased due to revaluation, such decrease should always be recognized in the Profit and Loss account.

8. Akash purchased a machine for ₹ 12,00,000. Estimated useful life is 10 years and scrap value is ₹ 1,00,000. Depreciation for the first year using sum of the years digit method shall be ₹ 2,00,000.
9. Depletion is the allocation of the cost of intangible assets such as patents and copyrights.
10. Providing for depreciation also helps in providing for accumulation of funds to facilitate the replacement at the end of its useful life.
11. If the equipment account has a balance of ₹ 12,50,000 and the accumulated depreciation account has a balance of ₹ 4,00,000, the written down value of same shall be ₹ 16,50,000.
12. Sum of the years digit method is an example of accelerated method of charging depreciation.
13. Over the life of an asset subject to depreciation, the accelerated method will result in less Depreciation Expense in early years and more depreciation in later years of its life.
14. While depreciating land cost, Straight line method shall give more depreciation than the written down value.
15. Provision for depreciation account is debited at the time of recording the depreciation on an asset.
16. If adequate maintenance expenditure is incurred with relation to running repairs of an asset, we need not charge any depreciation.
17. When a property, plant or equipment is sold then provision for depreciation account is debited, asset account is credited and any gain or loss is recorded to profit and loss account.
18. While calculating the depreciation as per diminishing balance method, the salvage value of the asset at the end of its life is reduced from its cost.
19. Any change in the estimated useful life of an asset should be accounted for as a change in an accounting estimate in accordance with Accounting Standards.
20. Whenever any depreciable asset is sold during the year, depreciation is charged on it for that entire year.

Multiple Choice Questions

1. Original cost = ₹ 12,60,000; Salvage value = Nil; Useful life = 6 years. Depreciation for the first year under sum of years digits method will be
 (a) ₹ 3,60,000 (b) ₹ 1,20,000 (c) ₹ 1,80,000
2. Obsolescence of a depreciable asset may be caused by:
 - I. Technological changes.
 - II. Improvement in production method.
 - III. Change in market demand for the product or service output.
 - IV. Legal or other restrictions.
 (a) Only (I) above
 (b) Both (I) and (II) above

- (c) All (I), (II), (III) and (IV) above
3. The number of production of similar units expected to be obtained from the use of an asset by an enterprise is called as
- (a) Unit life (b) Useful life (c) Production life
4. If a concern proposes to discontinue its business from March 2015 and decides to dispose of all its plants within a period of 4 months, the Balance Sheet as on March 31, 2015 should indicate the plants at their
- (a) Historical cost (b) Net realizable value (c) Cost less depreciation
5. In the case of downward revaluation of a plant which is for the first time revalued, the account to be debited is
- (a) Plant account (b) Revaluation Reserve (c) Profit & Loss account
6. The portion of the acquisition cost of the tangible asset, yet to be allocated is known as
- (a) Written down value (b) Accumulated value (c) Realisable value
7. The main objective of providing depreciation is to
- (a) Create secret reserve (b) Reduce the book value of assets
(c) Allocate cost of the assets
8. Original cost of a machine was ₹ 25,20,000 salvage value was ₹ 1,20,000, useful life was 6 years. Annual depreciation under Straight Line Method
- (a) ₹ 4,20,000 (b) ₹ 4,00,000 (c) ₹ 3,00,000
9. The cost of a machine is ₹ 20,00,000. Two years later the book value is ₹ 10,00,000. The Straight-line percentage depreciation is
- (a) 50% (b) 33-1/3% (c) 25%
10. A machinery with original cost of ₹ 10,00,000 and Nil Salvage value acquired on 1st April 2017 with 4 years useful life was depreciated using Straight Line Method. It was decided to sell the machinery on 1st October 2020 for ₹ 1,20,000. What shall be the gain or (loss) on the sale of Machinery ?
- (a) Loss of ₹ 1,30,000 (b) Gain of ₹ 1,20,000 (c) Gain of ₹ 5,000
(d) Loss of ₹ 5,000
11. Which of the following assets does not depreciate?
- (a) Machinery and equipment (b) Patents (c) Land
12. A company purchased a machinery on April 01, 2014, for ₹ 15,00,000. It is estimated that the machinery will have a useful life of 5 years after which it will have no salvage value. The depreciation charged during the year 2018-19 was
- (a) ₹ 5,00,000 (b) ₹ 4,00,000 (c) ₹ 3,00,000

13. If the equipment account has a balance of ₹ 22,50,000 and the accumulated depreciation account has a balance of ₹ 14,00,000, the book value of the equipment is
- (a) ₹ 36,50,000 (b) ₹ 8,50,000 (c) ₹ 14,00,000
14. A plant with original cost of ₹ 50,00,000 was revalued after 2 years resulting in credit to Revaluation Surplus account of ₹ 4,00,000. Towards the year end of 2019-20, due to COVID-19 the plant value had gone down by ₹ 5,00,000 and accordingly management decided to revalue the same. What shall be the impact of this downwards revaluation on the Profit & Loss Account ?
- (a) Debit of ₹ 5,00,000 (b) Debit of ₹ 1,00,000 (c) Credit of ₹ 5,00,000
- (d) Credit of ₹ 1,00,000

Theory Questions

- Distinguish between Straight line method of depreciation and Written down value method of depreciation.
- Write short note on Depletion method of depreciation.
- What factors are considered for calculation of depreciation of a plant?

Practical Questions

- A firm's plant and machinery account at 31st December, 2018 and the corresponding depreciation provision account, broken down by year of purchase are as follows:

Year of Purchase	Plant and Machinery at cost ₹	Depreciation Provision ₹
2002	2,00,000	2,00,000
2008	3,00,000	3,00,000
2009	10,00,000	9,50,000
2010	7,00,000	5,95,000
2017	5,00,000	75,000
2018	3,00,000	15,000
	30,00,000	21,35,000

Depreciation is at the rate of 10% per annum on cost. It is the Company's policy to assume that all purchases, sales or disposal of plant occurred on 30th June in the relevant year for the purpose of calculating depreciation, irrespective of the precise date on which these events occurred.

During 2019 the following transactions took place:

- Purchase of plant and machinery amounted to ₹ 15,00,000
- Plant that had been bought in 2008 for ₹ 170,000 was scrapped.
- Plant that had been bought in 2009 for ₹ 90,000 was sold for ₹ 5,000.
- Plant that had been bought in 2010 for ₹ 2,40,000 was sold for ₹ 15,000.

You are required to:

Calculate the provision for depreciation of plant and machinery for the year ended 31st December, 2019. In calculating this provision you should bear in mind that it is the company's policy to show any profit or loss on the sale or disposal of plant as a completely separate item in the Profit and Loss Account. You are also required to prepare the following ledger accounts during 2019.

- (i) Plant and machinery at cost;
- (ii) Depreciation provision;
- (iii) Sales or disposal of plant and machinery.

2. The Machinery Account of a Factory showed a balance of ₹ 19,00,000 on 1st January, 2019. Its accounts were made up on 31st December each year and depreciation is written off at 10% p.a. under the Diminishing Balance Method.

On 1st June 2019, a new machinery was acquired at a cost of ₹ 2,80,000 and installation charges incurred in erecting the machine works out to ₹ 8,920 on the same date. On 1st June, 2019 a machine which had cost ₹ 4,37,400 on 1st January 2017 was sold for ₹ 75,000. Another machine which had cost ₹ 4,37,000 on 1st January, 2018 was scrapped on the same date and it realised nothing.

Write a plant and machinery account for the year 2019, allowing the same rate of depreciation as in the past calculating depreciation to the nearest multiple of a Rupee.

3. The LG Transport company purchased 10 trucks at ₹ 45,00,000 each on 1st April 2016. On October 1st, 2018, one of the trucks is involved in an accident and is completely destroyed and ₹ 27,00,000 is received from the insurance in full settlement. On the same date another truck is purchased by the company for the sum of ₹ 50,00,000. The company write off 20% on the original cost per annum. The company observe the calendar year as its financial year.

Give the motor truck account for two year ending 31 Dec, 2019.

4. A Machinery costing ₹ 20,00,000 is depreciated on straight line assuming 10 years working life and nil salvage value for four years. At the end of the fourth year, the machinery was revalued upwards by ₹ 80,000. The remaining useful life of the machinery was also reassessed as 8 years at the end of the fourth year. Calculate the depreciation for 5th Year.
5. Amazing group had Property, Plant & Equipment (PP&E) with a book value of ₹ 35,00,000 on 31st December 2019. The balance in Revaluation Surplus on that date was ₹ 3,00,000. As part of their practice of revaluing the assets on yearly basis, another revaluation was carried out on 31st December 2019. Evaluate the impact of Revaluation if the Fair Value as a result of Revaluation done on 31st December 2019 was (a) ₹ 37,00,000 (b) ₹ 33,00,000 and (c) ₹ 31,00,000. Also, give the journal entries.
6. On April 1, 2018 a firm purchased a machinery for ₹ 2,00,000. On 1st October in the same accounting year, additional machinery costing ₹ 1,00,000 was purchased. On 1st October, 2019, the machinery purchased on 1st April 2018, having become obsolete was sold off for ₹ 90,000. On October 1, 2020, new machinery was purchased for ₹ 2,50,000 while the machinery purchased on 1st October 2018 was sold for ₹ 85,000 on the same day. The firm provides depreciation on its machinery @ 10% per annum on original cost on 31st March every year. Show Machinery Account, Provision for Depreciation Account and Depreciation Account for the period of three accounting years ending March 31, 2021.

ANSWERS/HINTS

True and False

1. False : It is the decrease in market value as one of the reasons for depreciation. Increase in market value may result in Revaluation.
2. True : It is not necessary that the asset must be used to be depreciated, thus depreciation may start once it is brought in the location & condition required to be used.
3. False : Non refundable taxes & duties form part of the cost.
4. False : Inauguration costs shouldn't be part of cost.
5. True : SLM method results in same amount and diminishing method involves same rate of depreciation.
6. True : Revaluation should be done for the whole class of the asset.
7. False : Any decrease in value of asset on account of revaluation should be first debited to Revaluation Reserve, if any, and then to Profit & Loss account.
8. True : Sum of years digit method depreciation is calculated as $10/55 \times (12,00,000 - 1,00,000) = 2,00,000$
9. False : Depletion relates to allocation of cost of natural resources
10. True : Depreciation being non cash expense reduces the distributable profits and hence facilitates replacement of asset when required.
11. False : $WDV = ₹ 12,50,000 - ₹ 4,00,000 = ₹ 8,50,000$
12. True : Higher depreciation is charged in earlier years under sum of the years digit method.
13. False : It is vice versa as under diminishing balance method; higher depreciation is charged in beginning.
14. False : Land is not depreciated.
15. False : Provision for Depreciation account is credited while charging the depreciation.
16. False : Depreciation is allocation of the cost of an asset over its useful life. Regular repairs may be required during its life are expensed and depreciation has to be charged anyways.
17. True : At the time of sale of an asset, respective asset account is credited with provision for depreciation account being debited and any resulting gain or loss being charged to profit & loss account.
18. False: Under diminishing balance method, salvage value is not considered initially as it assumes that at the end of the asset's life the remaining value shall be its salvage value.
19. True : Any change in useful life of an asset is accounted for as a change in estimate.
20. False : Whenever any depreciable asset is sold during the year, depreciation is charged on it for the period it has been used in the sale year.

Multiple Choice Questions

1. (a) 2. (c) 3. (b) 4. (b) 5. (c) 6. (a)
 7. (c) 8. (b) 9. (c) 10. (d) 11. (c) 12. (c)
 13. (b) 14. (b)

Theoretical Questions

1. Under straight line method an equal amount is written off each year throughout the working life of the depreciable tangible asset so as to reduce the cost of the asset to nil or to its scarp value at the end. Under reducing balance method, a fixed percentage is charged on the diminishing balance of the asset each year so as to reduce the value of the asset to its scarp value at the end of useful life. The basic distinction between these two methods are as follows:

Under straight line method, annual depreciation charge is equal throughout the life of the asset; but under reducing balance method, depreciation charge is reduced over the years as the asset grows old.

Under straight-line method, the asset can be fully depreciated but under reducing balance method asset can never be fully depreciated.

Under straight line method the charge for depreciation is constant while repair charges increase with the life of the asset, so the total charge throughout the life of the asset will not be uniform. To the contrary, under reducing balance method, depreciation charges become high in the initial years but generally repair remains low. As the asset grows old depreciation charge reduces but repair expenses increase. Thus under reducing balance method depreciation and repairs are more or less evenly distributed throughout the life of the asset.

2. Natural resources include physical assets like mineral deposits, oil and gas resources and timber. These natural resources exhaust by exploitation.

Depletion per unit is calculated as

$$\frac{\text{Acquisition cost-Residual Value}}{\text{Estimate life in terms of production units}}$$

3. The factors considered for calculation of depreciation are as: (i) Cost of asset including expenses for installation, commissioning, trial run etc. (ii) Estimated useful life of the asset and (iii) Estimated scrap value (if any) at the end of useful life of the asset.

Practical Questions

Answer 1

Calculation of provision for depreciation of plant and machinery for the year ended 31st December, 2019.

Plant purchased in:		₹	₹
2002		nil	
2008		nil	
2009			50,000

2010	1/2 year at 10% on ₹ 2,40,000	12,000	
	1 year at 10% on ₹ 4,60,000	46,000	58,000
2017	10% on ₹ 5,00,000		50,000
2018	10% on ₹ 3,00,000		30,000
2019	1/2 year at 10% on ₹ 15,00,000		75,000
			2,63,000

Plant and Machinery Account (for 2019) at Cost

	₹		₹
To Balance b/d	30,00,000	By Disposals account:	
To Bank A/c	15,00,000	Scrapped	1,70,000
		Sold	3,30,000
		By Balance c/d	40,00,000
	45,00,000		45,00,000

Depreciation Provision Account (for 2019)

		₹		₹
To Disposal Account :			By Balance b/d	21,35,000
Scrapped - 2008 assets	1,70,000		By Profit and Loss Account	2,63,000
Sold - 2009 assets	90,000			
Sold - 2010 assets	2,16,000	4,76,000		
To Balance c/d		19,22,000		
		23,98,000		23,98,000

Sale or disposal of Plant and Machinery Account (for 2019)

		₹		₹
To Plant and Machinery :			By Provision for Depreciation	4,76,000
Scrapped		1,70,000	By Cash-Sales Proceeds	20,000
Sold		3,30,000	By Loss on sales	4,000
		5,00,000		5,00,000

Answer 2

Plant and Machinery Account

		₹		₹
2019			2019	
Jan. 1	To Balance b/d	19,00,000	June 1	By Bank (Sales)
				75,000

June. 1	To Bank (2,80,000 + 8,920)	2,88,920		By Depreciation (on sold machine)	14,762
				By Loss on sale	2,64,532
				By Loss on scrapping the machine	3,76,912
				By Depreciation (on scrapped machinery)	16,388
				By Depreciation (Note iii)	1,32,094
				By Balance c/d	13,09,232
		21,88,920			21,88,920

Working Note :

(i) Calculation of loss on sale of machine on 1-6-2019		₹
Cost on 1-1-2017		4,37,400
Less : Depreciation @ 10% on ₹ 4,37,400		(43,740)
W.D.V. on 31-12-2017		3,93,660
Less : Depreciation @ 10% on ₹ 3,93,660		(39,366)
W.D.V. on 31-12-2018		3,54,294
Less : Depreciation @ 10% on ₹ 3,54,294 for 5 months		(14,762)
		3,39,532
Less : Sale proceeds on 1-6-2019		(75,000)
Loss		2,64,532
(ii) Calculation of loss on scrapped machine		₹
Cost on 1-1-2018		4,37,000
Less : Depreciation @ 10% on ₹ 4,37,000		(43,700)
W.D.V. on 1-1-2019		3,93,300
Less : Depreciation @ 10% on ₹ 3,93,300 for 5 months		(16,388)
Loss		3,76,912
(iii) Depreciation		
Balance of machinery account on 1-1-2019		19,00,000
Less : W.D.V of machinery sold	3,54,294	
W.D.V. of machinery scrapped	3,93,300	(7,47,594)
W.D.V. of other machinery on 1-1-2019		11,52,406
Depreciation @ 10% on ₹ 11,52,406 for 12 months		1,15,240
Depreciation @ 10% on ₹ 2,88,920 for 7 months		16,854
		1,32,094

Answer 3

Date	Particulars	Amount	Date	Particulars	Amount
2018			2018		
Jan-01	To balance b/d	2,92,50,000	Oct-01	By bank A/c	27,00,000
	To Profit & Loss A/c				
Oct-01	(Profit on settlement of Truck)	4,50,000	Oct-01	By Depreciation on lost assets	6,75,000
Oct-01	To Bank A/c	50,00,000	Oct-01	By Depreciation A/c	83,50,000
			Dec-31	By balance c/d	2,29,75,000
		3,47,00,000			3,47,00,000
2019			2019		
Jan-01	To balance b/d	2,29,75,000	Dec-31	By Depreciation A/c	91,00,000
			Dec-31	By balance c/d	1,38,75,000
		2,29,75,000			2,29,75,000

Working Note:

- Profit on settlement of truck

	₹
Original cost as on 1.4.2016	45,00,000
Less: Depreciation for 2016	(6,75,000)
	38,25,000
Less: Depreciation for 2017	(9,00,000)
	29,25,000
Less: Depreciation for 2018 (9 months)	(6,75,000)
	22,50,000
Less: Amount received from Insurance company	(27,00,000)
	4,50,000

Answer 4

Depreciation per year for first 4 years = ₹ 20,00,000 / 10 = ₹ 2,00,000

Thus, WDV of the Machinery at end of the 4th year = ₹ 20,00,000 – (₹ 2,00,000 x 4) = ₹ 12,00,000

Revalued Amount i.e. New Depreciable Amount shall be = ₹ 12,00,000 + ₹ 80,000 = ₹ 12,80,000

Original remaining useful life is (10-4) = 6 Years whereas it is reassessed as 8 Years.

Hence, depreciation for 5th Year = ₹ 12,80,000 / 8 = ₹ 1,60,000

Answer 5

- Fair Value : ₹ 37,00,000

Since this is an upward revaluation and the group had a balance in revaluation surplus (i.e. there was an upward movement earlier), hence this will result in an additional credit of ₹ 2,00,000 to Revaluation

Surplus and hence the total Revaluation Surplus balance (part of other comprehensive income in Equity) shall increase to ₹ 5,00,000. The Accounting journal entry shall be:

Property, Plant & Equipment A/c	Dr	2,00,000	
	To Revaluation Surplus A/c		2,00,000

(b) Fair Value : ₹ 33,00,000

Since this is a downward revaluation and the group had a balance in revaluation surplus (i.e. there was an upward movement earlier), hence this will result in a reduction or a debit to Revaluation Surplus to the extent of balance therein and any excess shall be debited to Profit & Loss A/c. In this case, there is a reduction in fair value of ₹ 2,00,000 (35,00,000 – 33,00,000) and hence the entire amount shall be debited to Revaluation Surplus. Hence, the total Revaluation Surplus balance (part of other comprehensive income in Equity) shall decrease to ₹ 1,00,000. The Accounting journal entry shall be:

Revaluation Surplus A/c	Dr	2,00,000	
	To Property, Plant & Equipment A/c		2,00,000

(c) Fair Value : ₹ 31,00,000

Since this is also a downward revaluation and the group had a balance in revaluation surplus (i.e. there was an upward movement earlier), hence this will result in a reduction or a debit to Revaluation Surplus to the extent of balance therein and any excess shall be debited to Profit & Loss A/c. In this case, there is a reduction in fair value of ₹ 4,00,000 (35,00,000 – 31,00,000) and hence the Revaluation Surplus A/c shall be debited by ₹ 3,00,000 and the balance ₹ 1,00,000 shall be debited to Profit & Loss A/c. Hence, the total Revaluation Surplus balance (part of other comprehensive income in Equity) shall become Nil. The Accounting journal entry shall be:

Revaluation Surplus A/c	Dr	3,00,000	
Profit & Loss A/c	Dr	1,00,000	
	To Property, Plant & Equipment A/c		4,00,000

Answer 6

Dr. **Machinery Account** Cr.

Date	Particulars	₹	Date	Particulars	₹
01.04.2018	To Bank A/c	2,00,000	31.03.2019	By Balance c/d	3,00,000
01.10.2018	To Bank A/c	1,00,000			
		3,00,000			3,00,000
01.04.2019	To Balance b/d	3,00,000	01.10.2019	By Bank A/c	90,000
				By Provision for Depreciation A/c	30,000
				By Profit and Loss A/c	80,000
			31.3.2020	By Balance c/d	1,00,000
		3,00,000			3,00,000

01.04.2020	To Balance b/d	1,00,000	01.10.2020	By Bank A/c	85,000
01.10.2020	To Bank A/c	2,50,000		By Provision for Depreciation A/c	20,000
	To Profit and Loss A/c	5,000	31.3.2021	By Balance c/d	2,50,000
		3,55,000			3,55,000

Depreciation Account

Date	Particulars	₹	Date	Particulars	₹
31.03.2019	To provision for Depreciation A/c	25,000	31.03.2019	By Profit and Loss A/c	25,000
		25,000			25,000
01.10.2019	To Provision for Depreciation A/c	10,000	31.03.2020	By Profit and Loss A/c	20,000
31.03.2020	To Provision for Depreciation A/c	10,000			20,000
		20,000			20,000
01.10.2020	To Provision for Depreciation A/c	5,000	31.03.2021	By Profit and Loss A/c	17,500
31.03.2021	To Provision for Depreciation A/c	12,500			17,500
		17,500			17,500

Dr.

Provision for Depreciation Account

Cr.

Date	Particulars	₹	Date	Particulars	₹
31.03.2019	To Balance c/d	25,000	31.03.2019	By Depreciation A/c (₹ 20,000 + ₹ 5,000)	25,000
		25,000			25,000
01.12.2019	To Machinery A/c (₹ 20,000 + ₹ 10,000)	30,000	01.04.2019	By Balance b/d	25,000
31.03.2020	To Balance c/d	15,000	01.10.2019	By Depreciation A/c	10,000
		45,000	31.03.2020	By Depreciation A/c	10,000
		45,000			45,000
01.10.2020	To Machinery A/c (₹ 5,000 + ₹ 10,000 + ₹ 5,000)	20,000	01.04.2020	By Balance b/d	15,000
31.03.2021	To Balance c/d	12,500	01.10.2020	By Depreciation A/c	5,000
		32,500	31.03.2021	By Depreciation A/c	12,500
		32,500			32,500