DEPRECIATION ACCOUNTING

Definition of Depreciation: Depreciation is the allocation of the depreciable amount of an asset over its estimated useful life .Depreciation for the accounting period is charged to income either directly or indirectly. (Definition given by international Accounting standards committee)

According to Pickles, “Depreciation is the permanent and continuing diminution in the quality, quantity or value of an asset”.

According to Spicer and Pegler, Depreciation may be defined as, “the measure of the exhaustion of the effective life of an asset from any cause during a given period”.

From the above definitions, it can be concluded that depreciation is a gradual decrease in the value of an asset from any cause.

Characteristics of Depreciation:

1. Depreciation is gradual, permanent and continuous decrease in the utility value of a fixed asset.
2. Depreciation is a process of allocation of the cost to the period of its life and not a valuation of fixed assets.
3. Depreciation arises due to use of assets in productive activities.
4. Depreciation is charged is respect of fixed asset.
5. Depreciation is a charge against profit.

OBJECTIVES OF PROVIDING DEPRECIATION

1. Ascertainment of true profits
2. Presentation of true financial position
3. Replacement of Assets

METHODS FOR PROVIDING DEPRECIATION

The following are various methods for providing deprecation

1. Straight line Method (SLM)
2. Declining charge of accelerated depreciation method

a) Diminishing balance method
b) Sum of years digits method
c) Double declining method

3. Other methods

a) Group depreciation method
b) Inventory system of Depreciation

c) Annuity method

d) Depreciation fund (Sinking fund) method

e) Insurance Policy method

Straight line method (SLM) / fixed installment method: Under this method a fixed percentage on original cost of the asset is written off every year. And the asset account reduced to Nil or equivalent to its Scrap value.

$$\text{Depreciation} = \frac{C - S}{N}$$

C = Cost, S = Scarp or salvage value of asset and N = no of years.

Problem 1: An Asset is purchased for Rs. 1, 10,000, it has an estimated life of 10 years and its estimated scrap value after 5 years is Rs. 10, 000 then calculate Annual Depreciation under SLM method?

Sol:

$$\text{Annual Depreciation} = \frac{C - S}{N}$$

$$\text{Annual Depreciation} = \frac{1,\ 10{,}000 - 10{,}000}{5} = 20,\ 0000$$

Calculation Total Deprecation over life Period

Year	**Annual Depreciation**	**Accumulate Depreciation**	**Book value = Cost - Depreciation**
1	20, 000	20, 000	1,10,000 – 20,000 = 90,000
2	20, 000	40, 000	1,10,000 – 40,000 = 70,000
3	20, 000	60, 000	1,10,000 – 60,000= 50,000
4	20, 000	80,000	1,10,000 – 80,000= 30,000
5	20, 000	1,00,000	1,10,000 – 1,00,000= 10,000

Diminishing Balance Method: Under this method a fixed rate of Depreciable amount charged every year on value Fixed Asset. In this method, accountant calculate depreciation on the asset from which he deducts all previous depreciation from asset, so, every year amount of depreciation will go down.

Depreciation Rate (R) = $1 - (S/C)^{1/n}$

Where S = scrap, C = Cost and n = no of years.

Problem 2: An asset is purchased for Rs 1, 00,000 and it is used for Three years and expected scrap value at the end of period is 40,000 Calculate Depreciation using Diminishing Balance method.

Solution: Depreciation Rate (R) = 1 - $(S/C)^{1/n}$

$R = 1 – (40,000/1, 00,000)^{1/3}$

$= 26.32$

Depreciation rate is 26.32

Annual Depreciation table for three years

Year	Depreciable Amount	Rate	Depreciation	Accumulated Depreciation	Book Value = Cost – Depreciation
1	1,00,000	26.32	26,320	26,320	73,680
2	73,680	26.32	19,393	45,713	54,287
3	54,287	26.32	14,287	60,000	40,000

Problem 3: (If rate is directly given in question)

An asset is purchased for Rs 50,000 and 10 % Depreciation charged on value of asset for three years calculate value of Depreciation using Diminishing Balance method

Sol:

Depreciation = Rate X Cost

Depreciation = 0.10 X 50,000 = 5,000

Calculation of Depreciation for three years

Year	**Rate**	**Depreciation**	**Accumulated depreciation**
1	0.10	50,000 @ 10 % = 5000	5000
2	0.10	(50, 000 -5,000) @ 10% = 4500	9500
3	0.10	(50,000 – 9,500)@ 10 % = 4050	13,550

Sum of year digits method (SYD): Under this method depreciation is written off each year by the following formula

$$\text{Depreciation} = \frac{\text{Remaining life of the asset (including current year)}}{\text{Sum of digit of the life of the asset in years}} \text{ X (cost – scrap)}$$

Sum of digit of the life of the asset in years = n (n+1) [here n = no of years/ life of asset]

Problem: The cost of asset is 1, 00,000 and the expected life of asset is five years and asset is generating scrap value of Rs 20,0000 at the end of life Calculate depreciation using SYD method.

Sol:

$$\text{Depreciation} = \frac{\text{Remaining life of the asset (including current year)}}{\text{Sum of digit of the life of the asset in years}} \text{ X (cost – scrap)}$$

Sum of digit of the life of the asset in years = n (n+1) = 30
Calculation of Depreciation for five years using SYD method

First year Depreciation = $\frac{5}{15}$ X (1, 00,000-20,000) = 26,666.66

Second year Depreciation = $\frac{4}{15}$ X (1, 00,000-20,000) = 21,333.33

Third year Depreciation = $\frac{3}{15}$ X (1, 00,000-20,000) = 16,000

Fourth year Depreciation = $\frac{2}{15}$ X (1, 00,000-20,000) = 10,666.66

Fifth year Depreciation = $\frac{1}{15}$ X (1, 00,000-20,000) = 5,333.33

Annuity Method: According to this method the purchase of the asset is considered as an Investment capital, earning interest at a certain rate, and the asset value written down annually by equal installments.

Annual Depreciation = Annuity Factor X Cost or
Mathematical formula for calculating Annual Depreciation

$$\text{Yearly Depreciation} = \frac{\{(C\ (1+R)^n - S)\ (1 - (1+R)\}}{\{[1 - (1+R)^n]\}}$$

Problem: A firm purchased a four years lease for Rs 50,000. It decides to write off depreciation on the annuity method. And 5 % Interesting is earning every year from lease calculate depreciation under annuity method.

Note: The annuity factor value for 4 years @ 5% is 0.282012

Solution:

Annual Depreciation = Annuity factor X Cost
= 0.282012 X 40,000 = 14,100.60

Sinking Fund method: Under this method not only depreciation is charged on the asset, but provision is also made for the purchase of a new asset at the end of the life of the old asset. The main advantage of this method is that it not only provides depreciation, but also makes provision for the replacement of the old asset by a new one.

$$\text{Annual depreciation} = \frac{R(C - S)}{(1+R)^n}$$

Here R = interest rate, C = cost, S = Scrap and n = no of years

Problem: The cost of asset is 1, 20,000 and the expected life of asset is five years and asset is generating scrap value of Rs 20,0000 at the end of life and rate charged on asset is 5% per annum calculate depreciation using Sinking fund method?

Solution:

$$\text{Annual depreciation} = \frac{R(C - S)}{(1+R)^n}$$

$$\text{Annual depreciation} = \frac{0.05(1,\ 20{,}000 - 20{,}000)}{(1+0.05)^5}$$

$$= \frac{5000}{(1.05)^5}$$

$$= \frac{5000}{1.276} = 3{,}198.50$$