Indian Accounting Association

Subject: Financial Accounting-I

Unit -IV

Depreciation

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Depreciation

Objectives of the Chapter:

After studying the study materials students should understand the following:

- Meaning & Nature of Depreciation
- Accounting Standards for Depreciation
- Various methods of providing depreciation
- Accounting treatment for disposal or sale of depreciable properties
- Accounting treatment for change in the method of depreciation
- Accounting treatment for change in estimated useful life & residual value of property

4.1 Introduction:

Every concern or business house requires various types of fixed assets/tangible assets like property, plant, equipment etc. for performing regular business operations to earn revenues and these assets are used throughout its useful life. But the cost of fixed asset is recorded in books of accounts in the year of acquisition, instead of dividing or splitting its cost over the periods of its benefits enjoyed from it.

In simple word depreciation is the splitting or allocation of the acquisition cost of fixed asset in every accounting year in which asset is utilized.

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".

4.2 Accounting Standard for Depreciation:

Previously, there was a separate standard on Depreciation (AS 6) and AS 10 on Fixed Asset. Now, AS 10 (revised), Property, Plant &Equipments (PPE) deals with all aspects of fixed assets including depreciation. Ind AS 16, PPE is introduced in line with International Financial Reporting Standards (IFRS).

Key points of Ind AS 16:

- As per Ind AS, Depreciation is the systematic allocation of the depreciable amount of an asset over its useful life.
- As per Ind AS 16 Property, Plant and Equipment are tangible in nature that is held by an entity for use in the production or supply of goods or services throughout its useful life.
- As per Ind AS 16 "Property, Plant and Equipment", each part of fixed assets (Property, Plant and Equipment) with a cost is a significant part of the total cost of the item should be depreciated separately. Therefore depreciation on components of assets is necessary.
- As per Ind AS 16, the useful life and estimated residual value of an asset should be reviewed at the end of each accounting year before calculation of depreciation.
- As per Ind AS 16, change in method of depreciation should be treated as change in accounting estimate.

4.3 Difference between Depreciation, Amortization and Depletion:

Depreciation Depreciation	Amort Amortization ization	Depletion Depletion
Depreciation is the systematic allocation of the depreciable amount of an asset over its useful life	**It** means deterioration in the value of an tangible asset due to efflux or passage of time or expiry of the legal life of an asset .	**It** means drop in the value of a tangible asset due to exhaustion.

4.4 Causes of Depreciation:

Value of assets decreases mainly due to following reasons

- Wear and tears due to use in business entity
- Efflux or passage time even when an asset is not in regular use
- Deterioration in market value
- Obsolescence due to technological advancement, invention of new assets for better process or other changes

4.5 Objectives of providing Depreciation:

The objectives of providing depreciation are:

- To determine correct income
- To disclose true financial position statement

- To ascertain true cost of production
- To provide funds for replacement

4.6 Factors for the Measurement of Depreciation:

- Cost of asset (including installation& assemble cost and others admissible expenses, such as commission etc.)
- Estimated useful life of the asset
- Estimated Residual or scrap value of the asset
- Depreciable amount

4.7 Methods of Depreciation:

A number of methods are available for calculating the amount of depreciation, these are:

- Straight Line Method (SLM)
- Written Down Value Method / Reducing Balance Method / Diminishing Balance Method
- Production Unit Method
- Annuity Method
- Depletion Method
- Sum-of-the-Years' Digit Method
- Machine Hour Method
- Depreciation Fund / Sinking Fund Method

Straight Line Method (SLM) / Fixed Installment Method

Written Down Value Method / Diminishing Balance Method

Only the above two methods are allowed by the Income Tax Act, 1961 for computation of depreciation for determination of income.

4.7.1 Straight Line Method (SLM) / Fixed Installment Method:

- Under this method an equal amount of depreciation is written off in every accounting year over the useful life of the asset.
- According to this method, written down value of the asset is reduced to nil or to its residual value.

- Formula

$$\text{Depreciation p.a.} = \frac{\text{Cost of Asset+ Other Capital Expenses – Scrap Value}}{\text{Useful Life of Asset}}$$

Rate of Depreciation = Depreciation p.a.×100 / Original Cost

4.7.2 Written Down Value Method / Diminishing Balance Method:

- Under this method a fixed percentage of the diminishing value of the asset is written off in every accounting year and the value of the asset is reduced to its residual value
- The amount of depreciation decreasing
- Rate of depreciation remain constant
- Formula

Depreciation p.a. = For new asset: Original Cost × Rate of Depreciation

For existing asset: Opening WDV × Rate of Depreciation

$$\text{Rate of depreciation} = 1 - \sqrt[n]{\frac{\text{Residual Value}}{\text{Cost of asset}}}\ 100$$

Note: When as asset is put to use during a year, proportionate depreciation is charged. If a problem gives date of installation of an assets and a different date for putting the asset in use, the date on which the asset is put to use should be considered.

4.8 Accounting entries under Fixed Instalment Method and Diminishing Balance Method:

There are two alternative approaches:

1. Under this approach a provision for depreciation account or accumulated depreciation account is opened and the assets are carried at original cost.

Accounting entries:

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

2. Under this alternative amount of depreciation is charged to asset account in every accounting year and the asset account is carried at original cost less depreciation.

Accounting entries:

Depreciation Account	Dr.
To Asset Account	
Profit and Loss Account	Dr.
To Depreciation Account	

Example 1

Depreciation under SLM- Proportionate charging of Depreciation

A Ltd. purchased a machine on 1st July,2019 at a cost of Rs. 14, 00,000 and spent Rs. 1, 00,000 on its installation. The firm writes off depreciation at10% p.a.of the original cost every year. The books are closed on 31st March every year. You are required to:

Show the Machinery Account and Depreciation Account for the year 2019 and 2020.

Solution:

In the books of Ltd.

Machinery Account

Dr. **Cr.**

Date	Particulars	Amount(Rs.)	Date	Particulars	Amount(Rs.)
2019-20			2019-20		
July 1	To Bank A/c	14,00,000	March. 31	By Depreciation A/c	1,12,500
July 1	To Bank A/c - (Installation Expenses)	1,00,000		10% on ` 15,00,000 for 9 months	
			Mar. 31	By Balance c/d	13,87,500
		15,00,000			15,00,000
2020-21			2020-21		
April. 1	To Balance b/d	13,87,500	Mar. 31	By Depreciation A/c	1,50,000
				10% on` 15,00,000	
			Mar. 31	By Balance c/d	12,37,500
		13,87,500			13,87,500

Depreciation Account

Dr. **Cr.**

Date	Particulars	Amount (Rs.)	Date	Particulars	Amount (Rs.)
2019-20 March. 31	To Machinery A/c	1,12,500 _____ 1,12,500	2019-20 March. 31	By Profit & Loss A/c	1,12,500 _____ 1,12,500
2020-21 March. 31	To Machinery A/c	1,50,000 _____ 1,50,000 =======	2020-21 March. 31	By Profit & Loss A/c	1,50,000 _____ 1,50,000

Example 2:

Depreciation under SLM- Purchase and Sale of Asset

A Ltd. depreciates its equipment at 10% p.a. on straight line method. On 1/4/2019/ the balance in Equipment account was Rs. 8,50,000 (Original Cost Rs. 12,00,000). On 1/7/2019 new equipment was purchased for Rs. 25,000. On 31/12/2019 an old equipment having WDV of Rs. 40,000 on 1/4/2019 (Original cost Rs. 60,000) was sold for Rs. 30,000.

Show the Equipment Account for the year ended 31.03.2020.

Solution:

In the Books of A Ltd.
Equipment A/c

Dr. Cr.

Date	Particulars	Amount (Rs.)	Date	Particulars	Amount (Rs.)
2019 April 1	To Balance b/f	8,50,000	2019 Dec. 31	By Depreciation A/c [WN-1]	4500
July 1	To Bank A/c [Purchase of equipment]	25,000	Dec. 31	By Bank A/c [sale of equipment]	30,000
			2020 March 31	By Loss on sale of equipment A/c	5,500
			31	By Depreciation A/c [WN-2]	1,15,875
				By Balance c/f	7,19,125
		8,75,000			8,75,000

Workings Notes:

1. **Sale of Equipment on 31.12.2019**

	Amount (Rs.)
WDV on 1.4.19	40,000
Less: Depreciation@ 10% p.a for 9 months [60,000 × 10% × 9/12]	4,500
WDV on 31.12.19	35,500
Sale proceeds	30,000
Loss on sale	5,500

2. **Annual Depreciation for 2019-20** **Rs.**

On equipment exists on 1.4.19; (12,00,000- 60,000) × 10% = 1,14,000
On equipment purchased on 1.7.2019: (25,000×10%×9/12) = 1,875
========
1,15,875

Journal Entry:

Bank A/c	Dr. 30,000	
Depreciation A/c	Dr. 4500	
Loss on sale of equipment A/c	Dr. 5500	
To Equipment A/c		40,000

Example 3:

Depreciation under WDV- Purchase and Sale of Asset

A Ltd. purchased on 1st April, 2019 a machinery for Rs. 2,91,000 and incurred Rs. 9000 for installation. On 1st October another machinery for Rs. 1,00,000 was purchased. On 1st October 2020 the machinery purchased on 01/04/2019 having become useless was sold for Rs. 1,93,000 and on that day a new machinery was purchased for Rs. 2,00,000.

Depreciation was provided on 31st March each year @ 10 percent p.a on written Down Value. You are required to prepare machinery account.

Solution:

In the Books of A Ltd.
Machinery A/c

Dr. Cr.

Date	Particulars	Amount (Rs.)	Date	Particulars	Amount (Rs.)
2019			2020		
April			March 31	By Depreciation A/c	35000
1	To Bank A/c	2,91,000		[depreciation on asset	
1	To Bank A/c	9,000		sold]	
	[Installation Charge]		31	By Balance c/d	3,65,000
Oct. 1	To Bank A/c	1,00,000			4,00,000
		4,00,000			
2020			2020		
April 1	To Balance b/d	3,65,000	Oct. 1	By Depreciation A/C (sold on Machinery)	13,500
Oct. 1	To Bank A/c [New Machine Purchased]	2,00,000	1	By Bank A/c	1,93,000
			1	By Profit & Loss A/c	63,500
			2021		
			March 31	By Depreciation A/c	19,500

			31	[WN-1] By Balance c/d	2,75,500
		5,65,000 ======			5,65,000 =======

Working Note 1:

Book Value of Machine

Particulars	Machine-1 (Rs.)	Machine2 (Rs.)	Machine-3 (Rs.)
Cost	3,00,000	1,00,000	2,00,000
Depreciation for 2019-20	(30,000)	(5000)	
Written Down Value	2,70,000	95,0000	
Depreciation for 2020-21	(13,500)	(9,500)	(10,000)
Written Down Value	2,56,500	85,500	1,90,000
Sale Proceeds	(1,93,000)		
Loss on Sale	63,500		

Depreciation on Components of an Asset:

According to Companies Act, 2013 and Ind AS 16 depreciation to be charged on a component basis, means each part of Property, Plant and Equipment should be depreciated separately if the cost of that part has a significant relation with the total cost of the item.

Example 4

Air India purchased 5 aircraft from ABS Aeronautical Ltd. on 1.4.2019 at a cost of Rs. 800 crore per aircraft. The break-up of the cost structure (in Rs. Crore) of each aircraft is as follows:

Aircraft body	150	Aircraft engine	300	Wheels	5
Cockpit equipment	125	Seats	5	Others	20

The depreciation is to be provided on the above components on the following basis:

Components	Depreciation Method	Depreciation Rate p.a
Aircraft body	DBM	30%
Cockpit equipment	SLM	15%

Aircraft engine	SLM	25%
Seats	DBM	20%
Wheels	Usage basis	-
Others	SLM	20%

SLM: Straight Line Method; DBM: Diminishing Balance Method

The aircrafts are expected to make 1,000 landings during their expected life time, out of which a total 200 landings were made during the year ended 31.3.2021.

You are required to prepare the Aircraft Account in the books of Air India for the year 2020-21, showing in detailed component-wise depreciation.

Solution:

In the Books of Air India
Aircraft A/c

Dr. Cr.

Date	Particulars	Amount (Rs. in Cr.)	Date	Particulars	Amount (Rs. in Cr.)
2020 April 1	To Balance b/f [WN:3]	3276.25	2021 March 31	By Depreciation A/c [Annual depreciation: 131.05× 5]	655.25
			31	By Balance c/f	2621
		3276.25			3276.25

Working Note:

1. Calculation of components wise depreciation **Amount Rs. in Crore**

Components	Depreciation Method	Depreciation Rate p.a	Depreciation	
			2019-20	2020-21
Aircraft body	DBM	30%	45	31.5#
Cockpit equipment	SLM	15%	18.75	18.75
Aircraft engine	SLM	25%	75	75
Seats	DBM	20%	1	0.8 ##
Wheels	Usage basis	-	1[WN 2]	1[WN 2]
Others	SLM	20%	4	4
Annual Depreciation			144.75	131.05

[(150-45) * 30%] ## [(5-1) * 20%]

2. Depreciation on Wheels

Total cost of wheels of all 5 aircrafts =Rs.5 core*5=Rs. 25 crore

The aircrafts are expected to make 1000, landings during their expected life time, out of which a total of 200 landings were made during the year ended 31.3.2021.

Therefore depreciation on wheels during 2020-21 (for all 5 aircrafts) = Rs. 25 crore* 200/1000=Rs.5 crore.

Per aircrafts depreciation on wheels= Rs 5 crore/5=Rs. 1 crore

4. WDV on Aircrafts A/c on 1.4.2020

Original cost less Depreciation of 2019-20 = Rs {(800*5) – (144.75*5)Crore =Rs. 3276.25 Crore

Example 5:

Change in Method of depreciation – SLM to WDV

XD Ltd. Purchased equipment for Rs. 90,000 on 1.1.2016 and depreciation is provided under straight line method @ 15% p.a. On 1.1.2020, it was decided to follow the diminishing balance method of depreciation @ 10% p.a. show the Equipment Account for the year 2020.

Solution:

In the Books of XD Ltd.
Equipment A/c

Dr. Cr.

Date	Particulars	Amount (Rs.)	Date	Particulars	Amount (Rs.)
2020 Jan 1	To Balance b/f [WN:1]	49,500	2020 Dec.31	By Depreciation A/c [Annual depreciation: 49500× 10%]	4,950
			31	By Balance c/f	44,550
		49,500			49,500

Working note 1:

WDV of equipment on 1.1.2020	Rs.
Original cost on 1.1.2016	= 90000
Less: depreciation @ 15% for 3 years [90000 × 15%×3yrs.]	= 40500
	49,500

*Note: As per Ind AS 16, change in method of depreciation should be treated as change in accounting estimate.

As per the present accounting standards retrospective effect is no more accepted, in case of change of method in depreciation.

Example 6:

Change in Method of Depreciation –WDV to SLM

B Ltd. purchased equipment for Rs. 1, 50,000 on 1.4.2016. The estimated life is 10 years and the scrap value after 10years is estimated at Rs. 15,000. Depreciation @ 10% is charged under diminishing balance method. On 1.4.2019, it has been decided to follow straight line method and it is anticipated that scrap value will be nil at the end of its useful life. Show equipment account.

Solution:

In the Books of B Ltd
Equipment A/c

Dr. Cr.

Date	Particulars	Amount (Rs.)	Date	Particulars	Amount (Rs.)
2016			2017		
Apr 1	To Bank A/c [purchase]	1,50,000	Mar 31	By Depreciation A/c [150000× 10%]	15,000
			31	By Balance c/d	1,35,000
		1,50,000			1,50,000
2017			2018		
Apr 1	To Balance b/d	1,35,000	Mar 31	By Depreciation A/c [135000× 10%]	13,500
			31	By Balance c/d	1,21,500
		1,35,000			1,35,000
2018			2019		
Apr 1	To Balance b/d	1,21,500	Mar 31	By Depreciation A/c [121500× 10%]	12,150
			31	By Balance c/d	1,09,350
		1,21,500			1,21,500
2019			2020		15,621
Apr 1	To Balance b/d	1,09,350	Mar 31	By Depreciation A/c [Note 1]	93,729
			31	By Balance c/f	
		1,09,350			1,09,350

Working Note 1:

New method: straight line method
Depreciation p.a. = WDV as on 1.42020/ Remaining estimated useful life = Rs. 1, 09,350/7
= Rs. 15,621 [approx]

Example 7:

Change in Residual Value & Useful life

DK Ltd. purchased equipment for Rs. 4, 00,000 on 1.4.2016. Estimated life is 20years and residual value at the end of estimated life is Rs. 20,000. As per the requirement of Ind AS 16 DK Ltd. reviewed the estimated residual value and life of the equipment at the end of every accounting period, the details of which is under

Year	2017-18	2018-19	2019-20
Residual value (Rs.)	17,000	13250	11750
Useful Life	15	14	9

You are required to show amount of depreciation per year for the year ended 2016-17 to 2019-20.

Solution:

Statement showing computation of Annual Depreciation

Particulars	2016-17	2017-18	2018-19	2019-20
i)Book value as on 1.4.16 (Rs.)	4,00,000	3,81,000 [4,00,000-19,000]	3,58,250 [3,81,000-22,750]	3,35,250 [3,58,250-23,000]
ii)Estimated residual value (Rs.)	20,000	17,000	13,250	10,750
iii)Remaining estimated useful life	20	16 [15+1]	15[14+1]	10[9+1]
iv)Depreciable amount (Rs.)[i-ii]	3,80,000	3,64,000	3,45,000	3,24,500
Annual Depreciation Rs. [iv/iii]	19,000	22,750	23,000	32,450

In the Books of DK Ltd.
Equipment A/c

Dr. Cr.

Date	Particulars	Amount (Rs.)	Date	Particulars	Amount (Rs.)
2019 Apr.1	To Balance b/f	3,35,250	2020 Mar 31	By Depreciation A/c	32,450
			31	By Balance c/f	3,02,800
		3,35,250			3,35,250

Example 8:

A machine costing 12,00,000 is depreciated on straight line method, assuming 8 years useful life and nil residual value for three years. The estimated remaining life after third year was reviewed at 5 years. Calculate depreciation for fourth year.

Solution:

Depreciation per year = Rs. 12, 00,000 / 8 = Rs. 1, 50,000

Depreciation on SLM charged for three years =Rs. 1, 50,000 x 3 years = Rs. 4,50,000

Book value of the Machine at the end of third year= Rs. (12,00,000–4,50,000) =Rs. 7,50,000.

Remaining useful life as per new estimate=5years

Remaining useful life as per revised estimate = 2 years

Depreciation from the fourth year onwards = Rs. 7, 50,000 / 2= Rs. 3, 75,000 per annum

Example 9:

Tulip Ltd. purchased a new machine on 1.4.2016 forRs. 5,00,000. The useful life the machine was expected to be 5yrs. Tulip Ltd. plans to fully write it off in equal instalments. On 1.4.2018, the company revised the expected life of the machine, which was expected to continue for further 2 yrs. Prepare machinery A/c for 4 years in the books of Tulip Ltd.

Solution:

In the Books of Tulip Ltd.
Machinery A/c

Dr. Cr.

Date	Particulars	Amount (Rs.)	Date	Particulars	Amount (Rs.)
2016 Apr.1	To Bank A/c [Purchase]	5,00,000	2017 Mar 31	By Depreciation A/c [5,00,000×1/5]	1,00,000
				By Balance c/d	4,00,000
		5,00,000			5,00,000
2017 Apr.1	To Balance b/d	4,00,000	2018 Mar 31	By Depreciation A/c [5,00,000×1/5]	1,00,000
			31	By Balance c/d	3,00,000
		4,00,000			4,00,000
2018 Apr.1	To Balance b/d	3,00,000	2019 Mar 31	By Depreciation A/c	60,000
			31	By Balance c/d	2,40,000
		3,00,000			3,00,000
2019 Apr.1	To Balance b/d	2,40,000	2020 Mar 31	By Depreciation A/c	60,000
			31	By Balance c/d	1,80,000
		2,40,000			2,40,000

Working Note:

Revised depreciation p.a.

WDV as on 1.4.2018 = Rs. 3,00,000

Extended useful life = 2 years

Therefore, revised useful life = remaining useful life of the machine +Further extended life, = (5-2) + 2 = 5

Depreciation p.a = Rs. 3,00,000/5 yrs.

= Rs. 60,000

Exercise

A. Multiple Choice Questions (MCQs)

1. Depreciation arises due to?

(a) Physical wear and tear of the asset
(b) Fall in the market value of an asset
(c) Fall in the value of money
(d) None of the above.

2. What is process called, where costs of the natural resources are allocated over its useful life?

(a) Capitalization
(b) Depletion
(c) Amortization
(d) Depreciation.

3. A Machine that cost Rs. 120,000 has Accumulated Depreciation of Rs. 50,000. The book value of machine is?

(a) Rs. 50,000
(b) Rs. 70,000
(c) Rs. 120,000
(d) Rs. 170,000

4. What is the process of allocating the cost of intangible assets over its estimated life?

(a) Depreciation
(b) Amortization
(c) Depletion
(d) Trial balance.

5. Depreciable value of an asset is equal to?

(a) Cost + scrap value
(b) Cost + market price
(c) Cost – scrap value
(d) None of the given options.

6. All of the following are needed for the computation of depreciation except?

(a) Expected disposal date
(b) Cost
(c) Residual value
(d) Estimated total useful life to the present and future owners.

7. The sale of equipment costing Rs. 8,000, with accumulated depreciation of Rs. 6,700 and sale price of Rs. 2,000, would result in a?

(a) Gain of Rs. 2,000
(b) Gain of Rs. 700
(c) Loss of Rs. 700
(d) Loss of Rs. 600

8. Which of the following would not be a basis for estimating the useful life of a piece of equipment?

(a) Years of service
(b) Weight
(c) Potential production in units
(d) Hours of service

9. Firms charge depreciation each year for various reasons. Choose the option that is not a correct reason for charging depreciation.

(a) To ensure there is enough money in the firm to replace the asset
(b) To spread the cost of the asset over its working life

(c) To reduce the profit and thus reduce the dividends they can pay to share holders

(d) Because the law states they must be reduced

10. Which one of the following items is not a consideration when recording periodic depreciation expense on plant assets?

(a) Salvage value

(a) Estimated useful life

(b) Cash needed to replace the plant asset

(c) Initial cost of the plant assets

11. Under the straight line method of depreciation?

(a) Amount of depreciation increases every year

(b) Amount of depreciation decreases every year

(c) Amount of depreciation remains constant for every year

(d) None of the given options.

[Answer key: 1(a), 2(b), 3(b), 4(b), 5(c), 6(d), 7(b), 8(b), 9(c), 10(c), 11(c),]

B. Theoretical Questions

1. What is Depreciation?
2. Discuss the difference between Amortization & Depreciation.
3. What are the objectives of providing depreciation?
4. Discuss the difference between Straight Line Method & Written down Value method.