(2) Written Down Value Method

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

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

and so on.

It will be observed from the above calculations that each year's depreciation is calculated on the book value of the asset at the beginning of that year, rather than on the original cost. As the value of the asset and also the depreciation charged on it goes on reducing year after year, the method is also known as **'Reducing Instalment Method'** or **'Diminishing Balance Method'.**

Merits :—

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

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

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

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

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

Demerits :—

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

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

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

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

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

AAA

Distinction between the two methods

Basis of Distinction	*Straight Line or Original Cost Method*	*Written Down Value Method*
1. **Amount of depreciation.**	Equal depreciation is charged every year.	Depreciation goes on decreasing year after year.
2. **Basis of calculation of depreciation.**	Depreciation is charged on the original cost of the asset.	Depreciation is charged on the reducing balance of the asset.
3. **Zero level.**	The book value of the asset can be reduced to zero.	The book value of the asset can never be reduced to zero.
4. **Combined effect of depreciation and repairs on P & L A/c.**	Combined burden on account of depreciation and repairs will be lighter in earlier years and heavier during the later years.	Combined burden on account of depreciation and repairs will be almost equal over different years.
5. **Rate of depreciation.**	Rate of depreciation is kept low in comparison to diminishing balance method.	Rate of depreciation is kept high in comparison to original cost method.

6. **Approval of Income Tax authorities.**	This method is not approved by Income Tax authorities.	This method is approved by Income Tax authorities.
7. **Suitability**	It is suitable for assets in which repair charges are less and the possibility of obsolescence is less such as land and buildings, patents, trade marks etc.	It is suitable for assets which require more repair expenses with passage of time and where possibility of obsolescence is more due to technological changes such as plant and machinery, vehicles etc.

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

ILLUSTRATION 9.

Alpine Traders purchased a machine on January 1, 1990 at a cost of ₹8,000 and spent ₹2,000 on its installation. The firm writes off depreciation @ 10% p.a. by written down value method. The scrap value of the Plant at the end of its economic life of 4 years is expected to be ₹6,561.

Show the machine account for 4 years in the books of Alpine Traders. The books are closed on 31 December every year.

SOLUTION : MACHINE ACCOUNT

1990		₹	1990		₹
Jan. 1	To Bank A/c	8,000	Dec. 31	By Depreciation A/c	
Jan. 1	To Bank A/c (Expenses)	2,000		(10% on ₹10,000)	1,000
			Dec. 31	By Balance c/d	9,000
		10,000			10,000
1991			1991		
Jan. 1	To Balance b/d	9,000	Dec. 31	By Depreciation A/c	
				(10% on ₹9,000)	900
			Dec. 31	By Balance c/d	8,100
		9,000			9,000
1992			1992		
Jan. 1	To Balance b/d	8,100	Dec. 31	By Depreciation A/c	
				(10% on ₹8,100)	810
			Dec. 31	By Balance c/d	7,290
		8,100			8,100
1993			1993		
Jan. 1	To Balance b/d	7,290	Dec. 31	By Depreciation A/c	729
			Dec. 31	By Balance c/d	6,561
		7,290			7,290
1994					
Jan. 1	To Balance b/d	6,561			

ILLUSTRATION 10.

Rohini Cement Limited purchased on 1st January, 1991 a plant for ₹80,000. On 1st April, 1992, it purchased additional plant costing ₹48,000. On 1st September 1993, the plant purchased on 1st January, 1991 was sold off for ₹42,000 and on the same date fresh plant was purchased at the cost of ₹75,000.

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

Show the Plant account for 3 years. *(Chandigarh 2007)*

SOLUTION :

PLANT ACCOUNT

Date	Particulars	₹	Date	Particulars	₹
1991			1991		
Jan. 1	To Bank A/c	80,000	Dec. 31	By Depreciation A/c	8,000
			Dec. 31	By Balance c/d	72,000
		80,000			80,000
1992			1992		
Jan. 1	To Balance b/d	72,000	Dec. 31	By Depreciation A/c	
April 1	To Bank A/c	48,000		(*i*) 7,200	
				(*ii*) 3,600	
				(for 9 months)	10,800
			Dec. 31	By Balance c/d	
				(*i*) 64,800	
				(*ii*) 44,400	1,09,200
		1,20,000			1,20,000
1993			1993		
Jan. 1	To Balance b/d		Sept. 1	By Bank A/c	42,000
	(*i*) 64,800		Sept. 1	By Depreciation A/c	
	(*ii*) 44,400	1,09,200		(10% on ₹64,800	
Sept. 1	To Bank A/c	75,000		for eight months)	4,320
			Sept. 1	By Profit & Loss A/c	
				(Loss on Sale of	
				Plant : (₹64,800	
				– 42,000 – 4,320)	18,480
			Dec. 31	By Depreciation A/c	
				(*i*) 4,440	
				(*ii*) 2,500	6,940
				(10% on ₹75,000	
				for four months)	
			Dec. 31	By Balance c/d	
				(*i*) 39,960	
				(*ii*) 72,500	1,12,460
		1,84,200			1,84,200
1994					
Jan. 1	To Balance b/d	1,12,460			

ILLUSTRATION 11.

On 1st April, 2000, Sonu Ltd. purchased a machinery for ₹3,90,000 on which they spent ₹5,000 for carriage, ₹2,000 for brokerage of the middle-man, ₹2,500 for installation and ₹500 for an iron pad. On 1st November, 2001, they purchased another machinery for ₹1,00,000 and immediately spent ₹20,000 on its overhauling. On 30th Sept., 2002, the machinery purchased in 2000 was sold at a loss of ₹1,27,800. The company charges depreciation @ 10% p.a. on written down value basis. Accounts are closed on 31st March every year.

Prepare Machinery Account upto 31st March, 2003.

SOLUTION : MACHINERY ACCOUNT

		₹			₹
2000			**2001**		
April 1	To Bank A/c	3,90,000	March 31	By Depreciation A/c	40,000
April 1	To Bank A/c (Expenses) (₹5,000 + ₹2,000 + ₹2,500 + ₹500)	10,000	March 31	By Balance c/d	3,60,000
		4,00,000			4,00,000
2001			**2002**		
April 1	To Balance b/d	3,60,000	March 31	By Depreciation A/c (*i*) 36,000; (*ii*) 5,000 (for 5 months)	41,000
Nov. 1	To Bank A/c	1,00,000	March 31	By Balance c/d (*i*) 3,24,000; (*ii*) 1,15,000	4,39,000
Nov. 1	To Bank A/c (Overhauling)	20,000			
		4,80,000			4,80,000
2002			**2002**		
April 1	To Balance b/d (*i*) 3,24,000; (*ii*) 1,15,000	4,39,000	Sept. 30	By Bank A/c(1)	1,80,000
			Sept. 30	By Depreciation A/c (*i*) (for 6 months)	16,200
			Sept. 30	By Profit & Loss A/c (Loss)	1,27,800
			2003		
			March 31	By Depreciation A/c (*ii*)	11,500
			March 31	By Balance c/d	1,03,500
		4,39,000			4,39,000
2003					
April 1	To Balance b/d	1,03,500			

Note 1. Calculation of sale price of machinery :

	₹
Balance on April 1, 2002	3,24,000
Less : Depreciation for six months	16,200
	3,07,800
Less : Loss on sale	1,27,800
Sale price	1,80,000

ILLUSTRATION 12.

On 1st October, 1991, the Jaipur Transport Company purchased a Truck for ₹4,00,000. On 1st April, 1993, this truck was involved in an accident and was completely destroyed and ₹3,00,000 were received from the Insurance Company in full settlement. On the same date another truck was purchased by the Co. for ₹5,00,000. The Company writes off 20% depreciation p.a. on Written Down Value Method. Give the Truck Account from 1991 to 1993. *(Chandigarh, 2008)*

SOLUTION : TRUCK ACCOUNT

1991		₹	1991		₹
Oct. 1	To Bank A/c	4,00,000	Dec. 31	By Depreciation A/c (20% on ₹4,00,000 for 3 months)	20,000
			Dec. 31	By Balance c/d	3,80,000
		4,00,000			4,00,000
1992			1992		
Jan. 1	To Balance b/d	3,80,000	Dec. 31	By Depreciation A/c	76,000
			Dec. 31	By Balance c/d	3,04,000
		3,80,000			3,80,000
1993			1993		
Jan. 1	To Balance b/d	3,04,000	April 1	By Bank A/c	3,00,000
April 1	To Profit & Loss A/c (Profit on Truck ₹3,00,000 + 15,200 – 3,04,000)	11,200	April 1	By Depreciation A/c (20% on ₹3,04,000 for 3 months)	15,200
April 1	To Bank A/c	5,00,000	Dec. 31	By Depreciation A/c (20% on ₹5,00,000 for 9 months)	75,000
			Dec. 31	By Balance c/d	4,25,000
		8,15,200			8,15,200
1994					
Jan. 1	To Balance b/d	4,25,000			

ILLUSTRATION 13.

A company had bought Machinery for ₹1,00,000 including therein a boiler worth ₹10,000. Depreciation was charged on Reducing Balance Method at the rate of 10% p.a. for first five years and Machinery Account was credited accordingly. During the fifth current year, the boiler became useless on account of damages to some of its vital parts. The damaged boiler is sold for ₹2,000. Prepare the Machinery Account for five years.

SOLUTION : MACHINERY ACCOUNT

Year		₹	Year			₹
1st	To Bank A/c	90,000	1st	By Depreciation A/c		
	To Bank A/c (Boiler)	10,000		(*i*)	9,000	
				(*ii*)	1,000	10,000

Year	Particulars		₹	Year	Particulars		₹
					By Balance c/d		
					(i)	81,000	
					(ii)	9,000	90,000
			1,00,000				1,00,000
2nd	To Balance b/d			2nd	By Depreciation A/c		
	(i)	81,000			(i)	8,100	
	(ii)	9,000	90,000		(ii)	900	9,000
					By Balance c/d		
					(i)	72,900	
					(ii)	8,100	81,000
			90,000				90,000
3rd	To Balance b/d			3rd	By Depreciation A/c		
	(i)	72,900			(i)	7,290	
	(ii)	8,100	81,000		(ii)	810	8,100
					By Balance c/d		
					(i)	65,610	
					(ii)	7,290	72,900
			81,000				81,000
4th	To Balance b/d			4th	By Depreciation A/c		
	(i)	65,610			(i)	6,561	
	(ii)	7,290	72,900		(ii)	729	7,290
					By Balance c/d		
					(i)	59,049	
					(ii)	6,561	65,610
			72,900				72,900
5th	To Balance b/d			5th	By Bank A/c		2,000
	(i)	59,049			By Profit & Loss A/c (₹6,561 – 2,000)		4,561
	(ii)	6,561	65,610		By Depreciation A/c (10% on ₹59,049)		5,905
					By Balance c/d		53,144
			65,610				65,610

Note :— It has been assumed that the boiler is sold at the commencement of fifth year.

ILLUSTRATION 14.

Laxmi Limited purchased machinery for ₹40,000 on 1st July, 1990. Depreciation is provided @ 10% p.a. on the Diminishing Balance Method. On 1st October, 1992, one-fourth of Machinery was found unsuitable and disposed off for ₹6,000. On the same date a new machinery at a cost of ₹15,000 was purchased. Write up the Machinery A/c from 1990 to 1993. The accounts are closed on 31st December each year.

SOLUTION :

MACHINERY ACCOUNT

Date	Particulars	₹	Date	Particulars	₹
1990			1990		
July 1	To Bank A/c	40,000	Dec. 31	By Depreciation A/c	2,000

			Dec. 31	By Balance c/d	38,000
		40,000			40,000
1991			1991		
Jan. 1	To Balance b/d	38,000	Dec. 31	By Depreciation A/c	3,800
			Dec. 31	By Balance c/d	34,200
		38,000			38,000
1992			1992		
Jan. 1	To Balance b/d	34,200	Oct. 1	By Bank A/c	6,000
Oct. 1	To Bank A/c	15,000	Oct. 1	By Depreciation A/c (1/4 of 34,200 = 8,550 10% on 8,550 for 9 months = 641)	641
			Oct. 1	By P & L A/c (₹8,550 – 6,000 – 641)	1,909
			Dec. 31	By Depreciation A/c (*i*) 3/4 of 34,200 = 25,650 10% on 25,650 = 2,565 (*ii*) On 15,000 for 3 months 375	2,940
			Dec. 31	By Balance c/d	37,710
		49,200			49,200
1993			1993		
Jan. 1	To Balance b/d	37,710	Dec. 31	By Depreciation A/c	3,771
			Dec. 31	By Balance c/d	33,939
		37,710			37,710
1994					
Jan. 1	To Balance b/d	33,939			

ILLUSTRATION 15.

On 1st January 2005, Z Ltd. purchased machinery for ₹1,20,000 and on 30th June 2006, it acquired additional machinery for ₹20,000. On 31.03.2007 one of the original machine (purchased on 1.1.2005) which had cost ₹5,000 was found to have become obsolete and was sold as scrap for ₹500. On the same date a new machine was purchased for ₹8,000. Depreciation is to be charged @15% p.a. on written down value. Accounts are closed on 31st December each year. Show machinery account for the first three years.

(Chandigarh 2011)

SOLUTION :

MACHINERY ACCOUNT

2005		₹	2005		₹
Jan. 1	To Bank A/c	1,20,000	Dec. 31	By Depreciation A/c	18,000
			Dec. 31	By Balance c/d	1,02,000
		1,20,000			1,20,000

2006			2006		
Jan. 1	To Balance b/d	1,02,000	Dec. 31	By Depreciation A/c (₹15,300 + ₹1,500)	16,800
June 1	To Bank A/c	20,000	Dec. 31	By Balance c/d	1,05,200
		1,22,000			1,22,000
2007			2007		
Jan. 1	To Balance b/d	1,05,200	Mar. 31	By Bank A/c	500
Mar. 31	To Bank A/c	8,000	Mar. 31	By Depreciation A/c(1)	135
			Mar. 31	By Profit & Loss A/c(1)	2,977
			Dec. 31	By Depreciation A/c(2)	16,138
			Dec. 31	By Balance c/d	93,450
		1,13,200			1,13,200

Working Notes :

(1) Calculation of Loss on sale of Machinery :

	₹
Cost of Machinery sold on 1st January, 2005	5,000
Less : Depreciation for 2005 (₹5,000 × $\frac{15}{100}$)	750
	4,250
Less : Depreciation for 2006 (₹4,250 × $\frac{15}{100}$)	638
Book value of Machinery on 1st January, 2007	3,612
Less : Depreciation upto 31st March, 2007 (₹3,612 × $\frac{15}{100} \times \frac{3}{12}$)	135
	3,477
Less : Sale Proceeds	500
	2,977

(2) Calculation of Depreciation after sale of Machinery :

Book Value of Machinery on 1st January, 2007	1,05,200
Less : Book Value of Machinery sold on 1st January, 2007 (as per Note 1)	3,612
Remaining Machinery	1,01,588
Depreciation on remaining Machinery (₹1,01,588 × $\frac{15}{100}$)	15,238
Add : Depreciation on Machinery purchased on March 31 (₹8,000 × $\frac{15}{100} \times \frac{9}{12}$)	900
	16,138

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