

Depreciation - Wear & Tear value

Methods of Depreciation

(Uniform) Method

1. Straight line method of Depreciation
2. WDV/Declining / Reducing of Depreciation
(written Down Value) - Most Preferred
3. Double Declining value of Depreciation
4. SOYD Declining value of Depreciation
(Sum of the year digit)

Consider the following

cost of the asset \rightarrow 900 euro (€-euro)

Depreciable life = 5 years

Salvage value = 70 €

Percentage of depreciation = 20%.

Compute the depreciation schedule by using the above mentioned method:

1. Straight line Method :

<u>Year</u>	<u>opening balance</u>	<u>Depreciation (€)</u>	<u>Closing Balance</u>
1	900	166	734
2	734	166	568
3	568	166	402
4	402	166	236
5	236	166	70

$$\text{straight line method} = \frac{\text{Cost of machine} - \text{Salvage value}}{\text{Depreciable life}}$$

$$\text{closing Balance} = \text{Opening Balance} - \text{depreciation}$$

2. WDV :

<u>Year</u>	<u>Opening Balance</u>	<u>Depreciation</u>	<u>Closing Balance</u>
1	900	180	720
2	720	144	576
3	576	115	461
4	461	92	369
5	369	74	295

3. SOYD Method :

$$\text{Depreciation} = \frac{\frac{N-t+1}{N(N+1)}}{2} \times [\text{Cost of Machine} - \text{Salvage Value}] \rightarrow \frac{5 \times 6}{2} = 15$$

<u>Year</u>	<u>Opening Balance</u>	<u>Depreciation</u>	<u>Closing Balance</u>
1	900	$\frac{5-1+1}{15} \times 830 = 276$	624
2	624	$\frac{5-2+1}{15} \times 830 = 221$	403
3	403	$\frac{3}{15} \times 830 = 166$	237
4	237	$\frac{2}{15} \times 830 = 110$	127
5	127	$\frac{1}{15} \times 830 = 55$	72

4. Double Declining :

$$\text{Depreciation} = \frac{2}{\text{Depreciable life}} \times \text{opening Balance}$$

<u>Year</u>	<u>opening Balance</u>	<u>Depreciation</u>	<u>Closing Balance</u>
1	900	$\frac{2}{5} \times 900 = 360$	540
2	540	$\frac{2}{5} \times 540 = 216$	324
3	324	$\frac{2}{5} \times 324 = 130$	194
4	194	$\frac{2}{5} \times 194 = 78$	116
5	116	$\frac{2}{5} \times 116 = 46$	70

A Firm has an investment requiring an outlay of 1.60 L. The Investment proposal is expected to have 2 years' economic life with no salvage value.

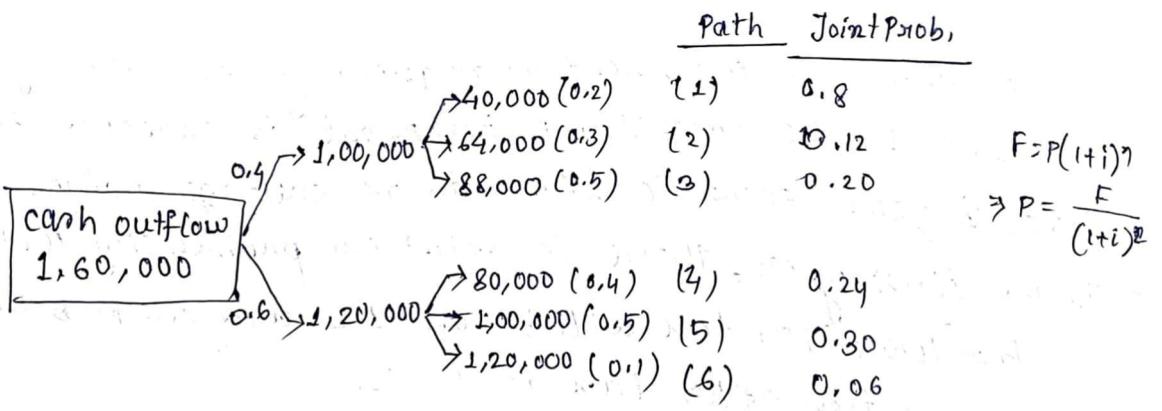
In the first year, there is point 0.4 probability that cash inflow after tax will be on 1 L and 0.6 probability that cash flow after tax is 1.2 L.

The probability assigned to the cash inflow after tax for the second year is as follows.

Particular	Cash inflow in probability	Cash inflow in probability
cash inflow for 1st year	1,00,000 (0.4)	1,20,000 (0.6)
cash inflows for 2nd year	48,000 (0.2) 64,000 (0.3) 88,000 (0.5)	80,000 (0.4) 1,00,000 (0.5) 1,20,000 (0.1)

The firm uses 10% discount rate for this type of investment.

1. construct the Decision tree for the proposed investment project & calculate the expected net present value.
2. what net present value will the project yield if worst outcome is realised. What is the probability occurrence in NPV.
3. what will be the best outcome and probability of that occurrence?
4. will the project be accepted?



Path	Present value of cash flow 1st year	PV of cash flow for 2nd year	Total PV(2+3)	Cash Out flow	NPV 4-5	Joint Prob.	Expected NPV
1	1,00,000 x 0.909 = 90,900	48000 x 0.826 =	1,30,548	1,60,000	-29,452	0.08	-2356
2	1,00,000 x 0.909 = 90,900	64000 x 0.826 =	1,43,764	1,60,000	-16,236	0.12	-1948
3	1,00,000 x 0.909 = 90,900	88000 x 0.826 =	1,63,588	1,60,000	3588	0.20	717
4	1,20,000 x 0.909 = 109,000	80000 x 0.826 =	1,75,160	1,60,000	15160	0.26	3438
5	1,20,000 x 0.909 = 109,000	1,00,000 x 0.826 =	1,91,680	1,60,000	31,680	0.20	9560
6	1,20,000 x 0.909 = 109,000	1,20,000 x 0.826 =	2,08,200	1,60,000	48,200	0.06	2892
							12,447

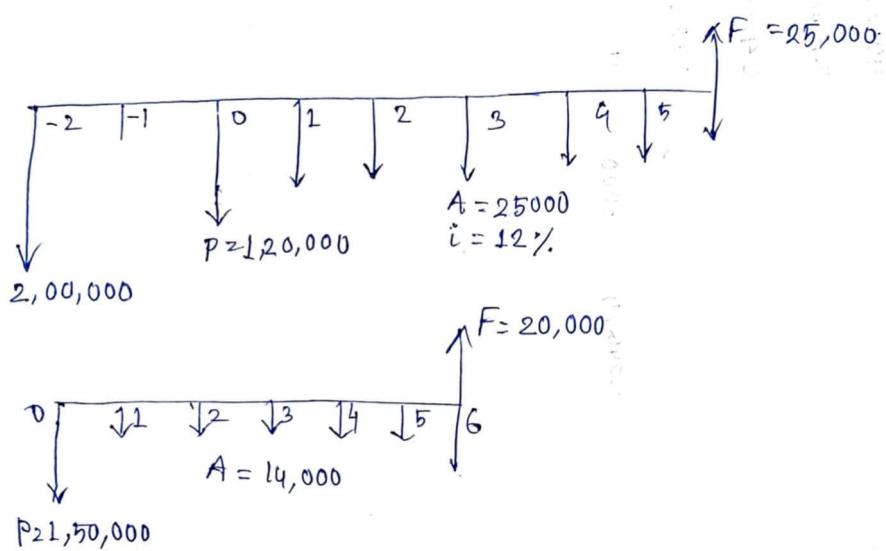
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The following table gives the operation cost, maintenance cost and salvage value. And the end of the year of the machine whose purchase value is ₹ 20,000. Find the economic life of the machine assuming interest rate $i = 15\%$.

End of the year (n)	Operation cost at end of year	Maintenance cost at the end of year	Salvage value at the end of the year
1	3000	300	9,000
2	4000	400	8000
3	5000	500	7000
4	6000	600	6000
5	7000	700	5000
6	8000	800	4000
7	9000	900	3000
8	10000	1000	2000
9	11000	1100	1000
10	12000	1200	0

1. 2 years ago a machine was purchased to be useful for 8 years. Its salvage value at the end of its life is ₹ 25,000. The market value of the present machine is ₹ 1,20,000. Now a new machine to cater to the need of the present machine is available at ₹ 1,50,000 to be useful for 6 years. Its annual maintenance cost is ₹ 14,000. The salvage value of the new machine is ₹ 20,000. Using an interest rate of 12%, find whether it is worth replacing the present machine with the new machine.

→



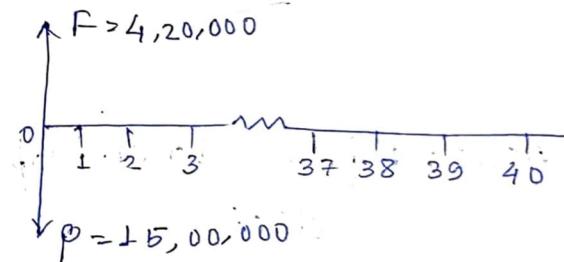
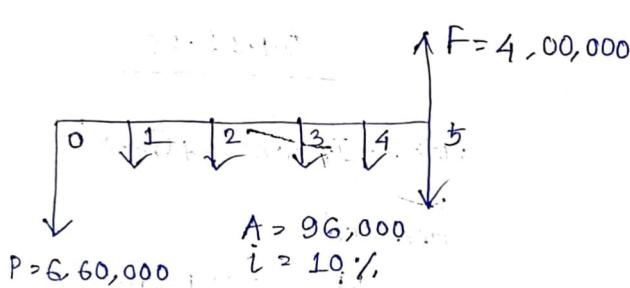
$$\begin{aligned}
 AE_{(0)} &= 1,20,000 \left[A/P, 12\%, 6 \right] + 25,000 - 25,000 \left[A/F, 12\%, 6 \right] \\
 &= 1,20,000 \times 2.432 + 25,000 - 25,000 \times 0.1232 \\
 &= 51,104
 \end{aligned}$$

$$\begin{aligned}
 AE_{(0)} &= 1,50,000 \left[A/P, 12\%, 6 \right] + 14,000 - 20,000 \left[A/F, 12\%, 6 \right] \\
 &= 1,50,000 \times 0.2432 + 14,000 - 20,000 \times 0.1232 \\
 &= 48,016
 \end{aligned}$$

2) A steel highway bridge must either be reinforced or replaced. Reinforcement would cost £60,000 and make the bridge fit for additional 5 years of service. If it is reinforced it is estimated its that its net salvage value would be £4,000 and it is retired from service. The new concrete bridge would cost £5,000,000 and would meet the forceable requirements for the next 40 years. Such a bridge would have no salvage value.

It is estimated such

It is estimated that the annual maintenance cost of the reinforced bridge could exceed that of the concrete bridge by £6,000. If the bridge is replaced by a new concrete bridge, the scrap value of the steel would exceed the demolition cost by £4,20,000. Assume the ^{money} monthly cost at $i = 10\%$, what would you recommend?



$$15,00,000 - 4,20,000 \\ = 10,80,000$$

$$\begin{aligned} AE(D) &= 6,00,000 \left[A(P, 10\%, 5) \right] + 96,000, - 4,00,000 \\ &= 6,00,000 \times 0.2638 + 96,000 - 4,00,000 \\ &= -1,29,892 \end{aligned}$$

$$\begin{aligned} AE(C) &= 10,80,000 \left[A(P, 10\%, 40) \right] \\ &= 10,80,000 \times 0.1023 \\ &= 1,10,484 \end{aligned}$$

21-10-22

BCR (Benefit Cost Ratio)

PW(B)

$$BCR = \frac{PW(B)}{\text{Invest} - PW(\text{salvage value}) + PW(\text{Operation and Maintenance})}$$

.. Let us assume that Indian Railways is considering the construction of a container terminal along a dedicated freight corridor that it has already built. The rate of interest is 10% per annum. And projected life of the facility is 25 years. Other information -

- cost of land acquisition is ₹5 crore
- civil works ₹6 crores
- Annual maintenance and operation ₹8 crore
- Annual revenue ₹15 crore.
- Service tax on revenue received is 12%.
- Salvage value after 25 years is ₹25 crore
- Should IR implement the project.

$$\rightarrow \text{Net earning} = (100 - 12)\% \times 15\text{Cr} = 13.2\text{ Cr} \quad 15 \times 88\%$$

$$= 13.2 \text{ crore}$$

$$\begin{aligned} BCR &= \frac{13.2 [P/A, 10\%, 25]}{11.25 [P/F, 10\%, 25] + 8 [P/A, 10\%, 25]} \\ &= \frac{13.2 \left[\frac{(1+0.1)^{25}-1}{0.1} \right]}{11.25 \left(\frac{1}{1.1} \right)^{25} + 8 \left[\frac{(1.1)^{25}-1}{0.1} \right]} \\ &\approx 1.47 \end{aligned}$$

\therefore IR should implement the project as it is greater than 1.

- The government is considering the construction of an additional bridge across a river to improve the connectivity. It will be a toll bridge. The relevant estimates are taken in account are -
- cost of construction of toll bridge ₹30 crore
- Annual expenses on operation and maintenance is ₹12 crore,
- $n = 25$ years
- Estimated annual toll collection ₹20 crore
- Estimated annual social benefit ₹8 crore

At the end of 25 years the salvage value is ₹10 crore
 $i = 10\%$. Should the government sanction the project?

$$\rightarrow BCR = \frac{PW(B)}{\text{Invest} - PW(SV) + PW(OM)}$$

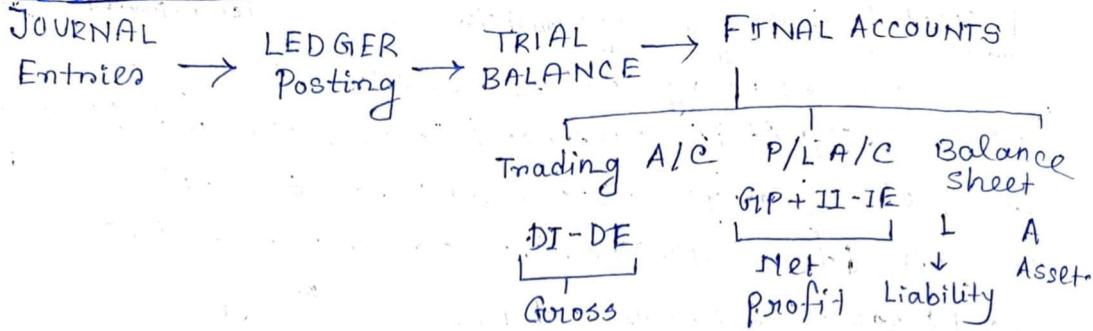
$$= \frac{28 [P/A, 10\%, 25]}{30 - 10 [P/F, 10\%, 25] + 12 [P/A, 10\%, 25]}$$

$$= \frac{28 \times 9.0770}{30 - 10 \times 0.0923 + 12 \times 9.0770}$$

$$= \frac{254.156}{30 - 0.923 + 108.924}$$

$$= \frac{254.156}{137.996}$$

$$= 1.84$$

Accountancy:Accounting Equation

$$\begin{array}{c}
 \text{Assets} + \text{Expenses} + \text{Losses} = \text{Capital} + \text{Liabilities} + \text{Income} + \text{Gains} \\
 \text{Debit} \qquad \qquad \qquad \text{Credit}
 \end{array}$$

wages - Direct Expense

Salary - Indirect Expense

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$$\begin{array}{c}
 \text{Assets} + \text{Expenses} + \text{Losses} = \text{Capital} + \text{Liabilities} + \text{Income} + \text{Gains} \\
 \text{Debited} \qquad \qquad \qquad \text{Credited}
 \end{array}$$

J → L → TB → FA / c

In the books of Trial Balance as on Dr.

LF - Ledger Folio

VN - Voucher Number

C1. This column can be left empty

SL No.	Particulars	VN	Dr	Amount (Rs)	Amount (Rs)
1.	Capital				10,000
2.	Debtors			2700	
3.	Purchase			9500	
4.	wages			5000	
5.	Opening stock			2000	
6.	Sales			14,500	14,500
7.	Carriage			150	
8.	Machinery			3,500	
9.	Drawings			900	
10.	Creditors				1,400

L. No.	Particulars	VN	LF	Amount (Debit)	Amount (credit)
11.	Bank Balance			1,500	
12.	Rent			450	
13.	Sundry expenses			200	
				25900	25900

Q. SL. No.	Particulars	VN	LF	Debit Amount (Rs)	Credit Amount (Rs)
1.	Capital Account			28,000	28,000
2.	opening stock			10,000	
3.	Motor park			8,000	
4.	Discount Receipt				400
5.	Bad debt				400
6.	Sales				40,000
7.	Cash at Bank			4,000	
8.	Return in womb			2,000	
9.	Cash in Hand			6,000	
10.	Rent			3,500	
11.	Discount allowed			300	
12.	Carriage			1500	
13.	Purchase			15,000	
14.	Furniture			5,000	
15.	Wages			8,200	
16.	Creditors				6,500
17.	Commission Recd				600

SL. NO.	Particulars	VN	LF	Debit Amount (Rs)	Credit Amount (Rs)
18.	Return Outward				1,000
19.	Debtors			200	
20.	Sundry expenses			300	
21.	Interest Recd				200
22.	Advertisement			500	
23.	Salary			2,800	
24.	Plant and Machinery			9,000	
Total				76,700	76,700

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SL.No.	Particulars	vn	LF	Debit Amount (Rs)	Credit Amount (Rs)
1.	Opening stock			3,600	
2.	Wages			2000	
3.	Sales				24,000
4.	Bank loan				880
5.	Coal & Coke			600	
6.	Purchase				15,000
7.	Repairs			400	
8.	carriage			300	
9.	Debtors				4,000
10.	Income tax			300	
11.	Lease			1200	
12.	Cash in hand			40	
13.	Plant & Machinery				1200

SL. NO.	Particulars	VN	LF	Debit Amount (Rs)	Credit Amount (Rs)
14.	Loose Tools			360	
15.	Lighting			460	
16.	Creditors				1600
17.	Capital				8,000
18.	Miscellaneous Receipt				120
19.	Salary			500	
20.	Furniture			120	
21.	Patent			200	
22.	Good will			3000	
23.	Cash at Bank			1020	
Total				34,600	34,600

Ques. The following balances is extracted from the books of ABC & Company, prepare a trading and profit & loss account and balance sheet. Closing stock as on 31st Dec, 2021 is ₹1,000.

Opening Stock ₹20,000, plant and machinery ₹10,000, Land and building ₹12,000, Furniture & equipments ₹500, Debtors ₹10,000, Trade expenses ₹1,000, Depreciation ₹2,000, Cash in Hand ₹10,000, Cash at Bank ₹15,000, Wages ₹6,000, Repair ₹1,000, Purchase ₹60,000, Discount allowed ₹800, Drawings ₹1,000, Bills Receivable ₹4,000, Bank debt ₹400, Capital ₹50,000, Sales ₹90,000, Creditors ₹12,000, Rent Received ₹1,200, Purchase Return ₹1,000, Bills Payable ₹3,000, Interest Received ₹1,000.

→ $\frac{1}{3} \rightarrow$ Trading
 $\frac{2}{3} \rightarrow$ Profit & Loss →
 Next page → Balance sheet

Use scale and pencil for drawing lines.

In the books of ABC & company
 Trading & Profit & Loss A/c for the year ended 31.12.2021

Particulars	Amount	Amount	Particulars	Amount (Rs)	Amount (Rs)
To opening stock		20,000	By Sales	90,000	90,000
To wages		6,000	By Closing stock		14,000
To purchase less:- Return	60,000 1,000	59,000			
To P/L Account (Gross profit as balancing figure)		19,000			
		1,04,000			1,04,000
To Trade expenses		1,000	By trading A/c (Gross profit)		19,000
To Depreciation		2,000	By Rent Received		1,200
To repairs		1,000	By Interest Received		1,000
To Discount Allowed		800			
To Bad debt		400			
To Capital Account		16,000			
(Net profit as balancing figure)		21,200			21,200

• Balance sheet as on 31.12.2021

LIABILITIES	Amount (Rs)	Amount (Rs)	ASSETS	Amount (Rs)	Amount (Rs)
Capital	50000		Plant and machinery		10,000
Less-Drawings	1000		Land & Building		12,000
	49000		Furniture & Equipments		5,000
Add-net profit	16000	65,000	Debtors		10,000
Creditors		12,000	Cash in hand		10,000
Bills payable		3,000	Cash in bank		15,000
			Bills receivable		4,000
			Closing stock		14,000
		80,000			80,000

In the books of ACC Cement Trading and profit & loss account for the year ended 31st March 2014

Dr -

Particulars	Amount (Debit)	Amount (Credit)	Particulars	Amount (Debit)	Amount (Credit)
To The opening stock less goods withdrawing	3,000 2,000	1,000	By sales less-return	1,00,000 2,000	98,000
To The purchase	48,000 1,000	47,000 7,000	By closing stock		6,000
To The wages		49,000			
To profit & loss A/c (gross profit as bad fig)		1,04,000			
To The salary	12,000		By trading Account	49,000	
To Trade Expenses	2,000		By Discount Received	1,500	
To The Rent	8,000		By Bad Debt Recovery	2,500	
To Repairs	1,200		By Bank interest	3,000	
To advertisement	1,800		By provision for Bad debts	1,000	
To Bad debts Add: Further Bad debt	1,500 1,000	2,500 4,000			
To Insurances					
To provision for Bad Debt		2,500			
To Depreciation					
-Machinery	2,800				
-Furniture	1,200				
		4,000			
To provision for Interest on loan		300			
		57,000			

Balance sheet as on 31st March 2014

LIABILITIES	Amount (Rs)	Amount (Rs)	ASSETS	Amount (Rs)	Amount (Rs)
Capital	40,000		Machinery	28,000	
Less - Drawings	2,000		Less :- Depn @ 10%:	2800	
	38,000		Furniture	12,000	
Add : Net Profit	18,700	56,700	Less :- Depn @ 10%:	12,000	
			Debtors	26,000	
10% Loan			Less: Bad Debt	1,000	
Creditors				25,000	
Bills Payable			Less : Provi. for B/D @ 10%:	2500	
Provision for interest on loan			Bills Receivable		22,500
			Cash at hand		6,500
			Cash in hand		21,000
			Closing stock		7,000
					6,000
					3,000
					2,000
					1,000
					99,000

22-11-22

A company has three production departments P_1 , P_2 , P_3 & one service department. Actual cost in 2019 are as follows:-

- Depreciation → ₹7000
 - Rent, Rates & taxes → ₹4500
 - Electricities → ₹ 6,000
 - Other expenses → ₹ 13,00
 - Canteen expenses → ₹ 5,500
 - Insurance on assets → ₹ 1,400
 - power → ₹ 1,200

other informations are as follows:

Particulars	Cost, P.L.	P2051 (one) P35) 60000	Service department (s)	Service department (s) charge
Value of assets	25,000	20,000	15,000	10,000
Floor space	300	250	200	150
Light points	100	8	8	4
H.P. of machines	0.25	0.14	3	0
Number of employees	40	30	20	10
Direct wages	8,000	2,000	1,000	500
Cost of the				
Raw material				
Labour				
Overhead				
Total cost				

cost of the service department is in proportion to production department in the ratio of 2:3:1. From the above particulars, determine the total overhead cost of the production department.

Overhead Distribution Statement

Particulars	Bases of Apportionment	Total	P ₁	P ₂	P ₃	S.
Depreciation	value of assets (5:4:3:2)	7,000	2,500	2,500	1,500	1,000
Rent, Rate and taxes	Floor steps (6:5:4:3)	4,500	1500	1250	1000	750
Electricities	Light points (5:4:4:2)	6000	2000	1600	1600	800
Other expenses	Direct wages (6:4:2:1)	1300	600	400	200	100
canteen expenses	No. of Employees (4:3:2:1)	5500	2200	1650	1100	550
Insurance on assets	value of assets (5:4:3:2)	14000	500	400	300	200
power	H.P of Machines (5:4:3:0)	1200	500	400	300	—
Direct wages	Actual	500	--	--	--	500
	Given 3:2:1					3900
			1950	1300	650	—
		27400	11750	9000	6650	—
						Nil

23.11.2022

From the following information prepare a statement of cost for the year 2013 showing the prime cost, works cost, cost of production, total cost.

- opening stock of raw material → ₹18,000
- opening stock of finished goods → ₹5,000
- closing stock of raw material → ₹10,000
- closing stock of finished goods → ₹6,000
- purchase of raw materials → ₹90,000
- indirect wages → ₹ (factory) → ₹ 3,000
- factory supervision → ₹ 2,000
- Direct wages → ₹ 18,000
- power & fuel → ₹ 5,000

- Depreciation & plant and machinery \rightarrow ₹ 7,000
- carriage outwards \rightarrow ₹ 3,000
- Office salaries \rightarrow ₹ 8,000
- Office rent \rightarrow ₹ 6,000
- Office expenses \rightarrow ₹ 9,000
- Salesman salary \rightarrow ₹ 3,000

Statement of cost:

Particulars	Amount	Amount
opening stock of raw materials		
Add: Purchase	18,000	
	90,000	
	1,08,000	
Less: Closing stock of raw material	10,000	
Raw material expenses	98,000	
Direct wages PRIME COST	18,000	
Factory Overhead		1,16,000
Indirect wages (Factory),	3,000	
Factory supervision	2,000	
power and fuel	5,000	
Depreciation	7,000	
WORKS COST		17,000
		1,33,000
Office & Administrative expenses		
Office salary	8,000	
Office Rent	5,000	
Office expenses	9,000	
		23,000
COST OF PRODUCTION		1,56,000
Opening stock of finished Goods	5,000	
Less: Closing stock of finished Goods	6,000	-1000
COST OF GOODS SOLD		
Selling and Distribution Expenses		

carriage outward.

Salesman salary

COST OF SALES / TOTAL COST

3,000	3,000	
	6,000	
	1,61,000	
0		

The following figures of year 2015, month of March of XYZ company,

- Raw material → ₹ 4,000
- Direct wages → ₹ 6,000
- factory overhead → ₹ 500
- Administration overhead → 20% on work cost
- Selling & Distribution overhead → 6 paisa per unit
- Units produced → 20,000
- Units sold → at a profit of 20% of selling price ₹ 18,000

Statement of cost

→ Cost

Particulars	Amount (Debit)	Amount (credit)
Raw material consumed	4,000	
Direct wage	6,000	
PRIME COST - - -	- - -	10,000
Add: Factory Overhead		5,00
WORKS COST - - -	- - -	10,500
Administrative overhead (20% of 10,500)		2,100
COST OF PRODUCTION - - -	- - -	12,600
Less: Closing stock of Finished Goods [12,600 × $\frac{2,000}{20,000}$]		1,260
COST OF GOODS SOLD - - -	- - -	11,340
Selling Distribution expenses (18,000 × 0.06)		1,080
COST OF SALES - - -	- - -	12,428
Profit [12,420 × $\frac{20}{80}$]		3,105
SELLING PRICE - - -	- - -	15,525