

02-03-18

classmate

Date _____

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UNIT - IV : ACCOUNTANCYProblems :

1. Journalize the transactions, pose them into ledgers and balance the accounts:

S.R. No.	Date	Transaction
1.	March 1st 2008	Ramu started business with Rs. 1,00,000
2.	March 2nd 2008	Purchased goods from Rani - Rs. 10,000
3.	March 4th 2008	Sold goods to Govind - Rs. 20,000
4.	March 5th 2008	Cash Purchases - Rs. 20,000
5.	March 7th 2008	Paid for salaries - Rs. 5,000
6.	March 8th 2008	Sold for cash - Rs. 15,000
7.	March 9th 2008	Bought furniture, paid by cheque - Rs. 2,000
8.	March 9th 2008	Bought goods from Shobhan - Rs. 10,000
9.	March 14th 2008	Cash paid to Rani - Rs. 9,800, Discount Received - Rs. 200
10.	March 17th 2008	Received cash from Govind - Rs. 19,500, Discount Received - Rs. 500
11.	March 18th 2008	Deposited with bank Rs. 10,000
12.	March 20th 2008	Paid for the advertisement by cheque - Rs. 700
13.	March 22nd 2008	Stationery expenses - Rs. 800
14.	March 24th 2008	Sold old furniture - Rs. 1700
15.	March 25th 2008	Paid cash to Shobhan - Rs. 4,000
16.	March 26th 2008	Received interest through cheque - Rs. 500 (sent the cheque to the bank on the same day)
17.	March 31st 2008	Cash withdrawn by Ramu for personal use - Rs. 1000

Journal Entries in the books of Ramu and Company

Date	Journal Entries	LF No.	Debit	Credit
March 1st '08	Cash a/c Dr To Ramu's Capital A/C (Ramu commenced business with Rs. 1,00,000) (Being capital brought into business)		1,00,000	1,00,000
March 2nd '08	Purchase a/c Dr To Ranis A/C (Being goods purchased on credit)		10,000	10,000
March 4th '08	Gorind's a/c Dr To Sales A/C (Goods sold on credit)		20,000	20,000
March 5th '08	Purchases a/c Dr To Cash a/c (Goods purchased on cash)		20,000	20,000
March 7th '08	Salaries a/c Dr To Cash a/c (Paid for Salaries)		5,000	5,000
March 8th '08	Cash a/c Dr To Sales a/c (Sold for Cash)		15,000	15,000
March 9th '08	Furniture a/c Dr To Bank a/c (Bought furniture, Paid by Cheque)		2,000	2,000
March 9th '08	Purchases a/c Dr To Shobhan a/c (Bought good from Shobhan on credit)		10,000	10,000

March 14th '08	Ramji a/c Dr.	10,000	
	To Cash a/c	9,800	
	To discount a/c (Nominal a/c) (Payment made to Ramji and discount received)	200	
March 17th '08	Cash a/c Dr	19,500	
	Discount allowed a/c	500	19,500
	To Govind a/c (Payment received, discount allowed)	500	
March 18th '08	Bank a/c Dr	10,000	
	To Cash a/c (Deposited cash with bank)	10,000	
March 20th '08	Advertisement a/c Dr	700	
	To Bank a/c (Paid by cheque for advertisement)	700	
March 22nd '08	Stationery a/c Dr	800	
	To Cash a/c (Purchased stationery on credit)	800	
March 24th '08	Cash a/c Dr	1,700	
	To Furniture a/c (Sold old furniture)	1,700	
March 25th '08	Shobhan a/c Dr	4,000	
	To Cash a/c (Paid cash to Shobhan)	4,000	
March 26th '08	Bank a/c Dr	500	
	To Interest a/c (Received interest through cheque, sent to bank)	500	
March 31st '08	Ramji's Drawing a/c Dr To Cash a/c (Cash withdrawal for personal use)	1,000	1,000

Types of accounts:

Cash a/c, Rami's a/c, Purchases a/c, Rani's a/c, Grovind's a/c,
 Sales a/c, Salaries a/c, Furniture a/c, Bank a/c, Shobhan's a/c
 Discount allowed a/c, Discount received a/c, Advertisement a/c
 Stationery a/c, Interest a/c, Rami's Drawing a/c

Cash Account:

Dr:

Cash a/c

Cr

Date	Particulars	JF no	Amt (Rs)	Date	Particulars JF no	Amt (Rs)
Mar 1 st '08	To Rami's a/c		1,00,000	Mar 5 th '08	By Purchases a/c	20,00
Mar 8 th '08	To Sales a/c		15,000	Mar 12 th '08	By Salaries a/c	5,00
Mar 15 th '08	To Grovind a/c		19,500	Mar 14 th '08	By Rani a/c	9,90
Mar 24 th '08	To Furniture a/c		1,700	Mar 18 th '08	By Bank a/c	10,00
				Mar 22 nd '08	By Stationery a/c	8 00
				Mar 25 th '08	By Shobhan a/c	4,00
				Mar 31 st '08	By Rami's a/c	1,00
				Mar 31 st '08	By Drawing a/c	1,00
				Mar 31 st '08	By Balance	136200
				2018		136200

Apr 1st '08 To B b/d 85,600 85,600 1 April By Balance

(To Balance)
Brought Down

Carried Down

→ 1

Dr.				Rani a/c		Cr.		
Date (2008)	Particulars	JF no	Amt (in Rs)	Date (2008)	Particulars	JF no	Amt (in Rs)	
31 March	To B b/d		100,000	Mar 31st	By Cash a/c		1,00,000	
	By B d/b = 1,00,000			1 April	By B c/d = 1,00,000			

Purchase a/c

Dr.				Cr.			
Date (2008)	Particulars	JF no	Amt (in Rs)	Date (2008)	Particulars	JF no	Amt (in Rs)
Mar 1st	To Rani a/c		10,000	Mar 31st	By Bal c/d		40,000
Mar 5th	To Cash a/c		20,000				
Mar 9th	To Shobhan a/c		10,000				
			<u>40,000</u>				<u>40,000</u>
April 1st	To Bal b/d		40,000				

Rani's a/c

Dr.				Cr.			
Date (2008)	Particulars	JF no	Amt (in Rs)	Date (2008)	Particulars	JF no	Amt (in Rs)
Mar 1st	To Cash a/c		9,800	Mar 2nd	By Purchase a/c		10,000
Mar 11th	To disc. a/c		2,000				
			<u>10,000</u>				<u>10,000</u>

Govind's a/c

Dr.				Cr.			
Date (2008)	Particulars	JF no	Amt (in Rs)	Date (2008)	Particulars	JF no	Amt (in Rs)
Mar 4th	To Sales a/c		20,000	Mar 17th	By disc. allowed a/c		500
			<u>20,000</u>	Mar 17th	By cash a/c		<u>19,500</u>

Sales a/c

Dr. Date (2008)	Particulars	JF no	Amnt (in Rs.)	Date (2008)	Particulars	JF no	Amnt (in Rs.)
Mar 31st	To bal c/d		35,000	Mar 4th	By Govind a/c		20,00
				Mar 8th	By Cash a/c		35,00
Mar 31st	To bal c/d		35,000		By bal b/d		35,00

Salaries a/c

Dr. Date (2008)	Particulars	JF no	Amnt (in Rs.)	Date (2008)	Particulars	JF no	Amnt (in Rs.)
Mar 8th	To Cash a/c		5,000	Mar 31st	By bal c/d		5,000
			5,000				3,000

Furniture a/c

Dr. Date (2008)	Particulars	JF no	Amnt (in Rs.)	Date (2008)	Particulars	JF no	Amnt (in Rs.)
Mar 8th	To Bank a/c		2,000	Mar 14th	By Cash a/c		17
			2,000		By bal c/d		30

Bank a/c

Dr. Date (2008)	Particulars	JF no	Amnt (in Rs.)	Date (2008)	Particulars	JF no	Amnt (in Rs.)
Mar 8th	To Cash a/c By Furniture a/c		10,000	Mar 9th	By Furniture a/c		2,00
Mar 26th	To Interest a/c		500	Mar 20th	By Advertisement a/c By bal c/d		7
April 5th	Total b/d		10,500				10
			7,900				

Dr.

Shobhan's a/c

Cr.

Date (2008)	Particulars	JF no	Amt (in Rs)	Date (2008)	Particulars	JF no	Amt (in Rs)
Mar 25	To Cash a/c		4,000	Mar 9th	By Purchases a/c		10,000
	To bal c/d		<u>6,000</u>				<u>10,000</u>
			<u>10,000</u>				
				Apr 1st	By Bal b/d		6,000

Discount Allowed a/c

Dr.

Cr.

Date (2008)	Particulars	JF no	Amt (in Rs)	Date (2008)	Particulars	JF no	Amt (in Rs)
Mar 17th	To Grind a/c		500		By bal c/d		<u>500</u>
			<u>500</u>				<u>500</u>
Apr 1st	To Bal b/d		500				

Discount Received a/c

Dr.

Cr.

Date (2008)	Particulars	JF no	Amt (in Rs)	Date (2008)	Particulars	JF no	Amt (in Rs)
Mar 14th	To Bal c/d		<u>300</u>		By Rani a/c		<u>200</u>
			<u>200</u>				<u>200</u>
				Apr 1st	By bal b/d		200

Advertisement a/c

Dr.

Cr.

Date (2008)	Particulars	JF no	Amt (in Rs)	Date (2008)	Particulars	JF no	Amt (in Rs)
Mar 28th	To Bank a/c		<u>700</u>		By bal c/d		<u>700</u>
			<u>700</u>				<u>700</u>
Apr 1st	To Bal b/d		700				

Stationery a/c

DA.	Particulars	JF no	Amnt (in Rs)	Date (2008)	Particulars	JF no	Amnt (in Rs)
Mar 22nd	To Cash a/c		800		By Bal c/d		800
			800				800
Apr 1st	To bal b/d		800				

Interest a/c

DA.

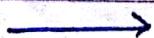
Date (2008)	Particulars	JF no	Amnt (in Rs)	Date (2008)	Particulars	JF no	Amnt (in Rs)
	To Bal c/d	50	500	Mar 26th	By Bank a/c		500
			500				500
					By bal b/d		500

Ramu's Drawing a/c

DA.

Date (2008)	Particulars	JF no	Amnt (in Rs)	Date (2008)	Particulars	JF no	Amnt (in Rs)
Mar 31st	To Cash a/c		2000		By bal c/d		100
			2000				100
	To bal b/d		2000				

P.T.O.



Trial Balance as on 31-12-2008 (Balances Method)

SR. No.	Particulars	Debit Balance (in Rs.)	Credit Balance (in Rs.)
1.	Cash a/c	35,050	
2.	Capital a/c		50,000
3.	Bank a/c	5,000	
4.	Purchases a/c	500	
5.	Kranthi a/c	—	—
6.	Sales a/c		7,000
7.	Discount Received a/c		150
8.	Rajender a/c	—	—
9.	Discount Allowed a/c	100	
10.	Drawings a/c	6,500	
11.	Furniture a/c	6,000	
12.	Rent a/c	2,000	
13.	Salaries a/c	6,000	
14.	Commission Received a/c		4,000
OF	TOTAL:	63,150	63,150

→ Find the Trial Balance by Total Method.

Personal a/c:

Capital a/c - Cr.

Drawings a/c - Dr.

Trade Debtor a/c - Dr.

Trade Creditor a/c - Cr.

Bank Balance a/c - Dr.

OS Expenses a/c - Cr.

Prepaid Expenses a/c - Dr.

Accrued Income a/c - Dr.

Income recd. in adv. a/c - Cr.

Bills Payable a/c - Dr.

Real a/c:

Opening Stock a/c - Dr.

Goodwill a/c - Dr.

Trademark a/c - Dr.

Bills Receivable a/c - Dr.

Buildings a/c - Dr.

Furniture/Machinery a/c - Dr.

Investments a/c - Dr.

Cash a/c - Dr.

Stationery a/c - Dr.

Salaries a/c - Dr.

Nominal a/c:

Purchases a/c - Dr.

Purchases Returns a/c - Dr.

Sales a/c - Cr.

Sales Returns a/c - Dr.

Expenses a/c - Dr.

Losses a/c - Dr.

Income a/c - Cr.

Profit a/c - Cr.

Salaries a/c - Dr.

Reserves and Funds - Cr.

1. Prepare the trial balance with the following balances (Totals Method).

Cash - 85,600

Advertisement - 700 (Expense)

Capital - 1,00,000

Interest Received - 500

Purchases - 40,000

Drawings - 1,000

Sales - 35,000

Salaries - 5,000

Furniture - 300

Stationery - 800

Bank - 7,800

Creditors - 6,000

Discount Recd. - 200

Discount Allowed - 500

SR.NO.	Particulars	TF NO	Debit (in Rs.)	Credit (in Rs.)
1.	Cash a/c		85,600	
2.	Capital a/c			1,00,000
3.	Purchases a/c		40,000	
4.	Sales a/c			35,000
5.	Salaries a/c		5,000	
6.	Furniture a/c		300	
7.	Stationery a/c		800	
8.	Bank a/c		7,800	
9.	Creditors a/c			6,600
10.	Discount Received a/c			200
11.	Discount Allowed a/c		500	
12.	Advertisement a/c		700	
13.	Interest Received a/c			500
14.	Drawings a/c		1,000	
TOTAL :			3,43,700	1,43,700

Wages - Hourly - direct exp. Salaries - Indirect Exp.

Trading a/c - Internal

P&L, Balance Sheet, Public

i) Direct → Exp incurred in direct form

ii) Indirect ← Revenue a/c, Capital Exp

↓ ↓
Expenditure incurred in indirect form → P&L, Trading a/c

16-03-18



Accounting Concepts and Conventions

Accounting Concepts:

- i) Business Entity Concept
- ii) Dual Aspect Concept
- iii) Going Concern Concept
- iv) Money Measurement Concept
- v) Cost Concept
- vi) Accounting Period Concept
- vii) Accrual Concept
- viii) Matching Concept
- ix) Realization Concept

i) Business Entity Concept

- According to Business Entity Concept, the owner, the business is a different organization. In the eyes of the law, business entity is an artificial person which can have its own assets, liabilities.

Conventions / Customs :

- i) Full Disclosure
- ii) Materiality (Foot Notes)
- iii) Consistency
- iv) Conservatism / Prudence
- v) Double Entry



Subsidiary Books

Subsidiary Books are used by large organizations where the volume of transactions are very large. Journals are subdivided into different categories into different categories and each category will have a separate book.

Types of Subsidiary Books:

i) Purchase Book

ii) Sales Book

iii) Purchase Return Book

iv) Sales Return Book

v) Cash Book

vi) Bills Receivable Book

vii) Bills Payable Book

viii) Proper Journals

i) Purchase Book

- It consists of all credit transactions, no cash transactions are recorded. Purchases means purchases made by the organization. Asset entries are not made, only the entries of goods (finished/unfinished) are made.

Purchases are always supported by invoices. There are two types of invoices:

a) Outward Invoice (Sent for Goods)

b) Inward Invoice (Sent with Goods)

Invoice consists of the quality, quantity etc. of the goods sent for or received!

ii) Preliminary Purchase Book:

Preformat of Purchase Book.				
Date	Particulars	Invoice Number	LF No.	Amount (in Rs.)

Sales Book

Sales Book

- Only the credit sales are recorded. The cash sales are not recorded. Only the sale of goods is recorded, the sale of assets is not recorded.

Preforma of Sales Book:

Format of Sales Book.				
Date	Particulars	Invoice Number	LF No.	Amount (In Rs.)

iii) Purchase Return Book / Return Outward Book:

- Sometimes, a trader returns the purchases. They are called as purchase returns. Reasons for purchase return

i) Damaged or Spoilt Goods

ii) Goods are not according to specification like the model and design

iii) Difference in Prices

iv) Difference in Quality

v) Difference in Quantity

At the time of returning goods, the net amount is calculated and a letter is prepared giving the reason for the return.

Proforma for Purchase Returns Book / Return Ordered Book

Date	Particulars	In P. Note	Dr. Note	Amount (in Rs.)

The details given in debit note include name and address of the supplier, value of goods returned, value of goods purchased, reason for return, any other remarks.

iii) Sales Return Book / Return Inward Book:

- The customers return the goods/purchases to us.

iv) Cash Book

- All the cash sales are recorded in this book. We know the amount of liquid cash (cash in hand) the organization has. Types of cash books:

i) Single Column

ii) Double

iii) Three

iv) Petty Cash Book

Format of Cash Book with Single Column

Date	Particulars	LF NO	Amount	Date	Particulars	LF NO	Amount

Format of Cash Book with Double Column

Date	Particulars	LF NO	Bank Cash	Discount	Date	Particulars	LF NO	Bank Cash	Discount

Format of Cash Book with Triple Column

Date	Particulars	LF NO	Cash	Bank	Discount	Date	Particulars	LF NO	Cash	Bank	Discount

Petty Cash Book - To maintain cash (day to day)
... organization

- vi) Bills Receivable Book
- To keep an account of the bills received by the organization. It has no preforma.
- vii) Bills Payable Book
- To keep an account of the bills payable by the organization. It has no preforma.
- viii) ~~Journal Book~~ Proper Journal
- Journal Entry Books

UNIT - V : CAPITAL BUDGETING

29-03-'18

→ Capital Budgeting

→ Capital

- Money which has been saved with an intention of creating wealth.

→ Capital is of two types:

i) Fixed Capital

- Capital which has been invested in fixed assets e.g. land, buildings, machinery.

- Fixed assets are not meant for sales, they are meant for generating revenue.

- Features of Fixed Assets:

- It is permanent in nature.
- It generates profit.
- It has low liquidity.
- Varying amount of capital is invested.
- It is utilized for production and expansion.

ii) Working Capital

- It is more liquid in nature.

- It is required to run the fixed assets.

e.g. Car \Rightarrow Fixed Asset Fuel \Rightarrow Working Capital

→ Capital Budgeting

- Budgeting is allocating funds for the required purposes.

- Decisions are taken with the help of two methods:

i) Traditional

ii) Modern

- Traditional Method :

- Pay Back Period
- Accounting Rate of Return (ARR)

- Modern Methods / Discount Cash Flow Method :

- Discount Cash Flow Method or Internal Rate of Return
- Net Present Value Method (NPV)

→ Pay Back Period

- i) When cash inflow is even
- ii) When cash inflow is uneven
- iii) Cash flow with different timing

- i) When cash inflow is even.

Problem: Cost of the project is Rs. 50,000. Annual cash flow for the next four years is Rs. 25,000. What is the payback period?

$$\rightarrow \text{Pay Back Period} = \text{PBP} = \frac{\text{Cost of the project}}{\text{Annual cash flow}}$$
$$= \frac{50000}{25000} = 2 \text{ years}$$

- i) When cash inflow is uneven .

problem: Cost of the project is ^{Rs} 50,000. Life of the proj is 5 years. Cash inflow for 5 years is : Rs. 24,000, ^{Rs} 20,000, ^{Rs} 17,000, ^{Rs} 16,000. Determine the payback

$\rightarrow \text{Pay Back Period} = \text{PBP} =$

Year	Cash Inflows	Cumulative Cash Inflows
1	Rs. 24,000	Rs. 24,000
2	Rs. 26,000	Rs. 50,000
3	Rs. 20,000	Rs. 70,000
4	Rs. 17,000	Rs. 87,000
5	Rs. 16,000	Rs. 103,000

$\therefore \text{Pay Back Period} = \text{PBP} = 3 \text{ years}$

After 2 years = Profit

(ii) Same cash flow with different timing

Problem: Two projects costing Rs. 20,000 each have the following cash inflows. Both have same payback period. Which one do you choose and why?

\rightarrow	Year	Project A	Project B
	1	Rs. 8,000	Rs. 12,000
	2	Rs. 12,000	Rs. 8,000
	3	Rs. 10,000	Rs. 12,000
	4	Rs. 9,000	Rs. 7,000
	5	Rs. 7,000	Rs. 7,000
		Rs. 46,000	Rs. 46,000

Project 'B' is better which yields Rs. 12,000 in the first year itself ($> 50\% \text{ of investment}$).

The above table shows equal cash inflow and equal payback of two years. But timing of cash inflow is different.

Project B is Rs. 12,000 as against Rs. 8,000 of project.
 Money has time value.
 So, project B is preferred.

→ Accounting Rate of Return (ARR)

- Accounting Rate of Return is the ratio of annual profits after taxes to the average investment.

- Average Investment = Half of Original Investment

- $\text{ARR} = \frac{\text{Average Annual Profits after taxes (Net Profit)}}{\text{Average Investment}}$

- Under this method, it is assumed that assets are depreciated at the straight line method.
- We have to assume that higher the ARR, the business is profitable.

Problem: A firm is considering three projects, each with an initial investment of Rs. 20,000 and a life of four years. The table shows cash inflows after ^{three} ~~two~~ ^{net profit} years.

<u>Year</u>	<u>Project A</u>	<u>Project B</u>	<u>Project C</u>
1	Rs. 12,500	Rs. 13,750	Rs. 13,500
2	Rs. 12,500	Rs. 12,750	Rs. 12,500
3	Rs. 12,500	Rs. 12,500	Rs. 12,750
4	Rs. 12,500	Rs. 13,500	Rs. 13,750
Total:	Rs. 50,000	Rs. 50,000	Rs. 50,000

Determine the ARR on average capital and on original capital employed.

ARR = Average Annual Profits after taxes (Net Profits)
 (on avg. capital) Average Investment

$$= \frac{\text{Avg. Profit of all the years}}{\text{Total Investment}} / 2$$

$$= \frac{50,000 / 4}{20,000 / 2} \quad \left(= \frac{12,500}{10,000} \right)$$

$$= \underline{12.500}$$

thus 3rd project is best

thus 1st project is best

→ for all the three projects

ARR = Average Annual Profits after taxes (Net Profit)
 (on original capital) Original Investment

$$= \frac{\text{Avg. Profit of all the years}}{\text{Original Investment}} / No. of years$$

$$= \frac{50,000 / 4}{20,000}$$

$$= \underline{12.500}$$

$$20,000$$

$$= \underline{125}$$

$$20$$

$$= \frac{6.25}{10}$$

$$= 0.625 \cdot 1$$

→ for all the three projects

- Calculation of ARR with working capital and scrap.
- Scrap is determined by sale of old assets.
- Working capital and scrap are added to average investment.
- Average Investment = $\frac{\text{Cost} - \text{Scrap} + \text{Scrap of old assets}}{2} + \text{Working Capital}$

Problem: Find out ARR from the following data related to C and C for machine 1 and machine 2.

Cost of each machine = Rs. 3,00,000.

Estimated life of each machine = 3 years

Estimated Scrap of each machine = Rs. 60,000

Income tax rate = 50%.

Additional working capital required = Rs. 250,000 (for each machine)

<u>Year</u>	<u>Machine A</u>	<u>Machine B</u>	\Rightarrow Cash inflow after taxes
1	Rs. 1,50,000	Rs. 2,00,000	
2	Rs. 3,00,000	Rs. 3,00,000	
3	Rs. 1,50,000	Rs. 2,50,000	
4	Rs. —	Rs. 1,50,000	
Total:	Rs. 6,00,000	Rs. 9,00,000	

$$\rightarrow \text{Average Cash Inflow} = \frac{6,00,000}{3 \text{ yrs}} = 2,00,000$$

$$\text{Average Cash Inflow} = \frac{9,00,000}{4 \text{ yrs}} = 2,25,000$$

$$\begin{aligned} \text{Average Investment} &= \frac{\text{Cost} - \text{Scrap} + \text{Scrap of old assets} + \text{Working Capital}}{2} \\ &= \frac{f(3,00,000 - 60,000)/2 + 60,000 + 2,50,000}{2} \\ &= \frac{1,20,000 + 3,10,000}{2} \\ &= 4,30,000 \end{aligned}$$

Average Investment = $\frac{\text{Cost} - \text{Scrap} + \text{Scrap of old asset}}{2} + \text{Working Capital}$

$$= \frac{(3,00,000) - 60,000}{2} + 60,000 + 2,50,000$$

$$= 1,20,000 + 3,40,000$$

$$= \text{Rs. } 4,60,000.$$

ARR for machine 1:

$$= \frac{2,00,000}{4,30,000} = 46.5\%$$

ARR for machine 2:

$$= \frac{2,25,000}{4,30,000} = 52.32\%$$

→ Based on ARR, machine 2 is profitable.

→ Modern / Discounted Cash Flow Method

- It is an improved tool / technique over traditional method

NPV stands for Net Present Value and the formula is

Excess of present value of future cash inflows on the cost of ~~NPV~~ original investment.

$$\text{NPV} = PV_{CFAT} - PV_C$$

= Present Value of Cash Flow After Taxes

- Present Value of Capital

Steps for NPV calculation:

→ From PV factor table, identify PV factor of rupee 1 at a given discount rate.

→ Multiply the cash flows (both outflows and inflows) with the corresponding PV factor.

→ Find the sum of the product.

If sum is +ve, it is profitable.

→ NPV calculation with cash flows³ when they are even:

3. Project cost is Rs. 40,000. Annual cash inflow is Rs. 20,000 after taxes. Period of 6 years at 15% per annum.

NOTE: Whenever cash inflows are even, we use annuity table annuity table. If cash inflows are uneven, we use rupee value table.

$$\rightarrow \text{NPV} = PV_{LFAT} - PV_C$$

PV factor @ 15% p.a. for 6 years from annuity table
 ≈ 3.784

$$20,000 \times 3.784 = 75,680$$

$$75,680 - 40,000 = 35,680 = +ve = \text{profit}$$

2. Project cost is Rs. 1,00,000. Annual cash inflow is Rs. 35,000 per annum. 8 year at 18% per annum.

$$\rightarrow \text{NPV} = PV_{LFAT} - PV_C$$

PV factor @ 18% p.a. for 8 years from annuity table
 ≈ 4.078

$$35,000 \times 4.078 = 142,730$$

$$1,00,000 - 1,00,000 = +42,730 = +ve = \text{loss profit}$$

→ MNPV calculation with cash flows when they are uneven:

1. A choice has to be made when cash flows are uneven between two projects X and Y with an equal investment of Rs. 60,000. The cash inflows are as follows:



Year X Y

1 30,000 14,000

2 20,000 16,000

3 15,000 22,000

4 —————— 29,000

5 17,000 12,000

6 11,000 8,000

Using NPV method at 10%.

discount, recommend which proposal is profitable.

→ PV factor from rupee value table:

Year 1 = 0.909

Year 2 = 0.826

Year 3 = 0.751

Year 4 = 0.683

Year 5 = 0.621

Year 6 = 0.564

Year	X	Y	PV Factor	X x PV value	Y x PV value
1	30,000	14,000	0.909	27270	12726
2	20,000	16,000	0.826	16520	13216
3	15,000	22,000	0.751	11265	16522
4	—	29,000	0.683	—	19807
5	17,000	12,000	0.621	10557	7452
6	11,000	8,000	0.564	6204	4532
				71816	74235

Returns - Investment

Project X: 71816 - 60000 = 11816 = +ve profit

Project Y: 74235 - 60000 = 14235 = +ve profit

Project Y is more profitable.

2. Two machines are bought with an investment of Rs. 80,000 for machine A and Rs. 1,00,000 for machine B.

<u>Year</u>	<u>Machine A</u>	<u>Machine B</u>	<u>Discount at 25%</u>
1	40,000	50,000	rate of 25%.
2	33,000	65,000	
3	21,000	32,000	

→ Year	A	B	PV Factor	A x PV Factor	B x PV Factor
1	40,000	50,000	0.800	32,000	40,000
2	33,000	65,000	0.640	21,120	41,600
3	21,000	32,000	0.512	10,752	16,384
				63,872	97,984

Returns - Investment

$$\text{Machine A: } 63,872 - 80,000 = -16,128 = \text{-ve} = \text{loss}$$

$$\text{Machine B: } 97,984 - 1,00,000 = -2,016 = \text{-ve} = \text{loss}$$

Both have loss, but Machine B has less loss. Both are rejected

→ PI Method / Profitability Investment Method / Cost Benefit Ratio Method
(Modern Method)

1. - The initial cash outlay of a project is Rs. 10,000. It generates cash inflows of Rs. 4,000; Rs. 3,000, Rs. 5,000 and Rs. 2,000 for four years. Assume 10% as the discount rate.

→ PV values: Year 1 = 0.909, Year 2 = 0.826, Year 3 = 0.751, Year 4 = 0.683

Year	Cash	PV Factor	Cash x PV Factor
1	4,000	0.909	3636
2	3,000	0.826	2478
3	5,000	0.751	3755
4	2,000	0.683	1366
			11235

$$PI = \frac{PV \text{ Cash inflow}}{\text{Initial Cash Outlay}} = \frac{11235}{10000} = 1.1235$$

Accept : $PI > 1.0$, $PI = 1.0$ } Interpretation
 Reject : $PI < 0$

$\therefore PI = 1.1235 > 1 \Rightarrow$ It is accepted

Theory

Capital

- An investment made by the owner in the business.

Factors determining the requirement of working capital:

i) Promotional and Formation Stage

ii) Position of Business Cycle

iii) Nature of Business

iv) Length of Manufacturing Cycle

v) Terms and Condition of Purchase and Sale

vi) Hurdles in Supply of Raw Material

vii) Fluctuations in Demand

viii) Production Policies

ix) Degree of Competition

x) Growth and Expansion

xi) Profit Margin

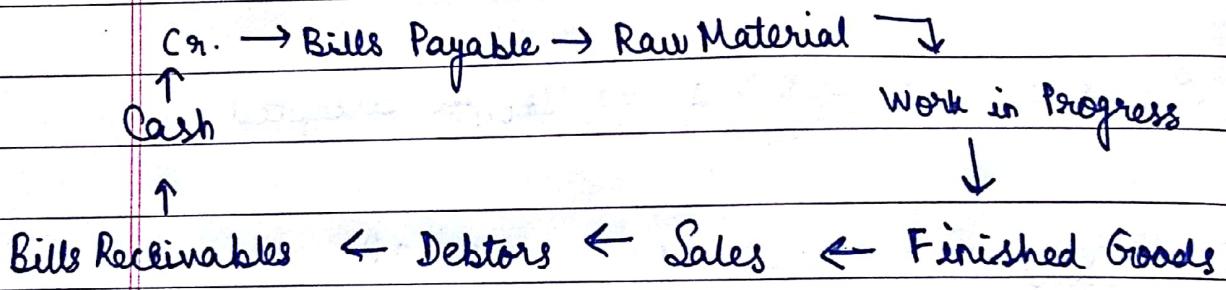
xii) Amount of Taxes

xiii) Depreciation Policy

Working Capital = Current Assets - Current Liabilities

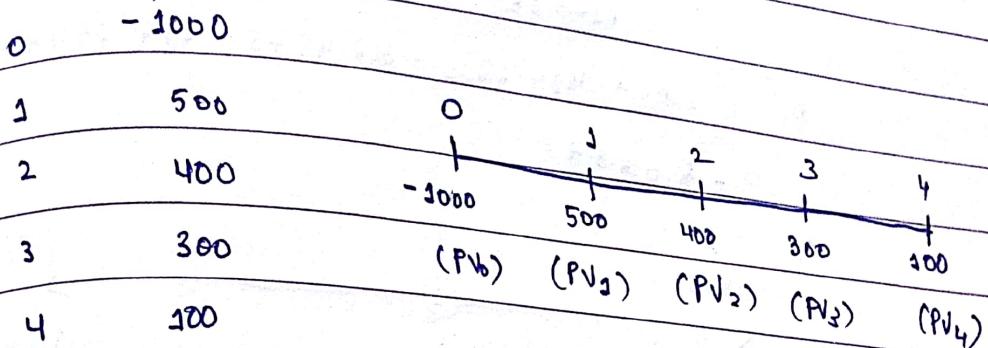
(liabilities and assets which don't go beyond a year)

Working Capital Cycle:



$$PV(\text{outflows}) = PV(\text{inflows})$$

Year Project S



NPV = Net Present Value of Project = 0

$$PV = \frac{FV}{(1+i)^n} \rightarrow \text{Future Value}$$

↳ rate of interest

$$NPV = 0 = PV_0 + PV_1 + PV_2 + PV_3 + PV_4$$

$$0 = -1000 + \frac{(500)}{(1+i)^1} + \frac{(400)}{(1+i)^2} + \frac{300}{(1+i)^3} + \frac{100}{(1+i)^4}$$

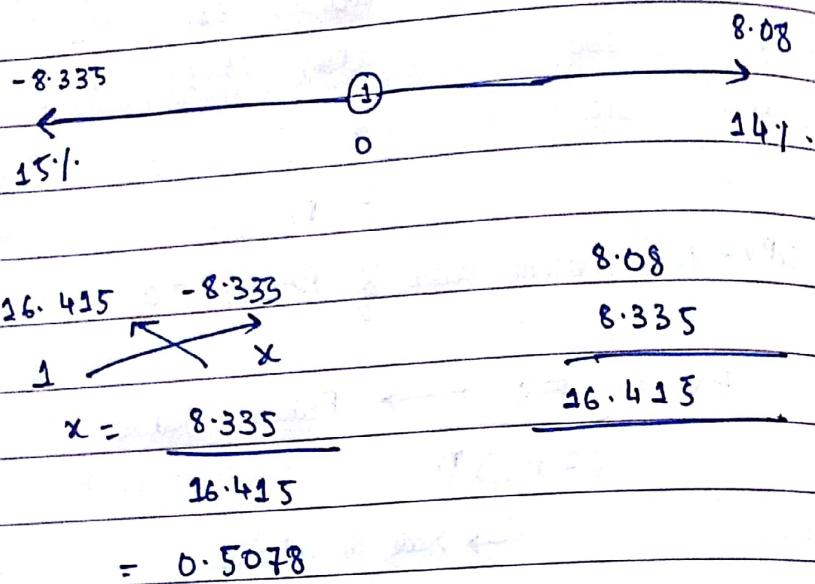
We assume that we get returns of 14%, assumed in accordance with 10%. discount $\Rightarrow i = 0.14$

$$\begin{aligned}
 0 &= -1000 + \frac{500}{1.14} + \frac{400}{1.14^2} + \frac{300}{1.14^3} + \frac{100}{1.14^4} \\
 &= -1000 + \frac{500}{1.2996} + \frac{400}{1.4975} + \frac{300}{1.6951} + \frac{100}{1.8946} \\
 &= -1000 + 388.5965 + 267.7870 \\
 &\quad + 180.4935 + 59.2066 \\
 &= Rs. 8.08 \text{ at } 14\%.
 \end{aligned}$$

$$0 = -1000 + \frac{500}{(1+0.15)^3} + \frac{400}{(1+0.15)^2} + \frac{300}{(1+0.15)^3} + \frac{100}{(1+0.15)^4}$$

$$0 = -1000 + 434.7826 + 302.4575 + 197.2549 + 57.1753$$

$$= -8.3297$$



$$15 - 0.5078 = 14.4922 = \text{Rate}$$

Year Project 2

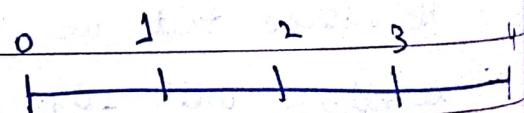
0 -1000

1 1300

2 3100

3 4600

4 600



$$PV = FV$$

$$(1+i)^n$$

$$NPV = 0$$

At 14.1.

$$O = -1000 + \frac{100}{(1+0.14)^1} + \frac{300}{(1+0.14)^2} + \frac{400}{(1+0.14)^3} + \frac{600}{(1+0.14)^4}$$

$$O = -1000 + 87.7193 + 230.8403 + 269.9886 + 355.2482$$

$$= -56.2036$$

At 15.1.

$$O = -1000 + \frac{100}{(1+0.15)^1} + \frac{300}{(1+0.15)^2} + \frac{400}{(1+0.15)^3} + \frac{600}{(1+0.15)^4}$$

$$O = -1000 + 86.9565 + 226.8431 + 263.0065 + 343.0519$$

$$= -80.1408$$

At 13.1.

$$O = -1000 + \frac{100}{(1+0.13)^1} + \frac{300}{(1+0.13)^2} + \frac{400}{(1+0.13)^3} + \frac{600}{(1+0.13)^4}$$

~~$$O = -1000 + 88.4956 +$$~~

$$' = -31.3491$$

At 12.1.

$$O = -1000 + \frac{100}{(1+0.12)^1} + \frac{300}{(1+0.12)^2} + \frac{400}{(1+0.12)^3} + \frac{600}{(1+0.12)^4}$$

$$= -5.5332$$

At 11.1.

$$O = -1000 + \frac{100}{(1+0.11)^1} + \frac{300}{(1+0.11)^2} + \frac{400}{(1+0.11)^3} + \frac{600}{(1+0.11)^4}$$

$$= 21.0920$$

A project has investment of Rs. 8,14,000 ~~78~~ with the following cash flows of 54,000; 63,000; 72,000; 63,000 and 54,000 for 5 years. The risk free rate is 8% and the project cost is 12%. Evaluate using IRR method.

$$\text{Average Cash Inflow} = \frac{54000 + 63000 + 72000 + 63000 + 54000}{5} \\ = \text{Rs. } 61,200$$

$$\text{PV Factor} = \frac{144000}{61200} = 2.353$$

Project Cost
 $\text{Actual Cash Inflow}$

→ lies between 3% to 32%. (Annuity Table)

From PV table:

Year	C.F.	PV Factor at 3%	PV Factor at 32%	$\frac{\text{CF. at 31}}{\text{CF. at 32}}$
1	54000	0.963	0.758	
2	63000	0.563	0.574	
3	72000	0.445	0.435	
4	63000	0.340	0.329	
5	54000	0.254	0.250	
				<u>145377</u> <u>142649</u>

$$r = \text{low rate} + \left(\frac{\text{PV at low rate} - \text{Cash inflow}}{\text{PV at low rate} - \text{PV at high rate}} \right) \times \text{Difference b/w rates}$$

$$= 3\% + \left(\frac{145377 - 144000}{145377 - 142649} \right) \times 1$$

$$= 3\% + 0.4967 = 3\% + 4.967$$

Average Profit = 31.4967 ∴ Project is accepted.