

Economics for Engineers

Module 1, 2 → Economics

3 → Financial Risk and Cost Risk

4 → Financial Management

1st Semester → Module 1, 3

2nd Semester → Module 2, 4

Financial Accounting

- Profit and Loss → Income / Expenses, Consumed Immediately
- Assets / Liabilities → Paid Later
- ↓ Paid Before
- Results in addition of money immediately or later
- Can be consumed over a period of time.

1. Separate Entity Concept → Business is separate from the owner, it is an individual on its own.

2. Dual Aspect → Assets and Liabilities for every transaction will continue to remain same.

Balance Sheet

Liabilities	Assets
Capital 50k	Cash 50k
Profit 20k	Cash 10k
	Stock 40k
	Cash 70k

Double Entry System

Debit (Dr)

Credit (Cr)

• When a transaction happens we record it in a journal.

• Debit = Credit always

Anything around us falls under only one of these

1) Personal Account — Dr the receiver and Cr the giver

2) Real Account — Dr what comes in, Cr what goes out

3) Nominal Account — Dr all exp and loss, Cr all income and gains

Example:

- 1) Capital
- 2) Table, fan, cash

BOOK OF MR X

JOURNAL

Ledger folio

DATE	PARTICULARS	LF	Debit Rs	Credit Rs	
1.4.17	Cash A/C Dr To Capital A/C (Being bus. started)		50,000	50,000	1. Business started with 50 K
2.4.17	Purchase A/C Dr To Cash (purchased goods for cash)		40 K Dr all exp	40 K Cr what goes out	2. Purchased goods for cash 40 K

Question

1. Journalize the following in the books of Ravi Verma —

- Jan 2 Started business with cash Rs 800,000.
- Jan 3 Bought furniture for office Rs 120,000.
- Jan 5 Bought Stationary Rs 500
- Jan 7 Purchased good for cash Rs 200,000
- Jan 9 Sold goods for cash Rs 50,000
- Jan 11 Sold goods To R. Desai Rs 100,000
- Jan 14 Bought goods from Mundra Brothers Rs 90000
- Jan 18 Paid Office cleaning charges Rs 1500
- Jan 20 Bought goods from Hatti Rs 100,000
- Jan 22 Sold To S. Sharma and company Rs 60,000
- Jan 24 Received from R. Desai in full settlement Rs 90,000
- Jan 25 Paid To Hari On account Rs 80,000
- Jan 28 Bought computer for Rs 22500 for office
- Jan 29 Paid house rent Rs 5000.
- Jan 30 Paid electricity Rs 500 and salary Rs 1500
- Jan 31 Received Rs 2200 commission

LEDGER

Dr	<u>Cash A/c</u>	Cr
2/1 To Capital A/c 800000		3/1 By Furniture A/c 120000
9/1 To Sales A/c 50,000		5/1 By Stationery A/c 5000 Purchase
24/1 To R. Desai A/c 90,000 A/c 90,000		7/1 By goods A/c 200,000
31/1 To Commission Received A/c 2200.		11/1 By R. Desai A/c 100,000
		18/1 By Office Cleaning A/c 1,500
		24/1
		25/1 By Mani 80,000
* 27/1/2 To balance b/d 492700	942200	29/1 By Computer 22,500
		29/1 By Drawing 5000
		30/1 By Electricity Charge 500
		30/1 By Salary 15000
		449500
		By balance c/d 492700 Cr

Dr	<u>Capital A/c</u>	Cr
To balance c/d 800,000		2/1 By cash A/c 800,000
	800,000	800,000
		800,000

Dr	<u>Furniture A/c</u>	Cr
3/1 To cash A/c 120,000		By balance c/d 120,000
	120,000	120,000

Dr	<u>Stationery A/c</u>	Cr
5/1 To cash A/c 5000		By balance c/d 5000

Dr	Purchase A/C	Cr
7/1 Dr To Cash A/C 200,000	By Balance c/d	380,000
14/1 Dr M. Brother A/c 80000		
20/1 Dr M. Brother 100,000		
To balance b/d	380,000	

Dr	Sales A/C	Cr
Dr To balance c/d 110,000	9/1 By Cash 50,000	
<u>110,000</u>	22/1 By Sharma and Co. 60,000	<u>110,000</u>
	To balance	
	By balance b/d 110,000.	

Dr	R. Desai's A/C	Cr
11/1 Dr To Sales A/C 100,000	24/1 By Cash 90,000	
	By D/A 10000	

Dr	DA A/C	Cr
24/1 Dr To DA A/c 10000		

Dr	M. Brother's A/C	Cr
	14/1 By Purchase 80000	

Dr	Cleaning Charger A/C	Cr
18/1 Dr To Cash 1500		

Dr

Shank's A/C

Cr

25/1 To cash £80,000

20/1 By Purchase 100,000

Dr

Sharma & Co.'s A/C

Cr

22/1 To Sales 60,000

Dr

Computer A/C

Cr

28/1 To cash 22,500

Dr

Drawing's A/C

Cr

29/1 To Cash £1500

Dr

Electricity Charger A/C

Cr

30/1 To cash 500

Dr

Salary A/C

Cr

30/1 To cash 1500

Dr

Commission Received A/C

Cr

Date: 31st December 2016 Dr 31/1 By Cash 2200 Cr

Trial Balance

	Dr	Cr
Cash A/c	492700	
Cap A/c		800000
- -	120000	

Ravi Verma's Books

TRIAL BALANCE		
	As on 1.2.17	
	Dr	Cr
Cash (Asset)	492700	
Capital (Liability)		800,000
Furniture (A)	120,000	
Stationery (Expense)	5000	
Purchases (E)	380,000	
Sales Sales (Income)		210000
M. Bros (L)		80000
Office Cleaning (F)	1500	
S and Co (A)	60000	
Discount Allowed (Loss)	10000	
Rari (Lab)		20000
Computer (Asset)	22500	

Trading and Profit & Loss A/c for year ended 31.3.17

Dr	Particulars	Rs	Credit	Cr
To Purchase				
Gross Profit		38000	By Sales	210000
		80000	Less Stock	250000
		460000		460000
Stationery		5000	By GP b/d	80000
Office Cleaning		1500	By Commission Received	2200
Elec. Charge		500		
Salaries		15000		
Disc. Allowed		16000		
Net Profit		50000		
		50200		
		82200		

BALANCE SHEET AS ON 31.3.17

LIABILITIES	Rs	ASSETS	Rs
Capital	800,000	Cash	492700
Acc. Net Profit	50200	Particulars	120,000
Loss Drawings	5000	Stock	250000
		Sale Co.	60,000
		Computer	22500
	845200		
M. Bros	80000		
Hari	20000		
	945200		945200

2. From the following trial balance of Mr. Hari
prepare a trading and profit and loss account
for the year ended 31.3.2017 and the balance
sheet as on that date.

PARTICULARS	Dr	C
Particulars	Dr	C
Particulars	15000	
Salaries	2000	
Rent	15000	
Insurance	300	
Drawings	5000	
Machinery	28000	
Bank Balance	4500	
Cash	2000	
Stock on 1.4.2016	5200	
Debtors	2500	

Capital		4000
Sales		28000
Creditors		1000
	66000	66000

Adjustments:

1) Stock as on 31.3.2017 4900

2) Salaries & unpaid for the year 400

3) Rent paid in advance 300

4) Depreciate machinery by 5%

Books of Mr. Hari

Trading and Profit and Loss A/C for the year ended 31.3.2017

Dr.

Cr.

Particular	Rs	Particular	Rs
To opening stock	5200	By Sales	15000
To purchase	15000	By Closing Stock	4900
Gross Profit c/d	9700		
	29900		
To Salaries o/s	2000	By Gross Profit BT&	9700
Add: Outstanding Salaries	400		
	2400		
To Rent	1500		
Less: Prepaid	300		
	1200		
Insurance	300		
To Depreciation on	1400		
Machinery			
	1400		
	17300		

Capital				4000
Sales				20000
Creditors				1000
			66000	66000

Adjustments:

- | | | | |
|---------------------------------|------|------------|-------------------------|
| 1) Stock as on 31.3.2017 | 4900 | 4100 21.18 | 4000 30.30 consolidated |
| 2) Salaries unpaid for the year | 400 | 200 | consolidated |
| 3) Rent paid in advance | 300 | 300 | adjusted |
| 4) Depreciate machinery by 5% | 500 | 500 | adjusted 350 150 |

~~OCF~~ Trading and Profit and Loss A/C for the year ended 31.3.2009

Dr	Particulars	Rs	Rs	Particulars	Rs	Rs
To opening stock		5200		By Sales		25000
To purchase		15000		By Closing Stock		49000
Gross Profit c/d		9700				29900
		29900				
To Salaries o/s	2000			By Gross Profit b/d		9900
Add: Outstanding Salaries	400	2400				
To Rent	1500					
Less: Prepaid	300	1200				
Insurance		300				
To Depreciation on Machinery		1400				

To Net profit transferred to Capital	4400				9700
		9700			9700

Balance Sheet as on 31.3.2017

Liabilities	Rs	Rs	Assets	Rs	Rs
Capital	40000		① Machinery (fixed asset)	28000	
Add Net Profit	4400		Less: Depreciation	1400	26600
	44400		② Debtors	2500	
Less: Drawings	5000	39400	③ Cash in hand	2000	
Creditors		1000	④ Closing Stock	4900	
Outstanding (from add: into) Salaries		400	⑤ Bank	4500	
			Provision Rent	350	
					40800

MARSHALLING

Permanence

OR

Liquidity

Ratio Analysis

(A) Liquidity Ratios

(B) Turnover Ratios

(C) Profitability Ratios

(D) Capital Structure Ratios

(E) Market Ratios

(A) Liquidity Ratios

i) Current Ratio

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

$$\Rightarrow \frac{\text{Stock} + \cancel{\text{Debtors}} + \cancel{\text{B/R}} + \text{Bank} + \text{Cash} + \cancel{\text{Prepaid Exp.}}}{\cancel{\text{Bank O/D}} + \text{Creditors} + \cancel{\text{B/P}} + \cancel{\text{Outstanding Exp.}}} \\ \downarrow \quad \downarrow \quad \downarrow \\ \text{Outstanding B/R} \quad \text{Bills payable}$$

ii) Quick Ratio (ACID-TEST Ratio)

$$\text{Quick Ratio} = \frac{\text{Current Assets}}{\text{Quick Liabilities}}$$

$$\Rightarrow \frac{\text{Total CA} - \text{Stock} - \cancel{\text{P/Paid Exp.}}}{\text{Total CL} - \text{Bank O/D}} \\ \downarrow \\ \text{Current Liabilities}$$

(B) Turnover Ratios

1. a) Debtor T/O Ratio

$$= \frac{\text{Credit Sales}}{\text{Avg. Debtors}}$$

$$\text{or, } \frac{\text{Credit Sales}}{\text{Avg. Debtors} + \text{Avg. B/R} \rightarrow \text{Bills receivable}}$$

$$\text{Avg. Debtors} = \frac{\text{opening Debtors} + \text{closing Debtors}}{2}$$

1. b) Avg. collection Period

$$= \frac{365 \text{ days}}{\text{DTR}}$$

DTR → Debtors Turnover Ratio

or, $\frac{\text{Avg Debtors}}{\text{Cr Sales}} \times 365 \text{ days}$

2. a) Stock T/O Ratio

$$= \frac{\text{Cost of goods Sold}}{\text{Avg. Stock}}$$

$$\text{Avg Stock} = \frac{\text{opening Stock} + \text{closing Stock}}{2}$$

2. b) Stock Holding Period

$$\text{SHP} = \frac{365 \text{ days}}{\text{STR}}$$

STR → Stock Turn over Ratio

or, $\frac{\text{Avg Stock}}{\text{Cost of goods Sold}} \times 365 \text{ days}$

3. a) Creditors T/O Ratio

$$= \frac{\text{Credit Purchase}}{\text{Avg. Creditors}}$$

Avg. Creditors = $\frac{\text{Avg. Creditor's Bank} + \text{Avg. B/P}}{2}$

or $\frac{\text{Credit Purchase}}{\text{Avg. Creditor's Bank} + \text{Avg. B/P}}$

Avg Creditors = opening creditors + closing creditors
2

3. b) Avg Payment Period

$$= \frac{365 \text{ days}}{\text{CTR}}$$

CTR → Creditors Turnover Ratio

$$\text{or } \frac{\text{Avg Cr}}{\text{Cr Purchase}} \times 365 \text{ days}$$

4. Asset Turnover Ratio

$$= \frac{\text{Sales}}{\text{Total Assets} - \text{Fictitious Assets}}$$

(c) Profitability Ratios:

1. Gross Profit Ratio

$$= \frac{\text{Gross Profit}}{\text{Sales}} \times 100$$

2. Net Profit Ratio

$$= \frac{\text{Net Profit Ratio}}{\text{Sales}} \times 100$$

3. Return on Investment (ROI)

Or Return on Capital Employed (ROCE)

$$= \frac{\text{Profit before Interest and Tax} - \text{Non operating Income}}{\text{Equity Share Capital + Preference Share Capital}}$$

+ Reserves and Surplus + Debentures +

Long Term Loan * - Fict. Assets

$\times 100$

4. Return on Equity

$$= \frac{\text{Profit after Tax} - \text{Preference Dividend}}{\text{Equity Share Capital + Reserves and Surplus}}$$

(D) Capital Structure Ratio

1. Debt Equity Ratio

$$= \frac{\text{Debt}}{\text{Equity}}$$

$$\text{Debt} = \text{Debentures} + \text{LT Loans}$$

$$\text{Equity} = \text{Eq. Share Cap} + \text{Pref. Share Cap.}$$

(E) Market Ratios

1. Earnings per Share (EPS)

$$= \frac{\text{Profit after TAX} - \text{Prof. Dividend}}{\text{Number of Equity Shares}}$$

2. Price Earnings Ratio (P/E)

$$= \frac{\text{Market price of equity Shares}}{\text{Earnings per Share}}$$

of A.Y. 2016-17
Alpha Limited

Trading & Profit and Loss Account for the year ending 31/3/17

Debit	Credit
Particulars	Particulars
	Amounts in Rs.
	Rs.
To opening stock	By sales
200	300,000.00
To purchases	By cost of goods sold
2000	200,000.00
To gross profit	By closing stock
800	40
Total	400.00
To office expenses	By sales
750	360
To operating expenses	By rates charged
300	300
To selling and dist. expenses	By closing stock
158	40
To interest expense	By direct received
27	2
To income tax	By interest received
150	35
To net profit	By gross profit
475	186
	1860

Balance Sheet as on 31/3/12

<u>Liabilities</u>	Rs.	<u>Assets</u>	Rs.
1,00,000 equity shares at the rate of Rs 10 each	1100	Land and building	1210
6% preference shares	500	Plant and machinery	650
general shares	450	Investment	70
profit and loss account	700	Stock	400
8% debenture	200	Debtors	430
11% term loan	100	Bills receivable	270
bank overdraft	18	Cash and bank	570
creditors	560	Miscellaneous	70
bills payable	45	Expenditure	
	<u>3670</u>		<u>3670</u>

1. All figures are in Rs thousands.
2. Calculate all the ratios.

A) Liquidity Ratio

$$i) \text{ Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

$$\begin{aligned} &= \frac{\text{Stock} + \text{Debtors} + \text{Bills Receivable} + \text{Cash and bank}}{\text{Bank overdraft} + \text{creditors} + \text{bills payable}} \\ &= \frac{900 + 430 + 270 + 570}{18 + 560 + 45} \\ &= \frac{1670}{623} \end{aligned}$$

ii) Quick Ratio

$$= \frac{\text{Quick Assets}}{\text{Quick Liabilities}}$$

$$\begin{aligned} &= \frac{\text{Total CA} - \text{Stock} - \text{P/Paid Exp}}{\text{Total CL} - \text{Bank O/D}} \\ &= \frac{1670 - 900}{623 - 18} \\ &= \frac{770}{605} \end{aligned}$$

B) Turnover Ratio

1. a) Debtor T/O Ratio (DTR)

$$= \frac{\text{Credit Sales}}{\text{Avg. Debtors}}$$

$$= \frac{3600}{430 + 270}$$

1. b) Avg collection Period

$$= \frac{865 \text{ days} \rightarrow \text{For leap year} = 366}{\text{DTR}}$$

$$= \frac{865}{\left(\frac{3600}{430 + 270} \right)}$$

- Always round up

To the next number

Part I

2.a) Stock Turnover Ratio (CTR)

$$= \frac{\text{Cost of goods sold}}{\text{Avg Stock}}$$

Cost of goods sold = ~~3600 + 1800~~
Avg Stock = ~~(200 + 900)~~

$$= \frac{3600 - 1800}{(200 + 900)/2}$$

$$= \cancel{1800} \cdot 6$$

$$\frac{3600}{250}$$

2.b) Stock Holding Period

$$= \frac{365}{(\text{CTR})}$$

3.a) Creditors T/O Ratio (CTR)

$$= \frac{2000}{560 + 45}$$

$$= \frac{2000}{605}$$

3.b) Avg payment period

$$= \frac{365}{(\text{CTR})}$$

4. Asset Turnover Ratio (ATR)

Fictitious Assets → Preliminary Assets

$$= \frac{\text{Sales}}{\text{Total Fictitious Assets}}$$

Miscellaneous Expenditure

$$= \frac{3600}{3676 - 70}$$

$$= \frac{3600}{3606}$$

$$= 0.99$$

$$= \frac{3600}{3676}$$