Accounting Ratios

Introduction:

Financial Statements, no doubt, contains the figures relating to the profit or loss and the financial position of a concern. But the figures found in the Financial Statements will not be of muchuse, ifthey are considered individually. They will be very useful when one figure is considered in the light of another figure .For instance, the figure of net profit will be meaningful, not when it is considered in isolation, but only when it is considered in the light of capital employed in the business. So, if the figures appearing in the financial statements are to be meaningful and useful to the owners, managers, creditors etc., they should be analyzed in such a way that one item can be compared with another item. Ratio technique is one of the tools available to a financial analyst.

Meaning of Accounting Ratios:

In general, ratio is arithmetical expression of relationship between two related items and is used in different fields. Accounting ratios are the arithmetical expression of relationship between figures of two accounting items or two groups of items.

Expression of Accounting Ratio

Accounting ratios are expressed in the following ways:

1. **Proportion:** It is expressed in terms of proportion of two items which is derived by dividing Onefigure by another figure. For example, liquidity Ratios are expressed in proportion.

2. **Times:** It is expressed in number of times amount of an item is in relation to another item. For example Turnover Ratios.

3. **Percentage:** In this, one item is expressed as percentage of another item. For example, Profitability Ratios.

4. **Fraction:** in some cases, ratio may be expressed in terms of fractions. For example, Shareholders' funds in relation to total liabilities.I.e. shareholders fund 1/5th of total assets

Types of Accounting Ratios:

Accounting ratios are classified into four groups as follows:

- **1.** Liquidity Ratio:(Short-term Solvency Ratio/Working Capital Ratio): Liquidity ratio indicate a firms abilityto meet its current liabilities. Liquidity ratios are of two types:
 - 1) <u>Current Ratio</u>: Current ratio is the proportion of current assets to current liabilities. It is calculatedas follows:

Current Ratio = Current Assets

Current Liabilities

Where,

Current Assets are those which can be converted into cash within one year. For example, cash in hand, cash at bank, Inventory (i.e. stock of Raw Material +Work in Progress +Finished Goods), Debtors(less provision),B/R, Short-term Investments(marketable Securities), prepaid expenses, accrued incomes, advance tax short-term loans and advances

Current Liabilities are those which are repayable within a year. For example, Creditors, B/P, Outstanding Expenses, Bank Overdraft,Cash Credit Accrued Expenses, Provision for Taxation, Proposed Dividends, Unclaimed Dividends, Income received in advance, Short –term Borrowing i.e..loans and advances taken from banks and other lenders.

(Current Ratio of 2:1 is considered an ideal Ratio)

	Particulars	Rs.
	Plant & Machinery	54,000
	Short-term Investments	60,000
	Debentures	4,20,000
	Sundry Debtors	2,20,000
	Outstanding Rent	1,00,000
	Prepaid Insurance	40,000
	Stock	1,00,000
	Bills Payable	50,000
	Sundry Creditors	1,00,000
	Cash atBank	80,000

Problem1: Calculate the Current Ratio from the following particulars:

Solution: Calculation of Current Ratio

Current Ratio= <u>Current Assets</u> Current Liabilities Where,

Current Assets= Short-term Investments +Debtors+ Prepaid Insurance +stock +Cash at bank

= 60,000+2,20,000+40,000+1,00,000+80,000= Rs. 5,00,000

Current Liabilities= Outstanding Rent+Bills Payable +Sundry Creditors

= 1,00,000+50,000+1,00,000=Rs. 2,50,000

Current Ratio=<u>5,00,000</u> 2,50,000 = 2:1

Problem2 :From the following information, calculate Current Ratio

Particulars	Rs
Inventories	1,50,000
Loose Tools	20,000
Long-term Borrowings	1,80,000
Short-term Borrowings	2,50,000
Trade Payables	80,000
Trade Receivables	1,95,000
Short-term Investments	90,000
Cash & Cash Equivalents	2,25,000

Solution:

Calculation of Current Ratio:

Current Ratio= <u>Current Assets</u> Current Liabilities

Where,

Current Assets = Inventories+Trade Receivables+ Short-term Investments +Cash & Cash Equivalents + loose tools

= 1,50,000+1,95,000+90,000+2,25,000+20000=Rs. 6,80,000 Current Liabilities=Short-term Borrowings+ Trade Payables

=2,50,000+80,000=Rs. 3,30,000

Current Ratio<u>= 6,80,000</u>

3,30,000

= 2.06:1

Problem3: From figures of the following items, calculate Current Ratio:

Items	Rs.
Sundry Creditors	75,000
Sundry Debtors	1,00,000
Bills Payable	50,000
Bills Receivables	75,000
Short-term Loan from bank	1,25,000
Long-term Loan from Bank	2,00,000
Public Deposit for 1 year	1,75,000
Public Deposit for 3 years	1,50,000
Non-current Investments	1,00,000
Current Investments	1,50,000
Short-term Loans to Employees	50,000
Closing Stock	1,25,000
Cash in hand	75,000
Cash at Bank	1,40,000
Cheques in hand	50,000

Solution:

Calculation of Current Ratio

Current Ratio= <u>Current Assets</u> Current Liabilities

Where,

Current Assets=Debtors+ B/R +Current Investments +Short-term Loans to Employees+ Closing Stock+ Cash in hand + Cash at Bank +Cheques in hand =1,00,000+ 75,000+ 1,50,000+ 50,000+ 1,25,000+ 75,000+ 1,40,000+ 50,000 =7,65,000 Current Liabilities=Creditors+ B/P+ Short-term Loan from Bank+ Public Deposit for 1 year =75,000+ 50,000+1,25,000+ 1,75000=425,000

Current Ratio=7,65,000

4,25,000

= 1.8:1

Problem4: From the following information, calculate Current Ratio:

Particulars	Rs.
Inventory	1,35,000
Sundry Debtors(good)	1,21,500
Cash	45,000
Bank Balance	90,000
B/R	54,000
Sundry Creditors	1,57,500
B/P	54,000
Commission Receivables	3,150
Unexpired expenses	1,350
Debentures	2,25,000
Provision for Taxation	13,500
Provision for Bad Debts	6,750

Solution:

Calculation of Current Ratio:

Current Ratio = Current Assets

Current Liabilities

Where,

Current Assets=Inventories+ Debtors + Cash+ Bank+ B/R+ Commission Receivables+ Unexpired Expenses

= 1,35,000+1,21,500+ 45,000+90,000+ 54,000+ 3,150+ 1,350= Rs.4,50,000. Current Liabilities= Creditors+ B/P+ Provision for Taxation =1,57,500+54,000+13,500= Rs. 2,25,000.

Current Ratio= <u>4,50,000</u>

2,25,000

= 2:1

2. <u>Quick Ratio</u>: Quick Ratio(Liquid Ratio/Acid-Test Ratio): Quick ratio is the proportion of quick assets to current liabilities .It is calculated as follows:

a)When there is no Bank Overdraft and Cash Credit Quick Ratio= <u>Quick Assets</u> Current Liabilities

Quick assets refers to those current assets which can be converted into cash quickly, ie. within a very short period, without much loss. They include all current assets except stock(inventories) and prepaid expenses. Thus, quick assets comprise, Current Investments, Debtors(less provision), Bills Receivables, Cash, Bank, marketable securities and short-term loans and Advance.

OR Quick Assets= Current Assets- Stock- Prepaid expenses

b)When there is Bank overdraft and Cash Credit

Quick Ratio= <u>Quick Assets</u> Quick Liabilities

Where,

Quick Assets= Cash +Bank +Debtors(less provision)+B/R +Marketable securities +short-term investments & Short-term Loans and Advances OR

Quick Assets = Current Assets - inventories (stock) - Prepaid Expenses

Note: In this context, it may be noted that there are some writers who consider quick liabilities as synonymous with current liabilities however for evaluation Quick Ratio is calculated by dividing Quick Assets by Current Liabilities.

Liquid Ratio of 1:1 is said to be satisfactory)

Problem1. Calculate Quick Ratio from the following information:CreditorsRs. 2,40,000B/P1,80,000Debtors3,00,000Inventories1 20,000Cash & Cash Equivalents1 20,000Expenses paid in advance 30,000

Solution:

Calculation of quick ratio Quick Ratio <u>= Quick Assets</u>

Quick Liabilities	
Where, Quick assets = Debtors+ Cash & Cash Equival = 3,00,000+ 1,20,000=Rs 4,20,000	ents
Quick Liabilities= Creditors+ B/P = 2,40,000+1, 80,000= Rs. 4,20,000	
Quick Ratio <u>= 4,20,000</u> 4,20,000 = 1:1	
- 1.1	
Problem2:Calculate Liquid Ratio from the fol Cash & Cash Equivalents	lowing information: Rs.1,50,000
Investment in Traded Shares 1,25 Trade Payable2,50,000	5,000
Accrued Expenses	50,000
Dividend declared but not paid	150,000
Solution:	
Liquid Ratio= <u>Liquid Assets</u> Liquid Liabilities	
Where,	
Liquid assets= Cash & Cash Equivaler = 1,50,000+ 2,25,000+ 1,25,00=Rs	its+ Trade Receivable+ Investment s 5,00,000
Liquid liabilities= Trade Payable+ Accrued E = 2,50,000+ 50,000+ 1	xp. + Dividend declared but not paid ,50,000= Rs. 4,50,000
Liquid Ratio= <u>5,00,000</u> 4.50.000	
= 1.11:1	

II) Solvency Ratios:

Solvency Ratios indicate a firm's ability to meet its non-current liabilities. Solvency Ratios are of the following types:

1)<u>Debt-Equity Ratio</u>: Debt-Equity Ratio (also known as Debt to Equity Ratio) measures the relationship between long-term debts and equity is calculated as follows:

Debt-Equity Ratio <u>= Long-term Debts</u> Shareholders Funds

Where,

Long-term Debts include Long-term Borrowings and Long-term Provisions.

Shareholder's Funds include Share Capital and Reserve and Surplus. Share Capital includes both Equity Share Capital and Preference Share Capital

OR

Shareholder's Funds may also be calculated as follows: Shareholder's Funds = Non-current Assets + Working Capital – Non-current Liabilities Non-current Assets = Tangible Assets + Intangible Assets +Non-current Investments + Long-term Loans & Advances.

Working Capital = Current Assets – Current Liabilities

(Debt Equity Ratio of 2:1 is considered safe)

Problem1:

Calculate Debt-Equity Ratio from the following in	formation:
Equity Share Capital	Rs. 3,00,000
12% Debentures	7,50,000
Positive Balance of Statement of P&L	2,00,000
Long-term Loans	5,00,000
General Reserve	7,50,000

Solution:

Debt-Equity Ratio <u>= Debt</u> Equity

Where,

Debt = Long-term Loans + 12% Debentures = 5,00,000 + 750,000 = Rs. 12,50,000 Equity = Share Capital + General Reserve + Balance of Profit & Loss = 3,00,000 + 7,50,000 + 2,00,000 = 12,50,000 Debt-Equity Ratio = 12,50,0001 2,50,000 =1:1

Problem2:

Calculate Debt Equity Ratio from the following inform	ation:
Share Capital	Rs. 12,50,000
Reserves & Surplus	17,50,000
Non-current Investments	7,50,000
Long-term Loans	15,00,000
Short-term Loans	7,50,000
Solution:	
Debt Equity Ratio = <u>Debt</u>	
Equity	
Where,	
Debt = Long-term Loans	
= Rs. 15,00,000	
Equity = Share Capital + Reserve & Surplus	
= 12,50,000 + 17,50,000 = Rs. 30,00,000	
Debt Equity Ratio <u>= 1500,000</u>	
30,00,000	

Problem3:

Calculate Debt-Equity Ratio from the follo	wing information:
Share Capital	Rs. 15,00,000
Securities Premium Reserves	4,50,000
Negative Balance of Statement of P &L	2,25,000
Long-term Borrowings	20,70,000
Non-current Assets	27,00,000
Current Assets	10,95,000

Solution:

Debt Equity Ratio = <u>Debt</u>

Equity

Where,

Debt = Long-term Borrowings = Rs. 20,70,000 Equity = Share Capital + Securities Premium Reserve – Negative Balance of Profit & Loss Statement = 15,00,000 + 4,50,000 – 2,25,000 = Rs.17,25,000 Debt Equity Ratio = $\frac{20,70,000}{17,25,000}$ = 1.2:1 **Problem 4:** Calculate Debt Equity Ratio from the following balances of a company:

Total Assets	Rs. 30,00,000
Non- Current Liabilities	12,00,000
Current Liabilities	10,00,000

Solution:

Calculation of Debt Equity Ratio Debt Equity Ratio <u>= Debt</u> Equity

Where,

Debt = Non-current Liabilities I .e Rs. 12,00,000 Equity = Total Assets – Non-current Liabilities – Current Liabilities = 30,00,000 - 12,00,000 - 10,00,000 =Rs. 8,00,000 Debt Equity Ratio = $\frac{12,00,000}{8,00,000}$ = 1.5:1

2) <u>Total Assets to Debt Ratio</u>: Total Assets to Debt Ratio indicates the relationship between total assets of a firm and its long-term debt (simply called as debt) and is calculated as follows:

Total Assets to Debt Ratio = <u>Total Assets</u>

Debts

Where,

Total Assets = Non-current Assets (Tangible Assets + Intangible Assets + Non-current Investment +Long-term Loans & Advances) + Current Assets (Current Investments + Inventories+ Trade Receivables + Cash & Cash Equivalents + Short-term Loans & Advances +

Other Current Assets).

Debt = Long-term Borrowings + Long-term Provisions (Higher the ratio, better it is which implies profitable situation of a business concern)

Problem1: Calculate Total Assets to Debt Ratio from the following Balance Sheet of KMFLtd. as at March 31, 2015:

Particulars	Rs.
I Equity and Liabilities	
1. Shareholder's Funds	
a)Share Capital	15,00,000
b)Reserves and Surplus	7,50,000
2. Non-current Liabilities	
a)Long-term Borrowings	22,50,000
b)Long-term Provisions	4,50,000
3. Current Liabilities	
a)Short-term Borrowings	6,00,000
b)Trade Payable	9,00,000
c)Short-term Provisions	1,50,000
	<u>66,00,000</u>
II Assets	
1.Non-current Assets	
a)Fixed Assets	

i)Tangible Assets	22,50,000
ii)Intangible Assets	300,000
2.Non-current Investments	7,50,000
3.Current Assets	
a)Current Investments	4,50,000
b) Inventories	7,50,000
c) Trade Receivables	9,00,000
d) Cash & Cash Equivalents	10,50,000
e) Short-term Loans & Advances	1,50,000
	66,00,000

Solution:

Calculation of Total Assets to Debt Ratio: Total Assets to Debt Ratio = <u>Total Assets</u> Debt

Where,

Total Assets = Non-current Assets + Current Assets

- = (Tangible Fixed Assets+ Intangible Fixed Assets + Non-current Investments)
 - + (Current Investments + Inventories + Trade Receivables + Cash & Cash Equivalents + Short-term Loans & Advances)
- = (22,50,000 + 3,00,000 +7,50,000) + (4,50,000 +7,50,000 + 9,00,000+
 - 10,5 0,000 + 1,50,000)
- = 33,00,000+ 3300,000 = Rs. 6600,000
- Debt = Long-term Borrowings + Long-term Provisions
- = 22,50,000 + 4,50,000 = Rs. 27,00,000
- Total Assets to Debt Ratio = 66,00,000

27,00,000

= 2.44:1

Problem2: Calculate Total Assets to Debt Ratio from the following information:

Share Capital	Rs. 3,00,000
Long-term Loans	2,40,000
10% Debentures	6,00,000
Short-term Loans	1,20,000
Non-current Assets	9,60,000
Current Assets	3,00,000

Solution:

Calculation of Total Assets to Debt Ratio:

```
Total Assets to Debt Ratio <u>= Total Assets</u>
```

Long-term Debt

Where,

Total Assets = Non-current Assets + Current Assets = 9,60,000 + 3,00,000 = Rs. 12,60,000 Long-term Debt = Long-term Debt + Debentures = 2,40,000 +6,00,000 = Rs. 8,40,000 Total Assets to Debt Ratio = 12,60,0008,40,000 = 1.5:1 Problem3: Calculate Total Assets to Debt Ratio from the following figures taken from a Balance Sheet:

Share Capital	Rs.	10,00,000
9% Debentures		15,00,000
Non-current Investments		2, 50,000
Building		15,00,000
Inventories		1,50,000
Trade Payables		10,00,000
Trade Receivables		12,50,000
General Reserve		5,00,000
Balance of statement of Profit 8	& Loss	2, 50,000
Machinery		10,00,000
Cash & Cash Equivalents		1,00,000

Solution:

Calculation of Total Assets to Debt Ratio: Total Assets to Debt Ratio = <u>Total Assets</u> Long-term Debts

Where,

Total Assets = Non-current Investments+ Building + Inventories + Trade Receivables +Machinery Cash and Cash Equivalents = 2,50,000 + 15,00,000 + 1,50,000 + 12,50,000 + 10,00,000 + 1,00,000 = Rs. 42,50,000 Long-term Debt= 9% Debentures i. e. Rs. 15,00,000 Total Assets to Debt Ratio = $\frac{42,50,000}{15,00,000}$ = 2.83:1

3) **Proprietary Ratio:** Proprietary Ratio expresses the relation between shareholder's funds and net assets and is Calculated as follows:

Proprietary Ratio <u>= Shareholder's Funds</u> Total Assets

Where,

Shareholder's Funds = Share Capital + Reserve & Surplus

Or

Shareholder's Funds = Non-current Assets + Working Capital – Non-current Liabilities Non-current Assets = Tangible Assets + Intangible Assets +Non-current Investments +

Long-term Loans & Advances.

Working Capital = Current Assets – Current Liabilities

Non-current Liabilities = Long-term Borrowings + Long-term Provisions

Total Assets = Non-current Assets + Current Assets

Current assets = Current Investments + Inventories + Trade Receivables +

Cash & Cash Equivalents + Short-term Loans & Advances + Other Current Assets Note: Total Assets as calculated as above do not include fictitious assets like accumulated losses (It shall be taken as safe if it is above 50%) Problem1: Calculate Proprietary Ratio from the following information:

	-
Share Capital	11,20,000
General Reserve	4,80,000
Securities Premium Reserve	6,40,000
Balance of statement of P & L	1,60,000
Tangible Assets	16,00,000
Intangible Assets	2,00,000
Current Assets	10,00,000

Solution:

Calculation of Proprietary Ratio: Proprietary Ratio = <u>Shareholder's Funds</u> Total Assets

Where,

Shareholder's Funds = Share Capital + General Reserve + Securities Premium Reserve + Balance of P &L

= 11,20,000 + 4,80,000 + 6,40,000 + 1,60,000 = Rs. 24,00,000Total Assets = Tangible Assets + Intangible Assets + Current Assets = 16,00,000 + 2,00,000 + ,10,00,000 = Rs. 28,00,000Proprietary Ratio = 24,,00,000 28,00,000= 0.86:1

Problem2: Calculate Proprietary Ratio from the following figures extracted from the Balance Sheet and Notes to Accounts of a company:

Figures extracted	from the Balance Sheet:	
-------------------	-------------------------	--

Share Capital	Rs 10,00,000
Reserve & Surplus	3,00,000
Non-current Liabilities	8,00,000
Current Liabilities	2,00,000

Notes to Financial Statements:

1. Tangible Assets

Particulars	Rs
Land & Building	10,00,000
Plant & Machinery	8,00,000
	18,00,000

2. Intangible Assets

Particulars	Rs.
Patents	1,50,000
Trade Mark	50,000
	2,00,000

3. Trade Receivables

Particulars	Rs.
Sundry Debtors	2,00,000
Bills Receivables	1,00,000
	3,00,000

Solution: Calculation of Proprietary Ratio:

Proprietary Ratio = <u>Shareholder's Funds</u> Total Assets

Where,

Problem3: Calculate Proprietary Ratio from the following Notes to Accounts of a Company: Notes to Financial Statements:

1. Share Capital

Particulars	Rs
1,50,000 Equity Shares of Rs. 10 each	15,00,000
50,000 Preference Shares of Rs. 10 each	5,00,000
	20.00.000

2. Reserves & Surplus

Particulars	Rs.
General Reserve	5,00,000
Debenture Redemption Reserve	3,00,000
Statement of profit & Loss	(2,00,000)
	6.00.000

3.Long Term Borrowings

-	
Particulars	Rs.
10% Debentures	10,00,000
Loan from Bank of India	2,00,000
	12,00,000

4. Tangible Assets

Particulars	Rs.
Land & Building	15,00,000
Furniture & Fixtures	10,00,000
	25.00.000

5.Intangible Assets

Particulars	Rs
Goodwill	4,00,000
Computer Software	1,00,000
	5,00,000

6 Cash & Cash Equivalents

Particulars	Rs.
Cash in hand	3,00,000
Advances to Employees	10,00,000
	13,00,000

Solution: Calculation of Proprietary Ratio: Proprietary Ratio <u>= Shareholder's Funds</u> Total Assets

Where,

Shareholder's Funds = Share Capital + Reserves & Surplus = 20,00,000 + 6,00,0000 = Rs. 26,00,000 Total Assets = Tangible Fixed Assets + Intangible Fixed Assets + Current Assets = 25,00,000 + 5,00,000 + 13,00,000 = Rs 43,00,000 Proprietary Ratio = <u>26,00,000</u> 43,00,000

= 0.60:1

III) Activity Ratios: Activity Ratios (also known as Performance or Turnover Ratios) indicate how well financial resources of a firm have been utilized. Activity Ratios are expressed in terms of times and are of the following types:

1) Inventory Turnover Ratio: Inventory Turnover Ratio(also known as stock Turnover Ratio) expresses

Number of times the Inventory turned into sales during the accounting period and is calculated as follows:

Inventory Turnover Ratio = Cost of Revenue from Operations

Average Stock

= Times

Note: Depending on the information available Cost of Revenue from Operations (also known as Cost of Goods sold) is calculated as follows:

Cost of Revenue from Operations= Cost of material consumed + Purchase of Stock-in-trade + Change in Inventory(Finished Goods; Work in Progress & Stock-in-trade) +Direct Expenses.

OR

Cost of Revenue from Operations = Opening Inventory + Net purchases + Direct Exp. – Closing Inventory

OR

Cost of Revenue from Operations = Revenue from Operations – Gross Profit

Average Stock or Average Inventory= Opening Inventory + Closing Inventory

2

(Higher the ratio, better it is, as it implies efficient management of inventory)

Problem1: From the following information, calculate Inventory Turnov	er Ratio:
Cost of Revenue from Operations	Rs. 22,00,000
Inventories in the beginning of the year	5,00,000
Inventories at the end of the year	6,00,000
Solution: Calculation of Inventory Turnover Ratio:	
Inventory Turnover Ratio = <u>Cost of Revenue from Operation</u>	
Average Inventory	
Cost of Revenue from Operation= Rs.22,00,000	
Average Inventory = Opening Inventories + Closing I	nventories

2

= 5,00,000 + 6,00,000

 $2 = \frac{11,00,000}{2}$ = 5,50,000 Stock Turnover Ratio = $\frac{22,00,000}{5,50,000}$

= 4 Times

Problem2: Calculate Inventory Turnover	Ratio from the following particulars:
Inventory (opening)	Rs. 1,50,000
Inventory(closing)	2,10,000
Purchases	4,20,000
Carriage Inwards	90,000
Sales	6,84,000
Solution: Calculation of Inventory Turno	ver Ratio:
Stock Turnover Ratio = Cost	t of Revenue from Operation
	Average Inventory
Where,	5 ,
Cost of Revenue from Operati	ion = Opening Inventory + Purchases + Carriage Inwards
– Closina Inventory	, 5 , 5
= 1.50.000 +4.20.000 +90.000 -2.10.000	= Rs4.50.000
Average Inventory = Opening	a Inventory + Closing Inventory
<u></u>	2
= 1.50.000 +2.10.000	_
<u> 1,00,000 · 2,10,000</u>	2
=3 60 000	-
- <u>5,00,000</u> 2	
-1 80 000	
Inventory Turnover Patio = 4 50,000	
$\frac{1}{2}$	1 20 000
	-25 Times
	= 2.5 Times
Problem3: Calculate Inventory Turne	over Ratio from the following data:
Opening Inventory	2,32,000
Purchases	19,36,000
Sales	25,60,000
Gross Profit25% on sales	
Solution: Calculation of Inventory Tu	rnover Ratio:
InventoryTurnover Ratio <u>= Cost of Reven</u>	ue from Operations
Average Inventory	
Where,	
Cost of Revenue fro = 25,60,,000 – (25% of 25,60,000)	m Operation= Sales – Gross Profit
	= 25,60,,000-6,40,,000 = Rs 19,20,,000
Average Inventory = Opening Inventory	+ Closing Inventory
2	
Closing Inventory = Opening Inventory+ from Operation	Purchases- Cost of Revenue
	= 2,32,000 +19,36,000 -19,20,000 = Rs. 2,48,000

Average Inventory = <u>2,32,000 + 2,48,000</u>

= <u>4,80,000</u> 2 =Rs.2,40,000 Inventory Turnover Ratio =<u>19,20,000</u> 2,40,000 =8 Times

Problem3:Calculate Inventor	y Turnover Ratio	from the following	g particulars
-----------------------------	------------------	--------------------	---------------

Inventory at the beginning	Rs. 2,00,000
Purchases	10,77,250
Direct Expenses	10,000
Inventory at the end	4,00,000
Administrative Expenses	52,750
Selling & Distribution Expenses	1,00,000
Sales	25,00,000

Solution: Calculation of Inventory Turnover Ratio:

Inventory Turnover Ratio= <u>Cost of Revenue from Operations</u> Average Inventory

Where,

Cost of Revenue from Operations = Opening Inventory + Purchases + Direct Expenses - Closing Inventory

= 2,00,000 +10,77,25 0+ 10,000 - 4,00,000

= Rs.,8,87,250

Average Inventory = Opening Inventory + Closing Inventory

Inventory Turnover Ratio = <u>8,87,250</u>

300,000 = 2.96 Times

Problem4: Compute Inventory Turnover Ratio from the following information:Total SalesRs. 20,00,000Purchases2,00,000Gross Profit5,00,000Closing Inventory6,00,000Excess of closing Inventory over opening Inventory2,00,000

2

Solution: Calculation of Inventory Turnover Ratio:

Inventory Turnover Ratio = <u>Cost of Revenue from Operations</u> Average Inventory

Where,

Cost of Revenue from Operations= Net Sales – Gross Profit = 20,00,000 – 5,00,000 = Rs. 15,00,000

Average Inventory = <u>Opening Inventory+ Closing Inventory</u>

2

Opening Inventory = Closing Inventory – Excess of Closing Inventory over Opening Inventory

$$= 6,00,000 - 200,000 = Rs. 4,00,000$$
Average Inventory = $\frac{4,00,000 + 6,00,000}{2}$

$$= Rs. \frac{10,00,000}{2}$$

$$= 5,00,000$$

Inventory Turnover Ratio = <u>15,00,000</u> 5,00,000 = 3 Times

> 2) <u>Trade Receivable Turnover Ratio</u>: Trade Receivable Turnover Ratio (also known as Debtors Turnover Ratio) expresses relationship between Trade Receivables and net credit revenue from operations (credit sales)and is calculated as follows:

Trade Receivables Turnover Ratio = <u>Net Credit Revenue from Operations</u> Average Trade Receivables

Where,

Net Credit Revenue from Operations = Revenue from Operations – Cash Revenue from Operations

Note; While calculating amount of Net Revenue from Operations, amount of Returns Inward is deducted from amount of Credit Revenue from Operations.

Average Trade Receivables = <u>Debtors at Beginning + Debtors at End</u>

2

<u>Note</u>: In the Revised Schedule III of the Companies Act, 2013, the term 'Debtors' has been replaced by term 'Receivables' which include both Debtors and Bills Receivables. Therefore, if any question has both Debtors and Bills Receivables, both these should be added to findout amount of Debtors.

(Higher the ratio, better it is, as it indicates that debts are being collected more quickly)

Problem1: Calculate Trade Receivables Turnover Ratio from the follow	ving information:
Total Revenue from operations	Rs. 7,80,000
Cash revenue from operations	1,50,000
Trade Receivables at the beginning of the year	90,000
Trade Receivables at the end of the year	1,20,000

Solution: Calculation of Trade Receivables Turnover Ratio: Trade Receivables Turnover Ratio = <u>Net Credit Revenue from Operations</u>

Average Trade Receivables

Where,

Net Credit Sales = Total Revenue from Operations- Cash Revenue from Operations = 7,80,000 – 1,50,000 = Rs. 6,30,000

Average Trade Receivables = <u>Opening Trade Receivable + Closing Trade Receivables</u>

= 6 Times

Problem2: From the following figures, calculate Trade Receivables Turnover Ratio):	
Total Revenue from Operations	Rs. 15,00,000	
Cash Revenue 20% of total revenue from operations		
Trade Receivables at the beginning of the year	210,000	
Trade Receivables at the end of the year	2,70,000	
Solution: Calculation of Trade Receivables Turnover Ratio:		
Trade Receivables Turnover Ratio <u>= Net Credit Sales</u>		
Average Trade Receivables		
Where,		
Net credit sales = Total Revenue from Operations – Cash Revenu	e from Operations	
= 15,00,000- (20% of 15,00,000)		
=1 5,00,000 - 3,00,000 = Rs. 12,00,000		
Average Trade Receivables = <u>Opening Trade Receivables + Closing Trade Receivables</u>		
2		
= <u>2,10,000 + 2,70,000</u>		
2		
= Rs. 2,40,000		
Trade Receivables Turnover Ratio = <u>12,00,000</u>		
2,40,000		
=5 Times		

Problem3: Calculate Trade Receivables Turnover Ratio from the following information:Total Revenue from OperationsRs. 24,00,000Cash Revenue 25% of total Revenue from Operations2,00,000Closing Trade Receivables2,00,000Opening Trade Receivables 80% of closing Trade Receivables

Solution: Calculation of Trade Receivables Turnover Ratio Trade Receivables Turnover Ratio = <u>Net Credit Sales</u> Average Trade Receivables Net Credit Sales = Total Revenue from Operations – Cash Revenue from Operations = 24,00,000 – (25% of 2400,000) = 24,00,000 – 6,00,000 = Rs. 18,00,000 Average Trade Receivables = <u>Opening Trade Receivables + Closing Trade Receivables</u> 2 = (80% of 2,00,000) + 2,00,0002 = 1,80,000Trade Receivables Turnover Ratio = 18,00,000 1,80,000= 10 Times

Problem4: Calculate Trade Receivables Turnover Ratio from the following information:Total Revenue from OperationsRs. 18,00,000Cash Revenue3,00,000Closing Trade Receivables1,50,000Opening Trade Receivables Rs. 60,000 less than closing Trade Receivables

Solution: Calculation of Trade ReceivablesTurn Over Ratio:

Trade Receivables Turnover Ratio = <u>Net Credit Sales</u>

Average Trade Receivables

Where,

Net Credit Sales = Total Revenue from Operations – Cash Revenue from Operations = 18,00,000 – 3,00,000 = Rs. 15,00,000

Average Trade Receivables = <u>Opening Trade Receivables + Closing Trade Receivables</u>

2

$$= \frac{(1,50,000-60,000) + 1,50,000}{2}$$
$$= \frac{90,000 + 1,50,000}{2}$$
$$= Rs 1,20,000$$

Trade Receivables Turnover Ratio = <u>15,00,000</u> 1,20,000 =12.5Times

3) <u>**Trade Payables Turnover Ratio**</u>: Trade Payables Turn Over Ratio (also known as Creditors Turnover Ratio) shows relationship between Trade Payables and credit purchases and is calculated as follows:

Trade Payables Turnover Ratio = <u>Net Credit Purchases</u> Average Trade Payables Net Credit Purchases= Total Purchases- Cash Purchases

<u>Note:</u> For calculating amount of Net Credit Purchases, amount of Purchases Return is deducted from the amount of Total Credit Purchases.

Average Trade Payables = <u>Opening Trades Payables + Closing Trades Payables</u>

2

<u>Note:</u> In the Revised Schedule III of the Companies Act,2013, the term 'Creditors' has been replaced by the term 'Trade Payables' which include both Creditors and Bills Payable Therefore, if any question has both Creditors and Bills Payables, both these should be added to find out amount of Creditors.

(Higher ratio indicates lesser liquid position and lower ratio indicates better liquidity position)

Problem1: Calculate Trade Payables Turnover Ratio from the following information:

Total purchases during the year	Rs. 18,00,000
Cash purchase	1,20,000
Opening Trade Payables	2,00,000
Closing Trade Payables	2,80,000

Solution: Calculation of Trade Payables Turnover Ratio: Trade Payables Turnover Ratio = <u>Net Credit Purchases</u> Average Trade Payables Where,

Net Credit Purchases = Total Purchases – Cash Purchases = 18,00,000 – 1,20,000 = Rs. 16,80,000

Average Trade Payables = <u>Opening Trade Payables + Closing Trade Payables</u> 2 = 2,00,000 + 2,80,000 2 = Rs. 2,40,0000Trade Payables Turnover Ratio = <u>16,80,000</u> 2,40,000

= 7 Times.

Problem2: From the following figures, calculate Trade Payables Turnover Ratio: Total Purchases during the year Rs. 15,00,000 *Cash Purchases 20% of the total purchases* Opening Trade Payables 1,00,000 Closing Trade Payables 40% more than Opening Trade Payables Solution: Calculation of Trade Payables Turnover Ratio: Trade Payables Turnover Ratio = <u>Net Credit Purchases</u> Average Trade Payables Where, *Net Credit Purchases = Total Purchases – Cash Purchases* = 15,00,000 - (20% of 15,00,000) = 15,000,000 - 3,00,000 = Rs. 12,,00,000 Average Trade Payables = <u>Opening Trade Payables + Closing Trade Payables</u> 2 = 1,00,000 +(1,00,000 +40% of 1,00,000) =1,00,000 +1,40,000 2 = Rs.1,20,000 Creditors Turnover Ratio = 12,00,000 1,20,000 = 10 Times

Problem3: From the following information, calculate Trade Receivables Turnover Ratio and Trade Payables Turnover Ratio:

Credit Revenue from Operations	Rs. 54,00,000
Credit Purchases	36,00,000
Opening Debtors	4,20,000
Closing Debtors	4,80,000
Opening Bills Receivables	60,000
Closing Bills Receivables	1,20,000
Opening Creditors	2,40,000
Closing Creditors	3,60,000
Opening Bills Payables	90,000
Closing Bills Payables	60,000

Solution:

Calculation of Ratios:

i. Trade Receivables Turnover Ratio

Trade Receivables Turnover Ratio = <u>Net Credit Revenue from Operations</u> Average Trade Receivables

Where,

Net Credit Revenue from Operations = Rs. 54,00,000

Average Trade Receivables = <u>Opening Drs.& Trade Receivables + Closing Drs. & Trade Payables</u> 2

= (4,20,000 +60,000) + (4,80,000 + 1,20,000) 2 = <u>4,80,000 + 6,00,000</u> 2 = <u>10,80,000</u> 2 =Rs. 5,40,000 *Trade Receivables Turnover Ratio = 54,,00,000* 5,40,000 = 10 Times. ii. Trade Payables Turnover Ratio = Net Credit Purchases Average Trade Payables Where, Net Credit Purchases = Rs. 36,00,000 Average Trade Payables = <u>Opening Crs. & Trade Payables + Closing Crs. & Trade Payables</u> 2 <u>= (2,40,000+ 90,000) + (3,60,000 + 60,000)</u> 2 = <u>3,30,000 + 4,20,000</u> 2 =7,50,000 2 = Rs 3,75,000 Trade Payables Turnover Ratio = <u>36,00,000</u> 3,75,000 = 9.6 Times.

 4) Working Capital Turnover Ratio: Working Turnover Ratio expresses the relation between working capital and revenue from operations and is calculated as follows: Working Capital Turnover Ratio = <u>Revenue from Operations</u> Working Capital

Where,

Working Capital = Current Assets – Current Liabilities

Note: Revenue from Operations is taken on net basis. Thus, amount of returns inward (or Sale return or revenue from operations return) deducted from total amount of revenue from operations.

(Higher the ratio, better it is, as it shows that working capital is being utilized efficiently in making sales)

Problem1: From the following information, calcul	ate Working Capital Turnover Ratio:	
Total Revenue from Operat	ions Rs. 8,10,000	
Cash Revenue from Operati	ons 1,80,000	
Current Assets	3.30.000	
Current Liabilities	1,50,000	
Solution: Calculation of Working Capital Ratio:		
Working Capital Ratio =	<u>Revenue from Operations</u>	
	Working Capital	
Where,		
Revenue from Operation.	s = Rs.8,10,000	
Working Capital = Curre = 3,30,000- 1,50,000 = Rs. 1,80,000	ent Assets – Current Liabilities	
Working Capital Turne	over Ratio - 8 10 000	
Working Capital Turne	1 80 000	
= 1 5 Times	1,80,000	
- 4.5 mmcs.		
Problem2: Calculate Working Capita Turnover fro	m the following information	
Cash Revenue from Operations Rs 10	,00,000	
Credit Revenue from Operations 7,5	50,000	
Liquid Assets 3,7	5,000	
Inventories 5.00.000		
Current Liabilities 5,25	5,000	
Solution: Calculation of Working Capital Turnover	Ratio	
Working Capital Turnover Ratic) = <u>Revenue from Operations</u>	
	Working Capital	
Where,		
Revenue from Operations= Cash Re	venue from Operations+ Credit Revenue	
from Operations		
= 10,00,0	00 + 7,50,000 = Rs 17,50,000	
Working Capital = Current Assets – Current Liabilities		
=Liquid Assets + Inventories – Current Liabilities		
= 3,75,000 + 5,00,000 - 5,25,000		
= Rs 3,50,000		
Working Capital Turnover Ratio = 17.50.000		
	3,50,000	
= 5 Times.		
Problem 3: From the following information. calcul	ate Working Capital Turnover Ratio:	
Revenue from Operations	rs21,70,000	
Cash and Cash Equivalents	5.25.000	
Trade Receivables	3.85.000	
Inventories	3.15.000	
Trade Pavables	4.20.000	
Sales Returns	70.000	
	/	

Solution: Calculation of Working Capital Turnover Ratio: Working Capital Turnover Ratio= <u>Revenue from Operations</u> Working Capital Where, Net Revenue from Operations = Revenue from Operations – Sales Returns =21,70,000–70,000 = Rs 21,00,000

Working Capital = Current Assets – Current Liabilities =(Trade Receivables + Cash and Cash Equivalents+ Inventories) – Trade Payables = (3,85,,000+ 5,25,,000+ 3,15,000) – 4,20,000 =12,25,000 -4,20,000 = Rs8,05,000 Working Capital Turnover Ratio = <u>2100,000</u>

= 2.61 Times.

Problem 4: Compute Working Capital Turnover Ratio from th	e following Information.
Cash Revenue from Operations	Rs 4,55,000
Credit Revenue from Operations	13,30,000
Revenue from Operations Returns	35,000
Liquid Assets	4,90,000
Current Liabilities	3,67,500
Inventories	3,15,000

8,05,000

Solution: Computation of Working Capital Turnover Ratio: Working Capital Turnover Ratio= <u>Net Revenue from Operations</u> Working Capital

Where,

Net Revenue from Operations= Cash Revenue from Operations +Credit Revenue from Operations -Revenue from Operations Returns = 4,55,000 +13,30,000 -35,000 = Rs 17,50,000 Working Capital= Current Assets -Current Liabilities =(Liquid Assets +Inventories) -Current Liabilities =(4,90,000 +3,15,000) -3,67,500 = Rs 4,37,500 Working Capital Turnover Ratio = $\frac{17,50,000}{4,37,500}$

=4 Times.

IV. **Profitability Ratios:** Profitability Ratios (also known as Financial Performance Ratios) indicate profit earning capacity of a firm. Profitability Ratios are expressed in terms of percentage and are of the following types

 Gross Profit Ratio: Gross profit Ratio shows relationship between gross profit earned and revenue from operations and is calculated as follows: Gross Profit Ratio = :Gross Profit X 100

<u>Gross Profit</u> X 100 Net Revenue from Operations

Where,

Gross Profit = Revenue from Operations – Cost of Revenue from Operations Cost of Revenue from Operations = Cost of material consumed + Purchase of stock-in-trade +Change in Inventory (Finished Goods; Work-in-progress and Stock-in-trade) + Direct Expenses.

OR

Cost of Revenue from Operation = Opening Inventories + Net Purchases +Direct Expenses – ClosingInventories

OR

Cost of Revenue from Operations = Revenue from Operations – Gross Profit (Higher the ratio, better it is, as it implies that the cost of production is relatively low)

Problem1: From the following information, calculate Gross Profit Ratio:

Opening Inventories	Rs.2,40,000
Purchases	6,75,000
Purchases Return	45,,000
Direct Expenses	30,000
Revenue from Operations	9,00,000
Closing Inventories	3,,00,000

Solution: Calculation of Gross Profit Ratio:

Gross Profit Ratio <u>= Gross Profit</u> X 100 Net Revenue from Operations

Where,

Gross Profit = Net Revenue from Operations – Cost of goods sold = Revenue from Operations – (Opening Inventories + Net Purchases + Direct exp.- Closing Inventories) = 9,00,000 – (2,40,000 + 6,30,000 + 30,000 - 3,00,000) = 9,00,000 – 6,00,000 = Rs.3,00,000 Gross Profit Ratio = <u>3,00,000</u> X 100 9,00,000 = 33.33%

Problem2: Calculate Gross Profit Ra	tio from the following:
Opening Inventories	s Rs 1,50,000
Purchases	4,50,000
Returns Outwards	60,000
Wages	30,000
Revenue from Oper	ations 7,50,000
Closing Inventories	1,20,000
Solution: Calculation of Gross Profit	Ratio:
Gross Profit Ratio =	Gross Profit X 100
N Aller and Aller	let Revenue from Operations
wnere,	
Gross Profit = Net Revenue from Ope	erations – Cost of goods sold
= Revenue from Operations – (Op .Ir	iventories +Net Purchases +Wages
-CI. Inventories)	
= 7,50,000 - (1,50,000 + 3,900,000,000,000 + 3,900,000 + 3,900,000 + 3,900,000 + 3,900,000 + 3,900,0	30,000 –1,20,000)
= 7,50,000 - 4,50,000	
= Rs. 3,00,000	
Gross Profit Ratio = <u>3,00,000</u>	<u>2</u> X 100
	7,50,000
	= 40%
Broblem2: Calculate Gross Profit Pa	tio from the following information:
Credit Revenue from One	protions Pc 27.00.000
Credit Revenue Join Ope	adit Povenue
Opening Inventories	5 59 000
Opening inventories	22.05.000
Net Purchases	22,95,000
Closing inventories	0,75,000
wages	90,000
Solution: Calculation of Gross Profit	Ratio:
Gross Profit Ratio =	<u>Gross Profit</u> X 100
Net	Revenue from Operations
Where,	
Gross Profit = N	let Revenue from Operations – Cost of goods sold
Net Revenue = C	redit Revenue from Operations + Cash Revenue from Operations
= 2	7,00,000 + (25% of27,00,000)
= 2	7.00.000 +6.75.000
= R	Ss.33.75.000
Cost of goods Sold =O	pening Inventories + Net Purchases + Wages – Closing Inventories
=5.	.58000 +22.95000 + 90.000 - 6.75000
= R	s. 22.68.000
Gross Profit 33.	75.000 - 22.68.000
= Rs. 11.07000	, , , - ,
Gross Profit Ratio = 11	1.07.000 X 100
3:	3.75.000
= 32	2.80%

2) **Operating Ratio**: Operating Ratio shows relationship between cost of operations and revenue from operations and is calculated as follows:

Operating Ratio = <u>Cost of Revenue from Operations + Operating expenses</u> x100 Revenue from Operations

Where,

Operating Expenses = Employees Benefit Expenses + Depreciation + Other Expenses Other Expenses = Office, Administration, Selling & Distribution expenses etc. (Lower the ratio, better it is, which leaves a high margin of profit to meet other non operating expenses)

Problem1:Calculate Operating Ratio from the following information:

Revenue from Operations	Rs. 23,40,000
Cost of Revenue from Operations	14,30,000
Selling Expenses	1,95,000
Administrative Expenses	1,30,000

Solution: Calculation of Operating Ratio:

Operating Ratio = <u>Cost of Revenue from Operation + Operating Expenses</u> X 100 Net Revenue from Operations

Where,

Operating Expenses = Administrative Exp. + Selling Exp. = 1,30,000 +1,95,000 = Rs. 3,25,000 Operating Ratio =14,30,000 +3,25,000 23,40,000

<u>= 17,55,000</u> X100

Problem2: Calculate Operating Ratio from the following information

Information	Rs.
Total Revenue from Operations	18,20,000
Sales Return	1,05,000
Cost of Revenue from Operations	10,50,000
Selling Expenses	1,75,000
Administrative Expenses	1 40,000
Depreciation	35,000

Solution: Calculation of Operating Ratio

Operating Ratio = <u>Cost of Revenue from Operation + Operating Expenses</u> X 100 Net Revenue from Operations

Where,

Operating Expenses = Administrative exp. + Selling exp. + Depreciation = 1,40,000 +1,75,000 + 35,000 = Rs. 3,50,000

Net Revenue from Operations= Total Revenue from Operations – Sales Returns = 18,20,000 - 1,05,000= Rs. 17,15,000Operating Ratio = 10,50,000+3,50,000 X100 17,15,000= 14,00,000 X100 17,15,000= 81.63%

Problem3: Calculate Operating Ratio from the following information:

Particulars	Rs.
Revenue from Operations	18,75,000
Cost of Revenue from Operations	13,75,000
Office & Selling Expenses	75,000
Depreciation	50,000
Loss on sale of Machinery	25,000
Interest on Loan	12,500

Solution: Calculation of Operating Ratio:

Operating Ratio = <u>Cost of Revenue from Operations + Operating Expenses</u> X 100 Net Revenue from Operations

Where,

Operating Expenses = Office & Selling Expenses + Depreciation =75,000 +50,000 = Rs.1,25,,000 Operating Ratio = <u>13,75,,000 + 1,25,000</u> X 100 18,75,000 = <u>15,00,000</u> X100 = 18,75,,000 = 80%

<u>Note</u>: Loss on sale of Machinery and Interest on Loan are non- operating expenses, hence not included in operating expenses.

3) **Operating Profit Ratio**: Operating Profit Ratio shows relationship between operating profit and revenue from Operations and is calculated as follows:

Operating Profit Ratio = <u>Operating Profit</u> x100 Revenue from Operations

Where,

Operating Profit = Gross Profit – Operating Expense

OR

= Net Profit (after Tax) + Non- operating Expenses/Loss + Other Non-operating Expenses (loss on sale of non-current assets,

Abnormal loss, etc.)

Non-operating Incomes = Interest/dividend on Investments, profit on sale of non-current assets

(Higher the ratio, better it is, as it indicates efficiency of the business enterprise)

	Particulars	Rs.
	Revenue from Operations	24,00,000
	Gross Profit	6,00,000
	Office Expenses	64,000
	Selling Expenses	40,000
	Commission Received	80,000
	Interest on Investments	16,000

Problem1:From the following information, calculate Operating Profit Ratio:

Solution: Calculation of Operating Profit Ratio:

Operating Profit Ratio =	<u>Operating Profit</u>	X100
	Net Revenue from Operations	5

Where,

Operating Profit = Gross Profit - Office expenses - Selling expenses = 6,00,000 - 64,000 - 40,000 = Rs. 4,96,000 Operating Profit Ratio = <u>4,96,000</u> X 100 _24,00,000 = 20.67%

Problem2: Calculate Operating Profit Ratio from the following information:

Particulars	Rs.
Revenue from Operations	40,00,000
Revenue from Operation Returns	1,60,000
Purchases	32,00,000
Excise Duty	1,60,000
Office & Selling Expenses	1,20,000
Depreciation	14,400
Interest paid on Loan	40,000

Solution: Calculation of Operating Profit Ratio:

Operating Profit Ratio = **Operating Profit** X100 Net Revenue from Operations *Operating Profit = Gross Profit – Office & Selling expenses* Gross Profit = Net Revenue from Operations – Cost of Revenue from Operations *Cost of Revenue from Operations = Purchases + Excise Duty* =32,00,00,000 + 1,60,000 = Rs. 33,60,000 *Gross Profit = Net Revenue from Operations-Cost of Revenue from Operations* = (40,00,000 - 1,60,000) - 3360,000 = 38,40,000 - 33,60,000 = Rs. 4,80,000 **Operating Profit= Gross Profit-Office & Selling Expenses- Depreciation** = 4,80,000 - (1,20,000-14,400) = 4,80,000- 1,34,400 = 3,45,600

Operating Profit Ratio = <u>3,45,600</u> X100 40,00,000-1,60,00 = <u>3,45,600</u> X100 38,40,000 = <u>9%</u>

Problem3: Calculate Operating Profit Ratio from the following information:

Information	Rs.
Revenue from Operations	21,00,000
Opening Inventories	3,00,000
Closing Inventories	3,60,000
Purchases	15,00,000
Administrative Expenses	15,000
Selling Expenses	30,000
Loss due to Theft	24,000
Тах	21,000

Solution; Calculation of Operating Profit Ratio:

Operating Profit Ratio = X 100 **Operating Profit** Net Revenue from Operation *Operating Profit = Gross Profit – Administrative Expenses* Gross Profit = Revenue from Operations- Cost of Revenue from Operations Cost of Revenue from Operations = Opening Inventories + Purchases – Closing Inventories = 3,00,000 + 15,00,000 - 3,60,000 = Rs 14,40,000 Gross Profit = 21,00,000 - 14,40,000 = 6,60,000 *Operating Profit= Gross Profit-Administrative Exp. –Selling Exp. Operating Profit = 6,60,000 –1 5,000- 30,000* = Rs 6,15,000 Operating Profit Ratio = 6,15,000 X 100 21,00,000 = 29.29%

4) <u>Net Profit Ratio</u>: Net Profit Ratio shows relationship between net profit and revenue from operations and is calculated a follows:

Net Revenue from Operations

<u>Note:</u> Net profit means here, net profit after tax. In calculating net profit after tax, all types of incomes

(operating and non-operating) and all types of expenses (operating and non-operating) are taken into consideration.

(Higher the ratio, better it is, as it indicates efficiency of the business enterprise)

Problem1: Calculate	Net Profit I	Ratio from th	e followina	information:
rooncinit. Culculate	Net i i Ojit i		c jonowing	mjormation.

Particulars	Rs.
Revenue from Operations	64,,00,000
Opening Inventories	4,00,000
Purchases of Stock-in-Trade	48,00,000
Wages	2,40,000
Selling Expenses	1,60,000
Depreciation	80,000
Interest on Investments	96,000
Closing Inventories	5,60,000

Solution: Calculation of Net Profit Ratio:

Net Profit Ratio =Net Profit (after Tax)X100Net Revenue from Operations

Where,

Cost of Revenue from Operations= Opening Inventories + Purchases of Stock-in-Trade +Closing Inventories = 4,00,000 + 48,00,000 + 2,40,000 - 5,60,000= Rs. 48,80,000Gross Profit =Net Revenue from Operation-Cost of Revenue from Operation = 64,,00,000 - 48,80,000= Rs. 15,20,000Net Profit after Tax= Gross profit- Selling expenses-Depreciation +Interest on Investment = 15,20,000 - 1,60,000 - 80,000 + 96,000= Rs 13,76,000Net Profit Ratio = 13,76,,000 X100 64,00,000= 21.50%

Problem2: From the following information, calculate Net Profit Ratio:

Particulars	Rs
Total Revenue from Operations	25,00,000
Returns Inward	50,000
Gross Profit	7,00,000
Office Expenses	75,,000
Selling Expenses	50,000
Depreciation	25,000
Accidental Losses	20,000
Dividend on Investments	12,500
Тах	30,000

Solution: Calculation of Net Profit Ratio: Net Profit Ratio = Net Profit (after Tax) X100 Net Revenue from Operations Where, Net Profit = Gross Profit – Office Expenses –Selling Expenses –Depreciation – Accidental Loss + Dividend on Investments – Tax = 7,00,000 - 75,000 - 50,000 - 25,000 - 20,000 + 12,500 - 30,000 = Rs. 5,12,500 Net Revenue from Operations = Total Revenue from Operations – Returns Inward = 25,,00,000 - 50,000 = Rs. 24,50,000 Net Profit Ratio = 5,12,500 X 100 24,50,000 =20.92%. **Problem3:** Calculate Net Profit Ratio from the following information: *Profit before Interest and Tax* Rs. 8,75,000 Interest 1,05,000 Income Tax 1,40,000 *Revenue from Operations* 28,00,000 Solution: Calculation of Net Profit Ratio: Net Profit Ratio = *Net Profit (after Tax)* X100 Net Revenue from Operations Where, Net Profit = PBIT –Interest – Tax =8,75,000 - 1,05,000 - 1,40,000 = Rs. 6,30,000 Net Profit Ratio= 6,30,000 X100 28,00,000 = 22.50% 5) **Return on Investment**: Return on Investment shows relationship between net profit before interest, tax dividend and capital employed Is calculated as follows: Return on Investment = <u>Net Profit before Interest</u>, Tax and Dividend X100 Capital Employed Note. Capital Employed is calculated in two ways: 1. Liabilities Approach: Capital Employed = Shareholder's Funds (Share Capital + Reserve & Surplus) + Non-current *Liabilities*(*long-term borrowings + long term provisions*) 2.Assets Approach: Capital Employed = Non-current Assets (Tangible Assets + Intangible Assets + Non-current Investment + Long-term Loans & Advances) + Working Capital

(Higher the ratio, better it is, as it indicates how economically and efficiently funds are being utilized)

Problem1: Calculate Return on Investment from the following information:

Share Capital	Rs. 12,50,000
Reserves & Surplus	7,50,000
12% Debentures	10,00,000
Current Liabilities	2,50,000
Fixed Assets	17,50,000
Non-current Investm	nents 5,00,000
Current Assets	10,00,000
Profit before Tax	3,00,000

Solution: Calculation of Return on Investment:

```
Return on Investment = <u>Net Profit before Interest, Tax and Dividend</u> X100
Capital Employed
```

Where,

Net Profit before Interest, Tax and Dividend = Profit before Tax +Interest On Debentures = 3,00,000 + 1,20,000 = Rs. 4,20,,000 Capital Employed = Shareholder's Funds +Long-term Debt =(12,50,000 +7,500,000)+ 10,00,000 = 20,00,000 + 10,00,000 =Rs.30,,00,000

 $ROI = \frac{4,20,000}{30,00,000} X100$

= 14%

Problem2: From the following information, calculate ROI:

Particulars	Rs.
Share Capital	12,50,000
General Reserve	7,50,000
Balance of Statement of Profit & Loss	5,00,000
12% Debentures	15,00,000
Current Liabilities	7,50,000
Net Fixed Assets	37,50,000
Current Assets	10,00,000
Net Profit after Interest & Tax	5,50,000
Тах	3,25,000

Solution: Calculation of ROI: $ROI = \frac{Profit \ before \ Interest, \ Tax \ and \ Dividend}{Capital \ Employed}$ Where, $Profit \ before \ Interest, \ Tax \ & Dividend = \ Net \ Profit \ after \ Interest \ & \ Tax + \ Tax + \ Interest$ = 5,50,000 + 3,25,,000 + 1,80,,000 $= Rs. \ 10,55,,000$ $Capital \ Employed = \ Shareholder's \ Funds + \ Long-term \ Debts$ = (12,50,,000 + 7,50,0,000 + 5,00,000) + 15,00,000 $= Rs. \ 40,00,000$ $ROI = \frac{10,55,000}{40,00,000} \ X100$

= 26.38%

Illustrations involving two or more ratio:

Particulars	Rs.
Cash	10,000
Debtors	71,000
Short-term Investments	20,000
Long-term Investments	40,000
Closing Stock: Raw- Material	1,00,000
Finished Goods	40,000
Prepaid Expenses	9,000
Plant & Machinery	2,00,000
Loose Tools	50,000
Creditors	1,00,000
Provision for Taxation	25,000
Outstanding Expenses	5,000
Profit & Loss A/c	80,000

Problem1. Calculate the Current Ratio and Acid Test Ratio from the given particulars:

Solution:

Calculation of Ratios:

1. Current Ratio

Current Ratio= <u>Current Assets</u> Current Liabilities

Where,

Current assets= Cash+ Debtors+ Short-term Investments+ Closing Stock+ Prepaid Expenses +Loose Tools =10,000+ 71,000+ 20,000+ 1,40,000+9,000+50,000=Rs. 3,00,000 Current liabilities= Creditors+ Provision for Taxation+ Outstanding Expenses = 1,00,000+ 25,000+ 5,000= Rs. 1,30,000 Current Ratio= <u>3,00,000</u> 1,30,000

=2.31:1

2. Acid-Test Ratio:

Acid-Test Ratio= Liquid Assets Liquid Liabilities

Where,

Liquid Assets= Cash+ Debtors+ Short-term Investments+ Loose Tools =10,000+ 71,000+ 20,000+ 50,000= Rs. 1,51,000 Liquid Liabilities= Creditors+ Provision for Taxation+ Outstanding Expenses = 1,00,000+ 25,000+ 5,000= Rs.1,30,000 Acid-Test Ratio=1,51,000 1,30,000 =1.16:1 **Problem2.** From the following Balance Sheet of Ashvek Ltd as at 31st March 2014, calculate Current Ratio and Quick Ratio:

Particular	Note No.	Rs.
Equity & Liabilities		
1.Shareholders Funds		
a)Share Capital		8,00,000
b) Reserves and Surplus		5,00,000
2. Non-current Liabilities		
a) Long-term Borrowings		5,00,000
b) Long-term Provisions		2,00,000
3.Current Liabilities		
a)Short-term Borrowings		4,00,000
b)Trade Payables		5,00,000
c)Short-term Provisions		1,00,000
		<u>30,00,000</u>
Assets		
1.Non-current Assets		
a)Fixed Assets		
i)Tangible		10,00,000
ii)Intangible		1,00,000
b)Non-current Investments		2,50,000
2.Current Assets		
a)Current Investments		1,50,000
b)Inventories		3,00,000
c)Trade Receivable		6,50,000
d)Cash & Cash Equivalents		4,50,000
e)Short-term Loans & Advances		1,00,000
		30,00,000

Solution: 1.Calculation of Current Ratio:

Current Ratio= <u>Current Assets</u> Current Liabilities

Where,

Current assets= Current Investments+ Inventories+ Trade Receivables+ Cash & Cash Equivalents +Short-term Loans & Advances

=1,50,000+ 3,00,000+ 6,50,000+ 4,50,000+1,00,000= Rs. 16,50,000 Current Liabilities= Short-term Borrowings+ Trade Payables+ Short-term Provisions =4,00,000+ 5,00,000+1,00,000= Rs. 10,00,000 Current Ratio= 16,50,000

2. Calculation of Quick Ratio: Quick Ratio= <u>Quick Assets</u> Quick Liabilities Where,

Problem3: Calculate Current Ratio and Quick Ratio from the following information:

Particulars	Rs.
Creditors	10,00,000
Bills Payables	3,20,000
Outstanding Expenses	80,000
Debtors	10,80,000
Bills Receivables	2,40,000
Current Investments	600,000
Inventories	3,20,000
Cash & Cash Equivalents	1,60,000

Solution: Calculation of Ratios:

ii)

i) Current Ratio<u>= Current Assets</u>

Current Liabilities

Where,

Problem4:From the following information obtained from the books of Mayank Ltd. as 31st March 2014, calculate Current Ratio and ii) Stock Turnover Ratio:

Particulars	Rs
Cash in hand	2,75,000
Cash at Bank	3,85,000
Closing Stock	1,65,000
Plant &Machinery	11,00,000
Land & Building	55,00,000
Trade Receivables	4,40,000
Trade Payables	3,57,500
9% Debentures	16,50,000
Short-term Loan	4,95,000
Cost of Revenue from Operation	16,50,000

Additional Information: Opening Stock was Rs. 27,500 more than Closing Stock.

Solution: Calculation of Ratios:

I) Current Ratio = <u>Current Assets</u>

Current Liabilities

Where,

Current Assets = Cash in hand +Cash Bank + Stock + Trade Receivables *=* 2,75,000 *+* 3,85,000 *+* 1,65,,000 *+* 4,40,000 = Rs. 12,65,000 *Current Liabilities = Trade Payables + Short-term Loan* = 3,57,500 + 4,95,000 = Rs. 8,52,500 *Current Ratio = 12,65,000* 8,52,500 = 1.48:1 i) Stock Turnover Ratio = <u>Cost of Revenue from Operation</u> Average Inventories Cost of Revenue from Operation = Rs. 16,50,000 Average Inventories = Opening Inventories + Closing Inventories 2 = (<u>1,65,000 + 27,500) + 1,65,000</u> 2 = 1,92,500 +1,65,000 2 = Rs. 1,78,750 Stock Turnover Ratio = <u>16,50,000</u> 1,78,750 = 9.23 Times

Problem5: From the following information, calculate- i) Current Ratio ii) Debt Equity Ratio iii)Stock Turnover Ratio:

Particulars	Rs
Equity Share Capital	25,00,000
8%Preference Share Capital	5,00,000
9% Debentures	7,50,000
Long-term Loan from Bank	2,50,000
Current Liabilities	1,50,000
Liquid Assets	1,87,500
Prepaid expenses	5,000
Operating expenses	75,000
Net Sales	12,50,000
Opening Inventory	17,500
Closing Inventory Rs. 10,000more than Opening Stock	
Net Purchases Rs. 2,50,000less than Net Sales	

Solution: Calculation of Ratios:

i) *Current Ratio = Current Assets Current Liabilities* Where, Current Assets = Liquid Assets + Closing Stock + Prepaid Expenses = 1,87,500 + 27,500 + 5,000 = Rs 2,20,000 Current Liabilities = Rs. 1,50,000 *Current Ratio* = <u>2,20,000</u> 1,50,000 = 1.47:1 ii) Debt Equity Ratio = <u>Debt</u> Equity Where, *Debt = 9% Debentures + Long-term Loan from Bank* = 7,50,000 + 2,50,000 = Rs 10,00,000 Equity = Equity Share Capital + 8% Preference Share Capital = 25,00,000 + 5,00,000 = Rs. 30,00,000 Debt Equity Ratio = 10,00,000 30,00,000 = 0.33:1 iii) Stock Turnover Ratio = Cost of Revenue from Operation Average Inventories Where, Cost of goods sold = Opening Inventories + Net Purchases – Closing Inventary = 17,500 + 10,00,000 - 27,500 = Rs. 9,90,000

Average Inventory= <u>Opening Inventory + Closing Inventory</u>		
2		
= <u>17,500 + 27,500</u>		
2		
<i>=45,000</i>		
2		
= Rs. 22,500		
Inventory Turnover Ratio = <u>9,90,000</u>		
22,500		
= 44Times		
Problem6: On the basis of the following information calculat	· · ·	
i) Debt Fauity Ratio		
ii) Working Capital Turnover Ratio		
Information:		
Not Salas	Pc 00 00 000	
Cost of Bouenus from Operation	67 50,000	
Other Current Access	16 50,000	
	10,50,000	
Current Liabilities	6,00,000	
Pala up Share Capital	9,00,000	
6% Debentures	4,50,000	
9% Loan	1,50,000	
Debenture Redemption Reserve	3,00,000	
Closing Inventories	1,50,000	
Solution: Calculation of Ratios:		
i) Debt Equity Ratio = <u>Debt</u>		
Equity		
Where,		
Debt = 6% Debentures + 9% Loan		
= 4,50,000 + 1,50,000		
= Rs. 600,000		
Equity = Paid up Share Capital + Debenture Redemption Reserve		
= 9,00,000 + 3,00,000		
= Rs. 1200,000		
Debt Equity Ratio = <u>6,00,000</u>		
12,00,000		
= 0.5:1		
II) Working Capital Turnover Ratio <u>= Net Revenue</u>	e from Operations	
Working	Capital	
Where,		
Working Capital = Current Ass	ets – Current Liabilities	
= Closina Inventories+ Other Current Assets –		
Current Liabilities		
= 1,50.000 + 1	6,50,000 – 6,00,000	
= Rs. 12,00,00	0	

Working Capital Ratio = <u>90,00,000</u> 12,00,000 = 7.5 Times

Problem 7: From the following information, calculate :

i) Operating Ratio

ii) Stock Turnover Ratio iii) Proprietary Ratio Information: Cash Sales Rs. 25,00,000 Credit Sales 120% of Cash Sales 10% of Total Sales Operating Expenses Rate of Gross Profit 40% **Opening Inventories** 3,75,000 Closing Inventories 50,000 more than Opening Stock Current Assets 7,50,000 Current Liabilities 5,00,000 Share Capital 15,00,000 Fixed Assets 7,50,000

Solution: Calculation of Ratios:

i)Operating Ratio = <u>Cost of Revenue from Operations + Operating Expenses</u> X100 Net Revenue from Operations

Where,

Cost of Revenue from Operation = Revenue from Operations – Gross Profit Revenue from Operations = Cash Sales + Credit Sales = 25,00,000 + 120% of 25,00,000 = 25,00,000 + 30,00,000 = 55,00,000 Gross Profit = 40% of Revenue from Operation =40% of 55,00,000 = Rs 22,00,000

Cost of Revenue from Operations = 55,00,000 -22,00,000 = Rs.33,00,000 Operating Expenses = 10% Of Total Sales = 10% of 55,00,000 =Rs.5,50,000 Operating Ratio = <u>33,00,000 + 5,50,000</u> X100 55,00,000 = 70%

ii) Stock Turnover Ratio <u>= Cost of Revenue from Operations</u> Average Inventories

Where,

Average Inventories = <u>Opening Stock + Closing Stock</u> 2 = <u>3,75,000+4,25,000</u> 2 = 8,00,000 2 = 4,00,000 Inventory Turnover Ratio = <u>33,00,000</u> 4,00,000 = 8.25 Times iii)Proprietary Ratio = <u>Equity</u> Total Assets Where, Total Assets = Current Assets + Fixed Assets =4,50,000 +7, 50,000 = Rs 12,00,000 Proprietary Ratio = <u>15,00,000</u> 12,00,000 = 0.75:1

Problem 8: From the following information, calculate :

- Debt Equity Ratio i)
- ii) Working Capital Turnover Ratio

iii)	Return on Investment Ratio	
	Information:	
	Equity Share Capital	Rs 7,50,000
	General Reserve	7 5,000
	Profit & Loss Account after Tax and Interest	2,25,000
	9% Debentures	3,00,000
	Creditors	2,25,000
	Land & Building	9,75,000
	Equipments	2,25,000
	Debtors	2,17,500
	Cash	82,500
	Discount of Issue of Shares	75,000
	Sales	22,50,000
	Тах	@50%

Solution: Calculation of Ratios

I) Debt Equity Ratio= <u>Debt</u>

Equity

Where,

Debt= 9% Debentures ie. Rs3,00,000

Equity= Equity Share Capital + General Reserve + Profit& Loss Account -Discount on Issue of Shares *=* 7,50,000 +7 5,000 +2,25,000 - 75,000 = 9,75,000 Debt Equity Ratio = 3,00,000 9,75,000 = 0.31 : 1 *II)* Working Capital Turnover Ratio = Net Revenue from Operation Working Capital Where, Working Capital = Current Assets – current Liabilities = Debtors + Cash – Creditors = (2,17,500 + 82,500) - 2,25,000 = Rs 75,000 Working Capital Turnover Ratio = 22,50,000 75,000 =30 Times III) ROI = <u>Profit before Interest, Tax and Dividend</u> x 100 Capital Employed Where. Profit before Interest, Tax and Dividend = Profit after Tax and Interest + Tax + Interest = 2,25,000 + 2,25,000 + 27,000 = Rs 4,77,000 Capital Employed = Equity + Debt = 9,75,000 + 3,00,000 =Rs 12,75,000 ROI = 4,77,000 X 100 12,75,000 =37.41%

Practical Problems

Problem1. From the following information -

- a) Current Ratio
- b) b) Quick Ratio

Particulars	Rs
Cash & Cash Equivalents	2,70,000
Inventories	3,60,000
Current Investments	8,10,000
Outstanding Expenses	1,35,000
Sundry Creditors	15,75,000
Sundry Debtors	13,05,000
Bills Receivables	2,70,000
Bills Payables	4,05,000

Ans: a)Current Ratio1.43:1 b)Quick Ratio 1.26:1

Problem2.On the basis of the following information, calculate:

- 1. Debt-Equity Ratio
- 2. Working Capital Turnover Ratio

Information	Rs.
Share Capital	12,00,000
9% Debentures	7,50,000
10% Loan	3,00,000
Debenture Redemption Reserve	3,00,000
Current Liabilities	6,00,000
Net Revenue from Operation	1,20,00,000
Cost of Revenue from Operations	97,50,000
Closing Inventories	1,50,000
Current Assets	15,00,000

Ans. :1. Debt-Equity Ratio 0.7:1 2.Working Capital Turnover Ratio 13.33 Times Problem3.From the following information, calculate: i)Operating Ratio ii) Stock Turnover Ratio iii)Proprietary Ratio

Particulars	Rs
Share Capital	20,00,000
Current Liabilities	7,50,000
Fixed Assets	12,50,000
Current Assets	10,00,000
Opening Inventories	4,50,000
Closing Inventories	5,00,000
Cash Revenue from Operation	20,00,000
Credit Revenue from Operation	25,00,000
Operating Expenses 10% of Total	
Revenue from Operations	
Rate of Gross Profit	40%

Ans. I) Operating Ratio 70% ii)Stock Turnover Ratio 5.68 Times iii)Proprietary Ratio 0.91:1

Problem4.From the following information, calculate: i)Working Capital Turnover Ratio ii)Return On Investment iii)Debt-Equity Ratio

Data	Rs.
Equity Share Capital	6,00,000
9% Debentures	3,00,000
General Reserve	3,75,000
Trade payable	1,12,500
Land & Building	4,87,500
Equipments	1,12,500
Trade Receivables	1,08,750
Cash	41,250
Discount on Issue of Shares	37,500
Revenue from Operation	13,50,000
Profit after Tax and Interest	1,12,500
Tax Rate	50%

Ans: Working Capital Turnover Ratio 36 Times Return On Investment 39.5% Debt-Equity Ratio 0.32:1 *Problem5: Calculate Current Ratio and Debt-Equity Ratio from the figures given below:*

Particulars	Rs
Equity Share Capital	10,00,000
12% Debentures	3,00,000
Balance in Statement of Profit & Loss	1,00,000
Long term Investment	1,50,000
Trade Receivables	5,00,000
Inventories	3,00,000
Prepaid expenses	20,000
Trade Payables	4,00,000

Ans: Current Ratio2.05:1 Debt-Equity Ratio0.27:1

Problem6: With the help of the given information , calculate the following ratios:

- i) Quick Ratio
- ii) Operating Ratio
- iii) Working Capital Turnover Ratio

Information	Rs.	
Ordinary Share Capital	1,00,000	
12% Preference Share Capital	80,000	
12% Debentures	60,000	
General Reserve	40,000	
Revenue from Operations	3,00,000	
Opening Inventory	10,000	
Net Purchases	1,20,000	
Excise Duty	30,000	
Closing Inventory	30,000	
Administrative and selling expenses	10,000	
Other Current Assets	2,00,000	
Current Liabilities	1,20,000	

Ans: i) Quick Ratio 1.67:1 Ii) Operating Ratio 46.67% iii) Working Capital Turnover Ratio 1.18 Times

S.No	Accounting Ratio	Formulae
1.	Liquidity Ratio	
	i)Current Ratio	Current Ratio= Current Assets =:1
		Current Liabilities
	ii)Liquid/Quick/Acid Test	Liquid Ratio= Liquid Assets =:1
	Ratio	Current Liabilities
2.	Solvency Ratio	
	i)Deht-Equity Ratio	Debt Fauity Ratio= Long term Debt or Debt =:1
		Shareholders Fund Equity
	ii)Total Assets to Debt	Total Assets to Deht Ratio= Total Asset =
	Ratio	Debt
	iii) Proprietary Ratio	Proprietary Ratio= Proprietors Fund =:1
		Total Assets
.3.	Activity Ratio	
	i)Inventory Turnover	Inventory Turnover Ratio=Cost of Revenue from Operation = Times
	Ratio/	Average Inventory
	Stock Turnover Rat	OR OR
		Stock Turnover Ratio= Cost of goods sold =Times
		Average Inventory
	ii)Trade Receivables Ratio/	Trade Receivables Ratio= Credit Revenue from Operations =Times
	Debtors Turnover Ratio	Average Trade Receivables
	iii)Trade Payables Ratio/	Trade Payables Ratio= <u>Net Credit Purchases = _</u> Times
	Creditors Turnover Ratio	Average Trade Payables
	iv) Working Capital	Working Capital Turnover Ratio= <u>Revenue from Operation = .</u> Times
	Turnover Ratio	Working Capital
4.	Profitability Ratio	
	i)Gross Profit Ratio	Gross Profit Ratio= Gross Profit x 100
	,	Revenue from Operation $= \dots \%$
	ii)Operating Ratio	Operating Ratio= Cost of Revenue from Operation +Operating Exp.x100
	, , , ,	Revenue from Operations
	iii)Operating Profit Ratio	Operating Profit Ratio = Operating Profit x 100 =%
		Revenue from Operation
	iv)Net Profit Ratio	Net Profit Ratio = <u>Net Profit after Tax</u> x 100 =%
		Revenue from Operation
	v)Return on Investment/	ROI = <u>Net Profit before Interest, Tax and Dividend</u> x 100 =%
	Return on Capital	Capital Employed
	Employed	

Accounting Ratios Formulae and components at a glance