

UNIT - 3.

FINANCIAL MANAGEMENT

Finance is the lifeline of any business. However, finance, like most other resources, are always limited. On the other hand, wants are always unlimited. Therefore, it is important for a business to manage its finances efficiently.

Financial management :-

Financial management refers to the effective planning, organizing and controlling of monetary resources. Financial management primarily includes decisions and considerations regarding the size of investments, sources and range of use for capital and the extent of profits earned from the same. It generally involves applying different management techniques to an enterprise's financial resources to maximize profits.

Meaning: -

Financial management is the business function that deals with investing the available financial resources in a way that greater business success and return on investment is achieved.

Definition:-

"Financial management is concerned with the procurement of funds and their effective utilization in business"

— M.C. Kuchhal

scope/Elements of Financial management:-

① Investment Decision:-

Investment decision depicts investing in a fixed assets. It also referred as capital budgeting. Investment decisions can be of either long term or short term basis.

→ Long term Investment decisions allow committing funds towards resources like fixed assets.

Long term investment decisions determine the performance of a business and its ability to achieve financial goals over time.

→ Short term Investment decisions or working capital financing decisions means committing funds towards resources like current assets.

It occupies funds for a shorter period

including investments in inventory, liquid cash. Short term investment decisions directly

affect the liquidity and performance of an organization

② Financing Decision :-

The scope of financial management indicates the possible sources of raising finances from various resources.

→ financial planning decisions attempt to estimate the sources and possible application of accumulated funds. A proper financial planning decision is crucial to ensure the availability of funds whenever required.

→ Capital structure decisions involve identifying various sources of funds. It facilitates the selection of the best external sources for short or long-term financial requirements.

③ Dividend Decision :-

It involves decisions taken with regards to net profit distribution. It is divided into 2 categories.

→ Dividend for shareholders — Dividend and the rate of it has to be decided

→ Retained profits — Amount of retained profits has to be finalized which will depend upon expansion and diversification plans of the enterprise.

Objectives of Financial Management:-

- To ensure regular and adequate supply of funds to the concern.
- To ensure adequate returns to the shareholders which will depend upon the earning capacity, market price of the share expectations of the shareholders.
- To ensure optimum funds utilisation. Once the funds are procured they should be utilized in maximum possible way at least cost.
- To ensure safety on investment i.e., funds should be invested in safe ventures so that adequate rate of return can be achieved.
- To plan a sound capital structure - There should be sound and fair composition of capital so that a balance is maintained between debt and equity capital.

Features / Approaches of financial management:

The unique characteristics of financial management offers two different approaches to its functions

① Traditional approach

② Modern approach

① Traditional Approach to finance function:-

During the 20th century, the traditional approach was also known as 'corporate finance'. This approach was initiated to procure and manage funds for the company. For studying financial management, the following points are used

- (a) Institutional source of finance
- (b) Issue of financial devices to collect funds from the capital market
- (c) Accounting and legal relationship between the source of finance and business

In this approach finance was required not for regular business operations but also occasional events like reorganization, promotion, expansion, etc. It was considered essential to have funds for such events and regarded as one of the crucial functions of finance manager.

Though he was not accountable for the effective utilization of funds, however his responsibility was to get the required funds from external partners on a fair term.

The traditional approach of finance management stayed until the 5th decade of the 20th century. The traditional approach only emphasized on the fund's procurement only by corporations. Hence, this approach is narrow & defective.

Limitations of Traditional Approach:-

* one side approach:-

It is more considerate towards the funds procurements and the issues related to their administration, however, it pays no attention to the effective utilization of funds.

* Gives importance to the financial problems of corporations:-

It only focuses on the financial problems of corporate enterprises so it narrows the opportunities of the finance function.

* more emphasis on long term funds:-

It deals with the issues of long term financing.

* Attention to Irregular Events :-

It provides funds to irregular events like incorporation, mergers etc and does not give attention to everyday business operation.

② Modern Approach to Finance function :-

With technological improvement, increase competition and the development of strong corporate, it was important for management to use the available financial resources in its best possible way. Therefore the traditional approach become inefficient in a growing business environment.

The modern approach had a more comprehensive analytical viewpoint with a focus on the procurement of funds and its active and optimum use. Fund arrangement is an essential feature of the entire finance function.

The main elements of this approach are evaluation of alternative utilisation of funds, capital budgeting, financial planning, working capital management, ascertainment of financial standards for business success etc.

The 3 critical decisions taken under this approach are

- Investment Decision
- Financing Decision
- Dividend Decision

Features of modern Approach:-

* more emphasis on financial decisions -
more analytic and less descriptive as the right decisions for a business can be taken only on the base of accounting and statistical data

* continuous function:-

It is a constant activity where the financial manager makes different financing decisions unlike the traditional approach

* Broader view :-

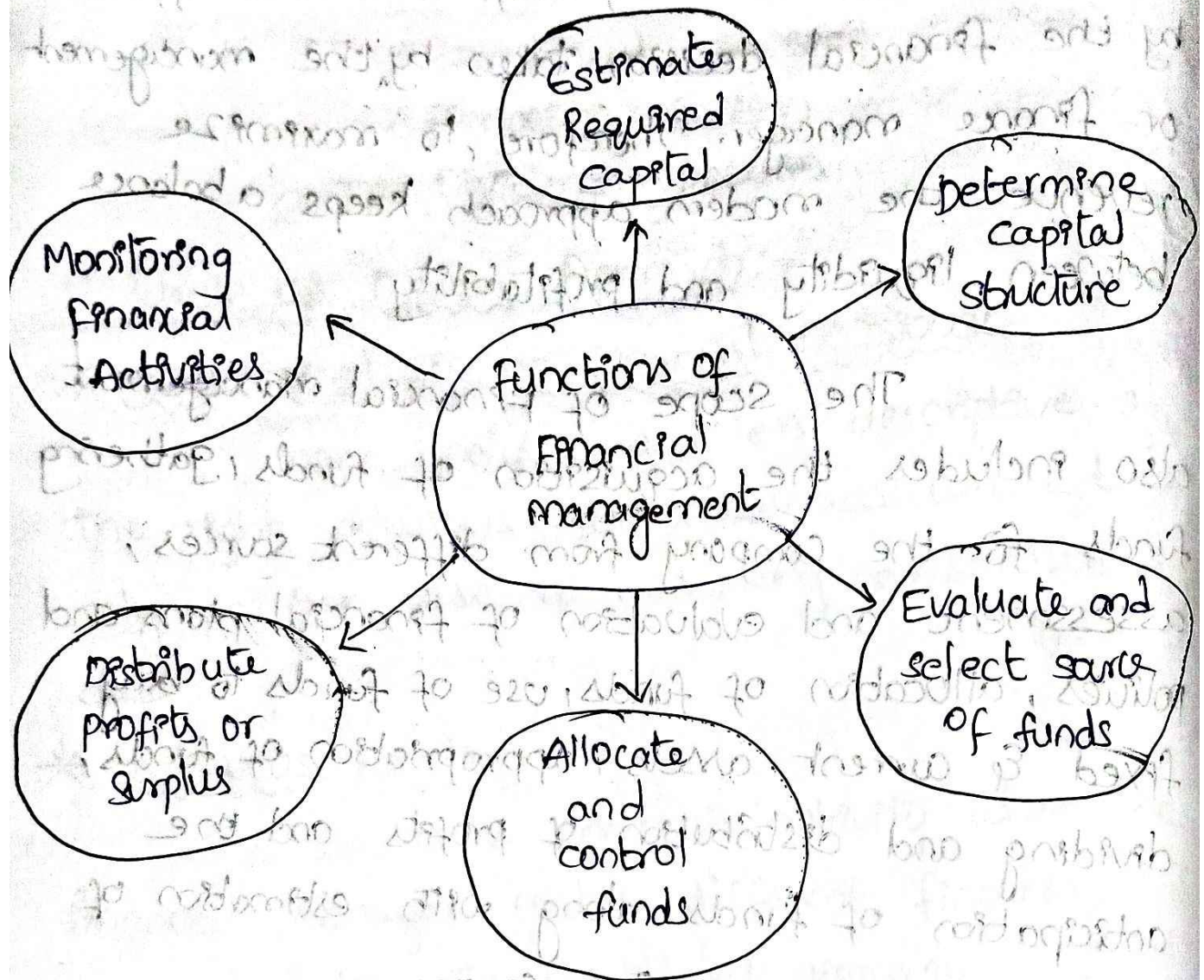
It gives importance not only to optimum use of finance but also fund procurement. Similarly it also incorporates features relating to the cost of capital, capital budgeting and financial planning etc

* measure of performance:-

performance of a firm is also affected by the financial decision taken by the management or finance manager. Therefore, to maximize revenue the modern approach keeps a balance between liquidity and profitability.

The scope of financial management also includes the acquisition of funds, gathering funds for the company from different sources, assessment and evaluation of financial plans and policies, allocation of funds, use of funds to buy fixed & current assets, appropriation of funds, dividing and distribution of profits and the anticipation of funds along with estimation of financial needs of the company.

Functions of Financial Management :-



* Determine the capital Requirement:-

The first function of a financial manager is to estimate the total capital required by the business to fulfil its mission and objectives. The amount of capital required is determined by several factors including size of the business, expected profits, company programmes & policies.

* Establish capital structure:-

After estimating the required capital, the structure must be determined. Short term and long term equity is used in the structure. It will also determine how much capital the company must own and how much must be raised from outside sources such as IPO's & so on.

* Determining Funding Sources:-

The next function is to determine where the capital will come from. The company may decide to take out bank loans, approach investors for capital in exchange for equity or hold an IPO to raise funds from the public in exchange for shares. The source of funds is chosen and ranked based on the benefits & limitation of each source.

* Fund Investment :-

To decide how to allocate funds to profitable ventures. The financial manager must calculate the risk and expected returns for each investment. The investment methods must also be chosen so that there is minimum loss of fund and maximum profit optimisation.

* Implement Financial controls :-

controls can take the form of financial forecasting, cost analysis, ratio analysis, profit distribution methods and so on. This information can assist the financial manager in making future financial decisions for the company.

* Mergers and Acquisitions :-

They both are one method of business growth. Buying new or existing businesses that align with buyer company's mission and goals is referred to as an acquisition. A merger occurs when two current companies combine to form a new company. One of the responsibilities of a financial manager is to assist in the merger and acquisition decision by carefully examining the financials and securities of each company.

* work on capital budgeting:-

capital budgeting refers to decisions made regarding the purchase of assets, the construction of new facilities and the investment in stocks or bonds. prior to making a significant capital investment, organisations must first identify opportunities & challenges.

Ratio Analysis

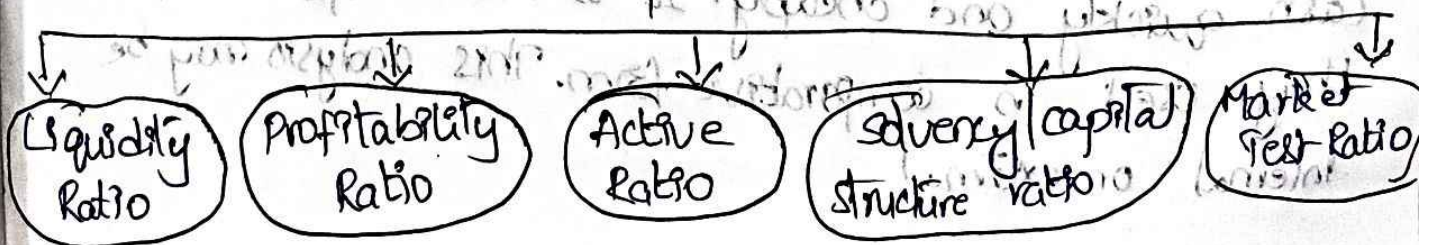
Ratio Analysis is a quantitative method of gaining insight into a company's liquidity, operational efficiency and profitability by studying its financial statements such as the Balance sheet and Income statements. Ratio analysis is a cornerstone of fundamental equity analysis.

Financial Analysis through ratios:-

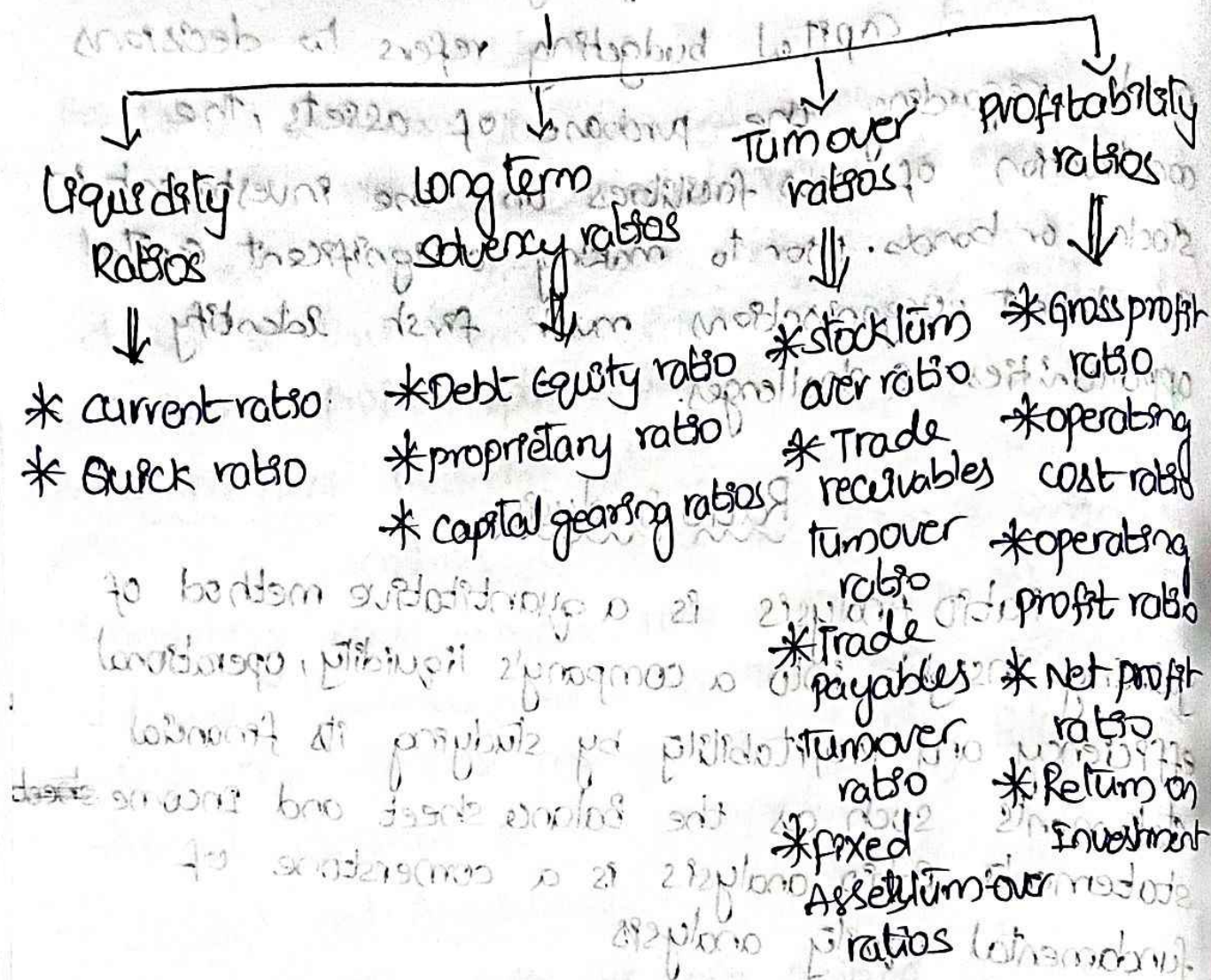
Ratio analysis is a technique of analysis the financial statements by computing various ratios. It measures the profitability, efficiency, financial soundness the business.

classification of ratios:-

classification of Ratios



functional classification of ratios:-



Liquidity Ratio :-

Liquidity ratios measure a company's ability to pay debt obligations and its margin of safety through the calculation of metrics including the current ratio, quick ratio and operating cash flow ratio

Liquidity is the ability to convert assets into cash quickly and cheaply. It is most useful when they are used in comparative form. This analysis may be internal or external

These are 3 types

- (a) current ratio
- (b) Quick / Liquidity / Acid test ratio
- (c) Absolute liquid ratio - Super quick ratio

(a) current ratio :- (Working capital Ratio)

It measures a company's ability to pay off its current liabilities (payable within 1 year) with its total current assets such as cash, account receivables and inventories. Ideal current ratio is 2:1
→ The higher the ratio the better the company's liquidity positions.

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

Current Assets :- cash in hand, cash at Bank, prepaid expenses, Bills Receivable, debtors, stocks, short term investments (or) marketable securities, Accrued incomes

Current Liabilities :- Bank overdraft, Bills payable, creditors, provisions for taxation, proposed dividend, outstanding expenses, short-term loans, long term loans maturing within a year, unclaimed dividend.

① The balance sheet of 'Asian' Ltd as at 31st March

2016

Liabilities	Rs	Assets	Rs
Share Capital	1,90,000	Trade Investments (long term)	2,00,000
Reserves	1,50,000	Stock	1,00,000
15% Debentures	50,000	Debtors	45,000
Trade Creditors	30,000	Marketable Securities	40,000
Bills payable	40,000	Cash	60,000
Oil Expenses	15,000	Bills Receivables	55,000
Bank overdraft	20,000	Prepaid Expenses	10,000
Provision for Tax	25,000	Preliminary Expenses	10,000
	<u>5,20,000</u>		<u>5,20,000</u>

calculate current ratio

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

Current Assets = Stock + Debtors + Marketable Securities + Cash + Bills Receivables + Prepaid Expenses

$$= 1,00,000 + 45,000 + 40,000 + 60,000 +$$

$$55,000 + 10,000$$

$$= \underline{\underline{1,310,000}}$$

Current Liabilities = Trade Creditors + Bills payable + Oil Expenses + Bank O.D + Provision for Tax

$$= 30,000 + 40,000 + 15,000 + 20,000 + 25,000$$

$$= \underline{\underline{1,30,000}}$$

$$\text{Current Ratio} = \frac{3,10,000}{1,30,000}$$

$$= 2.38 \text{ (Or) } 2.38 \text{ : } 1$$

(b) Quick / Acid Test / Liquid Ratio :-

It is used to determine short term solvency of the firm. This ratio is more precise than current ratio as it describes the relationship between current liabilities and quick assets. The quick ratio measures the firm's ability to meet its current obligations. This ratio is generally used in conjunction with the current ratio.

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

Quick Assets have the characteristics of easy conversion into cash and include cash, debtors, Temporary investments, and bills receivable. It does not include inventory and prepaid expenses since these assets take considerable time and effort for conversion into cash.

$$\text{Quick Assets} = \text{Current Assets} - (\text{Stock} + \text{prepaid expenses})$$

The distinction between quick liabilities and current liabilities is of Bank overdraft and cash credit. It is because they are secured by inventories. Quick liabilities are defined as current liabilities less the value of Bank overdraft / and cash credit.

Quick Liabilities = Current Liabilities - (Bank Overdraft + cash Credit)

Ideal quick ratio is 1:1

Calculate Quick ratio from the information given

Liabilities	Rs	Assets	Rs
Debtors	4,00,000	Stock in Trade	2,50,000
Bank loan	1,50,000	Sundry Debtors	1,00,000
Sundry creditors	20,000	Cash in hand	90,000
Bills payable	10,000	Cash at Bank	1,10,000
Creditors for Expenses	1,00,000	Short term Securities	1,50,000
Bank overdraft	1,00,000	Prepaid Insurance	5,000
		Bills Receivable	1,90,000
			<u>7,80,000</u>
	<u>7,80,000</u>		

Sol: - Quick Ratio = $\frac{\text{Quick Assets}}{\text{Quick Liabilities}}$

$$\begin{aligned} \text{Quick Assets} &= \text{Current Assets} - (\text{Stock} + \text{Prepaid Expenses}) \\ &= 7,80,000 - (2,50,000 + 5,000) = \underline{5,25,000} \end{aligned}$$

$$\begin{aligned} \text{Quick Liabilities} &= \text{Current Liabilities} - \text{Bank OD} \\ &= 2,30,000 - 1,00,000 = \underline{1,30,000} \end{aligned}$$

$$\text{Quick Ratio} = \frac{5,25,000}{1,30,000} = 4.03$$

4.03

(c) Absolute Liquid Ratio : - (Cash Ratio)

It is calculated to analyze the short term solvency or financial position of the firm. It is measured whether the company has the ability to clear off debts only using the liquid assets (cash and cash equivalents such as marketable securities). It is used by creditors for determining the relative ease with which company can clear short term liabilities.

$$\text{Cash Ratio} = \frac{\text{Cash \& Equivalent}}{\text{Current Liabilities}}$$

From the following given information, calculate cash ratio.

Inventory	1,50,000
Cash	50,000
Sundry Debtors	3,00,000
creditors	3,50,000
Bills Receivables	30,000
Bank O.D	30,000

Sol:

Cash ratio = $\frac{\text{Cash \& Equivalent}}{\text{Current liabilities}}$

Current liabilities = Creditors + Bank O.D

= 350,000 + 30,000

3,80,000

Cash & Equivalent = cash
= 50,000

$$= \frac{50,000}{3,80,000} = \underline{\underline{0.1316}}$$

Leverage / Long term solvency Ratios -

It deals with long term solvency position of the business and these help to know whether the business could be able to honour its interest payment and principle payment commitments. These ratios include:

- (a) Debt Equity Ratio
- (b) Proprietary Ratio
- (c) Capital gearing ratio

(a) Debt Equity Ratio - (External - Internal Equity ratio)

It is used to determine the efficacy of a firm's long term financial planning. It also compares the stakes held by the insiders as well as the outsiders. This ratio shows the relationship between equity funding and debt funding.

$$\text{Debt-Equity Ratio} = \frac{\text{Total Long term Debt}}{\text{Shareholders' funds}}$$

(Or)

$$= \frac{\text{External Equities}}{\text{Internal Equities}}$$

Total Long Term Debt = Debentures + Term loans +
 London mortgage + Loans from
 financial institutions + other
 long term loans + Redeemable
 preference share capital

Shareholders' fund = Equity share capital + Inadequate
 preference share capital + Capital
 Reserves + Retained Earnings +
 Any earmarked surplus like
 provisions for contingencies etc
 — Fixed Assets

From the following information calculate the
 debt-equity ratio

Debentures	1,40,000
Long term loan	60,000
Bank balance	30,000
Debtors	70,000
General Reserve	40,000
Creditors	66,000
Share Capital	1,20,000
Bills payable	14,000

Sol: - Debt-Equity ratio = $\frac{\text{Total long term Debt}}{\text{Share holders' fund}}$

Total long term Debt = Debentures + Long term loan
 $= 40,000 + 60,000$
 $= 1,00,000$

Shareholders' fund = Capital + General Reserve
 $= 1,20,000 + 40,000$
 $= 1,60,000$

Debt-Equity ratio = $\frac{1,00,000}{1,60,000} = \frac{5}{8} \text{ (or) } 1.25$

(b) Proprietary ratio :-

It establishes the relationship between Proprietors funds and the total assets of the business. The main purpose is to determine the source for financing the assets.

Proprietors funds excluding fictitious assets like Preliminary expenses

Proprietary Ratio = $\frac{\text{Proprietors funds / Shareholders funds}}{\text{Total Assets}}$

From the following, calculate proprietary ratio.
 Proprietor's funds are Rs. 6,00,000 and total assets
 are Rs. 8,00,000

$$\text{Proprietary Ratio} = \frac{\text{Proprietor's funds}}{\text{Total Assets}}$$

$$= \frac{6,00,000}{8,00,000} = \frac{3}{4} = 3:4$$

This ratio can also be represented as
 percentage which indicates the percentage
 of owner's capital to total capital of the firm

$$\text{Proprietary Ratio} = \frac{\text{Proprietor's fund}}{\text{Total Assets}} \times 100$$

$$= \frac{6,00,000}{8,00,000} \times 100$$

$$= \underline{\underline{75\%}}$$

$$\text{Proprietary Ratio} = \frac{\text{Proprietor's funds}}{\text{Total Assets}} \times 100$$

(C) capital gearing ratio -

It explains relationship between Equity share capital and fixed interest bearing securities including preference share. The purpose of this ratio equity share capital includes reserves

$$\text{Capital gearing ratio} = \frac{\text{Equity share capital} + \text{Reserves \& surplus}}{\text{Preference share capital} + \text{Long term Debt Bearing fixed interest}}$$

From the information calculate the capital gearing ratio

	2015	2016
Equity share capital	6,00,000	4,00,000
Reserve & surplus	3,00,000	2,00,000
8% preference share capital	2,50,000	4,00,000
6% Debentures	2,50,000	4,00,000

Sol: - CG Ratio =
$$\frac{\text{Eq. share capital} + \text{Reserve \& surplus}}{\text{Pref. share capital} + \text{Long term Debt bearing fixed interest}}$$

CG Ratio 2015 =
$$\frac{6,00,000 + 3,00,000}{2,50,000 + 2,50,000} = \frac{9,00,000}{5,00,000} = 1.8$$
 (Low gear)

CG Ratio 2016 =
$$\frac{4,00,000 + 2,00,000}{4,00,000 + 4,00,000} = \frac{6,00,000}{8,00,000} = 0.75$$
 (High gear)

Answer 2015 - 2016 2016 = 2016 2015

2015 2016 = 2016 2015

Activity / Turnover Ratios:

Various assets are employed in the business to generate revenue & profits. Better managed assets help to generate higher profits for the business. This ratio shows the intensity with which the assets are converted into sales. It includes

(a) Fixed Assets turnover ratio

(b) Stock turnover ratio

(c) Debtors turnover ratio

(d) Creditors / payable turnover ratio

(e) Working capital turnover ratio

(f) Total Assets turnover ratio

(a) Fixed Assets turnover ratio:-

It matches fixed assets with sales

revenue. It shows the efficiency of business

which uses its fixed assets for the purpose of

generating revenue & profits. A high fixed assets

turnover ratio shows that the company is quickly

turning its fixed assets into sales.

Fixed Assets turnover ratio = $\frac{\text{Net Sales}}{\text{Net fixed Assets}}$

Net sales = Gross sales - sales returns

Net fixed assets = Gross fixed Assets - Depreciation

ABC company has gross fixed assets of ₹. 5,00,000 and accumulated depreciation of ₹. 2,00,000, Sales over the last 12 months totalled ₹. 9,00,000 calculate the fixed asset turnover ratio of ABC company

Sol: Fixed Assets Turnover ratio = $\frac{\text{Net sales}}{\text{Net fixed assets}}$

Net sales = ₹. 9,00,000

Net fixed assets = Gross fixed Assets - Depreciation
= 5,00,000 - 2,00,000

= ₹. 3,00,000

$\frac{9,00,000}{3,00,000} = 3 \text{ times.}$

(b) Stock Turnover ratio :-

Also known as "Inventory Turnover ratio" or "stock velocity ratio". It shows the relationship between cost of goods sold and average inventory

Stock Turnover ratio = $\frac{\text{Cost of Goods sold}}{\text{Average Inventory}}$

Cost of Goods sold = Sales - Gross Profit

(or)
Cost of Goods sold = Opening stock + purchases + Direct expenses - closing stock

$$\text{Average stock} = \frac{\text{opening stock} + \text{closing stock}}{2}$$

Note:-

→ closing stock figure may be used if opening stock amount is not available

→ Net sales numbers may be used in place of cost of goods sold

$$\text{Stock Turnover ratio} = \frac{\text{Net sales}}{\text{Average stock}}$$

Inventory conversion period (stock velocity) :-

This ratio shows the number of days taken by the inventory to be converted into sales.

It shows average time taken by the firm to clear its stock

$$\text{Inventory conversion period} = \frac{12 \text{ months} / 52 \text{ weeks} / 365 \text{ Days}}{\text{Stock Turnover ratio}}$$

If 365 Days are used, then the ratio shows the number of days in which the stock is converted into sales

$$\text{Inventory conversion period} = \frac{365}{\text{Inventory Turnover ratio}} = \text{days}$$

M/s XYZ & Co. supplies the following information for the year ending 31st Dec 2015.

Credit sales	1,75,000
Cash sales	2,50,000
Return Inward	25,000
opening stock	25,000
closing stock	35,000

Find out 1) stock turnover when Gross profit ratio is 20%
2) stock conversion period

Sol: stock turnover ratio = $\frac{\text{Cost of Goods sold}}{\text{Average stock}}$

Cost of Goods sold = Net sales - Gross profit

Net sales = $1,75,000 + 2,50,000 - 25,000 = \underline{4,00,000}$

Gross profit on sales = $\frac{4,00,000 \times 20}{100} = 80,000$

Cost of Goods sold = Net sales - Gross profit
= $4,00,000 - 80,000 = \underline{3,20,000}$

Average stock = $\frac{\text{opening stock} + \text{closing stock}}{2}$

= $\frac{25,000 + 35,000}{2} = \frac{60,000}{2} = \underline{30,000}$

$$\text{Stock Turnover ratio} = \frac{3,20,000}{30,000} = 10.67 \text{ times}$$

This means that during the year, the average stock is being sold 10.67 times

$$\text{Stock conversion period} = \frac{365}{\text{stock turnover ratio}}$$

$$= \frac{365}{10.67}$$

$$= 34.21 \text{ (or) } 34 \text{ days}$$

(c) Debtors turnover ratio:-

Also known as "Ratio of net sales to Gross Receivable" or "Receivable Turnover" or "Debtors velocity".

It shows the relationship between average account receivable and net credit sales. This ratio is used to determine the efficiency of business in collecting its credits.

$$\text{Debtors turnover ratio} = \frac{\text{Net Credit Sales}}{\text{Average Accounts Receivable (or) Average Trade Debtors}}$$

Accounts Receivable = Debtors + Bills Receivable

$$\text{Average Accounts Receivable} = \frac{\text{opening Account Receivable} + \text{closing Account Receivable}}{2}$$

If information relating to credit sales and average debtors is not available, the ratio can be worked out as follows

$$\text{Debtors Turnover ratio} = \frac{\text{Total sales}}{\text{closing Debtors}}$$

Debt collection period / Debtor's velocity:-

The debt collection period shows the average number of days a firm takes to collect its debt. There are several ways to calculate this ratio

$$\text{① Debt collection period} = \frac{\text{Average Trade Debtors}}{\text{sales per day}}$$

$$\therefore \text{Average Trade Debtors} = \text{Debtors} + \text{Bills Receivable}$$

$$\text{② sales per day} = \frac{\text{Net sales}}{\text{Number of working days}}$$

$$\text{Debt collection period} = \frac{\text{Average Trade Debtors} \times \text{No. of working days}}{\text{Net sales}}$$

If the period is in months:-

$$\text{Debt collection period} = \frac{\text{Average Trade Debtors} \times \text{No. of months}}{\text{Net sales}}$$

(or)

$$\text{Debtors turnover ratio} = \frac{\text{Number of working days}}{\text{No. of Days}}$$

Calculate the Debtors Turnover ratio and average debt collection period for the year 2014-2015.

Particulars	2014	2015
Sundry Debtors	15,000	45,000
Bills Receivable	5,000	15,000
Provision for Doubtful debts	1,500	4,500
Total sales	₹. 2,20,000	
Sales returns	₹. 20,000	
Cash sales	₹. 40,000	

Net sales

Number of working days

Net sales

Debt collection period

Sol: Debtors Turnover ratio = $\frac{\text{Net credit sales}}{\text{Average Trade Debtors}}$

Net credit sales = Total sales - Sales Returns - cash sales
 $= 2,20,000 - 20,000 - 40,000$
 $= 2,160,000$

Average Debtors = $\frac{\text{opening Debtors} + \text{closing Debtors} + \text{opening Bills Receivable} + \text{closing Bills Receivable}}{2}$
 $= \frac{15,000 + 45,000 + 5,000 + 15,000}{2} = 80,000$

Debtors Turnover ratio = $\frac{2,160,000}{80,000} = 27 \text{ times}$

Debtors Turnover ratio = $\frac{1,60,000}{40,000} = 4 \text{ times}$

Avg Debt collection period = $\frac{12 \text{ Months}}{\text{Debtors turnover ratio}}$

Avg Debt collection period = $\frac{12 \text{ months}}{4 \text{ times}}$

Avg Debt collection period = $\frac{12 \text{ months}}{3 \text{ times}} = 3 \text{ months}$

Avg Debt collection period = $\frac{12 \text{ months}}{3 \text{ times}} = 3 \text{ months}$

(d) creditors turnover ratio / payables turnover ratio :-

It shows relationship between net credit purchases and average trade creditors. This ratio is closely related to the concept of float. It also measures the efficiency of business in utilising its

cash in proper manner

$$\text{Creditors Turnover ratio} = \frac{\text{Net credit purchases}}{\text{Average Trade creditors}}$$

$$\therefore \text{Net credit purchases} = \frac{\text{Gross credit purchases} - \text{purchase returns}}{}$$

$$\text{Average purchases} = \frac{\text{creditors} + \text{Bills payable}}{2}$$

$$\text{Average Trade creditor} = \frac{\text{opening Trade creditors} + \text{closing Trade creditors}}{2}$$

If opening figure for creditors is not available then the closing figure may be used. In such case formula will be

$$\text{Creditors turn over ratio} = \frac{\text{Total purchases}}{\text{closing creditors}}$$

Debt payment period (creditors' velocity):-

It shows the average period for which the credit purchases remains outstanding & the average credit period actually availed of

$$\text{Debt payment period} = \frac{\text{Average Trade creditors}}{\text{Average Net credit purchases per day}}$$

$$\frac{12 \text{ months} / 52 \text{ weeks} / 365 \text{ days}}{\text{creditors turn over ratio}}$$

$$\frac{\text{Average Net credit purchases per day}}{\text{Net credit purchases for the year}} \div \frac{\text{No. of working days in the year}}$$

calculate creditor's turn over ratio & debt payment period from the following

Particulars	₹.	Particulars	₹.
Cash purchases	1,00,000	Total purchases (Subject to Returns)	4,07,000
Opening sundry creditors	25,000	Closing sundry creditors	30,000
Closing Bills payable	25,000	Opening Bills payable	20,000
Purchases returns	7,000		

Sol:- Creditors Turnover ratio = $\frac{\text{Net Credit Purchases}}{\text{Average Trade Creditors'}}$

Net credit purchases = $\frac{\text{Total purchases} - \text{cash purchases} - \text{Purchases returns}}{\text{Purchases returns}}$

= $\frac{4,07,000 - 1,00,000 - 7,000}{2,30,00,000}$

Average Trade Creditors = $\frac{(25,000 + 20,000 + 30,000 + 25,000)}{2}$

Creditors Turnover ratio = $\frac{2,50,000}{50,000}$
= 6 times

Debt payment period = $\frac{12 \text{ months}}{\text{Creditors Turnover ratio}} = \frac{12 \text{ months}}{6 \text{ times}}$

= 2 months

(c) Working Capital Turnover Ratio :-

This ratio explains the relationship between Net sales and working capital. The ratio depicts the number of times working capital was turned over to generate the given sales volume during the time period under consideration. This ratio can be used for making temporal and inter-firm comparisons. With this ratio, a business can gauge its future capital requirements.

$$\text{Working Capital} = \text{Current Assets} - \text{Current Liabilities}$$

The main objective of this ratio is to determine the velocity with which net working capital is utilized. The ratio shows the number of times the working capital was revolved over in a given year. It indicates the efficiency of a firm in utilizing its working capital.

$$\begin{aligned} \text{Working Capital Turnover Ratio} &= \frac{\text{Net sales}}{\text{Working Capital}} \\ &= \frac{\text{Cost of goods sold}}{\text{Net working Capital}} \end{aligned}$$

$$\text{Net sales} = \text{Gross sales} - \text{Sales Return}$$

calculate working capital Turn over ratio from the following

Current Assets 6,00,000

Current Liabilities 1,40,000

Credit sales 12,00,000

Cash sales 2,60,000

Sales returns 20,000

Net sales

$$\text{Working capital Turnover ratio} = \frac{\text{Net sales}}{\text{Working capital}}$$

$$\text{Net sales} = \text{Cash sales} + \text{Credit sales} - \text{Sales returns}$$

$$= 2,60,000 + 12,00,000 - 20,000$$

$$= ₹ 14,40,000$$

$$\text{Working capital} = \text{Current Assets} - \text{Current Liabilities}$$

$$= 6,00,000 - 1,40,000$$

$$= ₹ 4,80,000$$

$$\text{Working capital Turnover ratio} = \frac{14,40,000}{4,80,000}$$

$$= \underline{\underline{3 \text{ times}}}$$

(4) Total Assets Turnover ratio - It explains relationship between sales and total assets. This ratio used to measure the overall activity and performance of the business concern.

$$\text{Total Assets Turnover ratio} = \frac{\text{Sales}}{\text{Total Assets}}$$

compute Total Assets Turnover ratio from the following

Sales	3,00,000
Sales return	40,000
Fixed Assets	2,00,000
Current Assets	1,50,000

Sol:- Total Assets Turnover ratio = $\frac{\text{Sales}}{\text{Total Assets}}$

$$= \frac{2,60,000 (3,00,000 - 40,000)}{3,50,000 (2,00,000 + 1,50,000)}$$

$$= \underline{\underline{0.74\%}}$$

Profitability Ratios:-

A Business exists to make profits. It requires profits not only for survival but also for expansion and diversification. Profits can be used for determining the efficiency of management and employees. It is also useful for providing security to the creditors. The profitability is also important to determine the impact of various decisions such as price cuts, increase in selling price and change in tax structure on the efficiency of the business.

Various profitability ratios are

(a) Gross profit ratio

(b) Net profit ratio

(c) Operating ratio

(d) Operating profit ratio

(e) Expenses ratio

(f) Return on Capital Employed / Return on Investment

(g) Earnings per share

(h) Price Earning ratio / P/E ratio

(Earning Yield ratio)

(i) Market capitalisation ratio

(j) Return on Equity / Return on Equity Shareholders Funds

(a) Gross profit ratio -

Also known as "Gross margin ratio" or "Trading margin ratio". Generally expressed in percentage and shows the relationship between net sales and gross profit.

It is helpful for determining the ability of the business to meet its operating expenses. It also shows shareholder's share after meeting operating expenses.

$$\text{Gross profit ratio} = \frac{\text{Gross profit}}{\text{Net sales}} \times 100$$

$$\text{Gross profit} = \text{Net sales} - \text{cost of goods sold}$$

$$\begin{aligned} \text{cost of goods sold} &= \text{opening stock} + \text{purchases (net)} \\ &\quad + \text{Direct Expenses} - \text{closing stock} \end{aligned}$$

$$\text{Net sales} = \text{total sales} - \text{sales returns}$$

The Trading & Profit & Loss account and the Balance sheet of ABC Ltd are as under

Trading & P&L Account
for the year ending on 31st March 2016

Dr

Cr

Particulars	₹.	Particulars	₹.
opening stock	50,000	By sales	5,00,000
" Purchases	1,00,000	" closing stock	1,00,000
" wages	50,000	" Interest & Dividend on long term Investment	50,000
" carriage inward	25,000	" profit on sales of long term Investment	25,000
" Office & Admin Expense	25,000		
" Finance exp	20,000		
" Net profit (After Interest & Tax)	4,05,000		
	6,75,000		6,75,000

Prepare statements showing the computation of gross profit and calculate gross profit ratio

Sol:- statement showing the computation of Gross profit

Particulars		
Sales		5,00,000
<u>Less:- cost of Goods sold</u>		
opening stock	50,000	
Purchases	1,00,000	
wages	50,000	
carriage inward	25,000	
	<u>2,25,000</u>	
<u>Less:- closing stock</u>	<u>1,00,000</u>	
		1,25,000
	Gross profit	→ 3,75,000

$$\text{Gross profit Ratio} = \frac{\text{Gross profit}}{\text{Net sales}} \times 100$$

$$= \frac{3,75,000}{5,00,000} \times 100$$

$$= 75\%$$

(b) Net Profit Ratio :-

Also known as "the net profit to sales ratio" or "net profit margin" and expresses the rate of the net profit for every unit of revenue. The ratio is calculated by dividing net profit by net sales for the concerned period.

$$\text{Net profit ratio} = \frac{\text{Net Profit}}{\text{Net sales}} \times 100$$

Two different approaches may be used for this purpose as net profit may be defined as net profit before tax or net profit after tax

$$\text{Net profit} = \frac{\text{Net profit before Tax}}{\text{Net sales}} \times 100$$

(or)

$$\text{Net profit} = \frac{\text{Profit before Tax}}{\text{Net sales}} \times 100$$

$$\text{Net profit} = \frac{\text{Net profit after Tax}}{\text{Net sales}} \times 100$$

(or)

$$\frac{\text{Profit after Tax}}{\text{net sales}} \times 100$$

From the following details, calculate net profit ratio

Total sales 1,00,000

Sales returns 6,000

Cost of sales 70,000

Indirect expenses 10,000

Sol: Net profit ratio = $\frac{\text{Net profit}}{\text{Net sales}} \times 100$

Net profit = Net sales - (Cost of sales + Indirect expenses)

$= 94,000 - (70,000 + 10,000)$

$= 94,000 - 80,000$

$= 14,000$

Net sales = Total sales - sales returns

$= 1,00,000 - 6,000$

$= 94,000$

Net profit ratio = $\frac{14,000}{94,000} \times 100$

$= 14.89\%$

(c) Operating Ratio :-

This ratio measures the relation between sales and the expenses incurred for making such sales.

$$\text{Operating ratio} = \frac{\text{Cost of Goods sold} + \text{Operating Expenses}}{\text{Net sales}} \times 100$$

Operating expenses are charged against earnings which include administrative expenses like salary, tax, rent, light bills, legal charges and selling and distribution expenses like packing, warehousing, discount received, commission on sales etc. This ratio ignores non-operating income and expenses (eg., financial expenses and incomes such as interest, provision for taxation etc).

From the following details, calculate operating ratio

Sales	8,50,000
Opening stock	99,500
Purchases	5,50,500
Carriage Inwards	10,000
Closing stock	1,40,000
Depreciation	20,000
Administrative Expenses	1,50,000
Selling expenses	30,000
Loss on the sale of Assets	4,000

Sol:-

operating ratio =

$$\frac{\text{cost of Goods sold} + \text{Administrative Expenses} + \text{Selling \& Distribution Expenses}}{\text{Net sales}} \times 100$$

$$\text{cost of Goods sold} = \text{sales} - \text{Gross profit}$$

$$\text{Gross profit} = (\text{sales} + \text{closing stock}) - (\text{opening stock} + \text{purchases} + \text{carriage Inwards})$$

$$= (8,50,000 + 1,40,000) - (99,500 + 5,50,000 + 10,000)$$

$$= 9,60,000 - 6,60,000$$

$$= \text{₹} 3,30,000$$

$$\text{cost of Goods sold} = \text{sales} - \text{Gross profit}$$

$$= 8,50,000 - 3,30,000$$

$$= \text{₹} 5,20,000$$

$$\text{operating ratio} = \frac{5,20,000 + 1,50,000 + 30,000 + 20,000 (\text{Dep})}{8,50,000} \times 100$$

$$= \frac{7,20,000}{8,50,000} \times 100$$

$$= 84.70\%$$

(10)

(d) Operating Profit Ratio:-

This ratio is a type of net profit and determine the relationship between operating profit and sales.

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

Operating profit is the difference between operating revenue and operating expenses such as cost of goods sold, selling & distribution expenses and office & administration expenses. It ignores non-operating expenses & incomes. Financial expenses such as interest, taxation, dividend and losses due to fire are also excluded.

$$\text{Operating Profit} = \text{Sales} - (\text{Cost of Goods sold} + \text{Administration Office Expenses} + \text{Selling \& distribution expenses})$$

$$(or) \frac{\text{Operating Profit}}{\text{Net Sales}} \times 100$$

$$\text{Operating Net Profit} = \text{Net Profit} + \text{Non operating expenses} - \text{Non-operating incomes}$$

(or)

$$\text{Operating Net Profit} = \text{Gross Profit} + \text{Operating Income} - \text{Operating Expenses}$$

calculate operating profit ratio from the given information

cost of goods sold 4,00,000

Admin & office expenses 40,000

Selling & distribution expenses 40,000

Net sales 6,00,000

Sol:-

$$\text{Operating profit ratio} = \frac{\text{operating profit}}{\text{net sales}} \times 100$$

$$\text{Operating profit} = \text{Sales} - (\text{cost of goods sold} + \text{Administrative office expenses} + \text{selling \& distribution expenses})$$

$$= 6,00,000 - (4,00,000 + 40,000 + 40,000)$$

$$= 6,00,000 - 4,80,000$$

$$= ₹ 1,20,000$$

$$\text{Operating profit ratio} = \frac{1,20,000}{6,00,000} \times 100$$

$$= \underline{\underline{20\%}}$$

(C) Expenses ratio :-

This ratio shows the relationship between several expenses and net sales. This ratio depicts the increase and decrease of expense. Lower expense ratio shows efficiency in operations.

$$\text{Expense ratio} = \frac{\text{Amount of Expenses}}{\text{Net sales}} \times 100$$

Different expense heads can be used for this purpose. Various ratios included under this category are Administrative expenses to net sales, ratio of selling & distribution expenses to sales, financial expenses to sales etc.

For Administrative expenses to net sales ratio

$$= \frac{\text{Administrative \& Office Expenses}}{\text{Net sales}} \times 100$$

For selling & distribution expenses to net sales ratio

$$= \frac{\text{Selling \& Distribution Expenses}}{\text{Net sales}} \times 100$$

For Financial expenses to net sales ratio

$$= \frac{\text{Financial Expenses \& Interest}}{\text{Net sales}} \times 100$$

Profit & Loss A/c of ABC Trading House for the year ended 31-3-2015

Dr	Particulars	₹.	Particulars	₹.	Cr
	To Administrative Exp.,	80,000	By Gross profit b/d	2,00,000	
	" Selling & distribution Exp.,	50,000	" Interest on investment	5,000	
	" Financial Exp.,	6,000			
	" Other non-operating Exp.,	4,000			
	Net Profit	65,000			
		2,05,000		2,05,000	

The net sales during year ₹ 5,00,000 calculate
 (i) Administrative Expenses ratio (ii) selling & distribution
 expenses ratio (iii) financial expenses ratio

Sol:-

(i) Administrative Expenses ratio

$$\frac{\text{Administrative Expenses}}{\text{Net Sales}} \times 100 \Rightarrow \frac{80,000}{5,00,000} \times 100 = 16\%$$

(ii) selling & distribution expenses ratio

$$\frac{\text{Selling & Distribution Expenses}}{\text{Net Sales}} \times 100 \Rightarrow \frac{50,000}{5,00,000} \times 100 = 10\%$$

(iii) financial expenses ratio

$$= \frac{\text{Financial Expenses}}{\text{Net Sales}} \times 100 \Rightarrow \frac{6,000}{5,00,000} \times 100 = 1.2\%$$

(f) Return on Capital Employed / Return on Investment:-

It is calculated by using net income and total capital employed. The ratio is useful for assessing the firm's ability to generate sufficient return on its capital invested. It is expressed as a percentage

$$\text{Return on Capital Employed} = \frac{\text{Net Income before Interest \& Tax}}{\text{Capital Employed}} \times 100$$

The capital employed may be interpreted in different ways

① Gross capital employed:- It includes fixed as well as current assets. Fixed assets calculated after deducting Depreciation

$$\text{Gross capital employed} = \text{Fixed Assets} + \text{Current Assets}$$

② Net capital employed:- It refers to sum of working capital and fixed assets. It may also be defined as total assets minus current liabilities

$$\text{Net Capital Employed} = \text{Total Assets} - \text{Current Liabilities}$$

From the following Calculate Return on Investment

Share Capital:

Equity	4,00,000
Preference	1,00,000
General Reserve	1,89,000
10% Debentures	4,00,000
Current liabilities	1,00,000
Discount on shares	5,000
Net profit (after debentures interest but before income tax)	80,000

Sol:- Return on Investment = $\frac{\text{Net profit before Interest \& Tax}}{\text{Capital Employed}} \times 100$

NPBT = Net profit + Debenture interest
 = 80,000 + 10% of 4,00,000 $(4,00,000 \times \frac{10}{100})$

= 80,000 + 40,000

= ₹ 1,20,000

Capital Employed = Equity + preference capital + 10% Debentures + General Reserve + profit - Discount shares

= 4,00,000 + 1,00,000 + 4,00,000 + 1,89,000

+ 40,000 (50% Net profit) - 5,000

= ₹ 11,24,000

ROI = $\frac{1,20,000}{11,24,000} \times 100 = 10.68\%$

Note:- Net profit taken after assuming IT rate @ 50%

(9) Earnings per share (EPS):-

This ratio is calculated to find profitability

Per share.

$$EPS = \frac{\text{Net profit after tax, interest \& preference Dividend}}{\text{No. of Equity shares}}$$

From the extracted data calculate EPS

20,000 equity shares of ₹.10 each 2,00,000
 20,000 10% preference shares of ₹.10 each 2,00,000
 Net profit before paying dividend to preference shares 1,00,000

Sol:-

Particulars	₹.
Net profit as per P&L A/c	1,00,000
Less:- Dividend to Preference shareholders (20,000 × 10% on ₹.2,00,000) (2,00,000 × 10/100)	20,000
Balance of profit available to Equity shareholders	80,000

$$EPS = \frac{\text{Net profit after Dividend on Preference shares}}{\text{No. of Equity shares}}$$

$$= \frac{80,000}{20,000} = \underline{\underline{₹. 4 \text{ per share}}}$$

(h) price earning ratio / P/E ratio / earning yield ratio:-
 It establishes relationship between market price of the share & its earnings.

$$\text{P/E ratio} = \frac{\text{Market price per share}}{\text{Earning per Equity share}}$$

The capital of star ABC Ltd is as follows

Particulars	₹.
80,000 Equity shares of ₹. 10 each	8,00,000
10% 30,000 preference shares of ₹. 10 each	3,00,000
	<u>11,00,000</u>

The following information has been obtained from the books of the company

Profit after Tax @ 60%	₹. 2,40,000
Depreciation	₹. 60,000
Equity Dividend paid	20%
Market price of Equity share	₹. 40

Calculate P/E ratio

$$\text{sol: - P/E ratio} = \frac{\text{Market price per share}}{\text{Earnings per share}}$$

$$\text{EPS} = \frac{\text{Net profit after Tax, Interest \& preference Dividend}}{\text{no. of Equity shares}}$$

$$= \frac{2,70,000 - 30,000}{80,000}$$

$$= \frac{2,50,000}{80,000} = 3.$$

$$\text{P/E ratio} = \frac{40}{3} = 13.3:1$$

(h) Market capitalisation ratio:-

This ratio establishes the relationship between earnings per share and market price.

This is also referred to as "mid cap".

$$\text{Capitalisation Ratio} = \frac{\text{Earnings per share}}{\text{Market price per share}} \times 100$$

$$\text{EPS} = \frac{\text{Net profit after Tax, Interest \& preference Dividend}}{\text{no. of Equity shares}}$$

When the market price is received with dividend, it is referred to as "dividend yield ratio".

Dividend yield ratio is calculated by comparing market price of the share with the dividend paid.

$$\text{Dividend Yield Ratio} = \frac{\text{Dividend per share}}{\text{Market price per share}} \times 100$$

$$\text{Dividend per share} = \text{unit per share} \times \% \text{ of Dividend}$$

From the following data, calculate dividend yield ratio

10,000 Equity shares of ₹100 each

Dividend paid during the year

Market price per share

10,00,000

20%

120

Sol:- Dividend yield ratio =

$$\frac{\text{Dividend per share}}{\text{Market price per share}} \times 100$$

$$= \frac{20}{120} \times 100 = \underline{\underline{16.67\%}}$$

(1) Return on Equity or Return on Equity shareholders' fund:

This ratio is calculated to know the firm's profitability from the perspective of shareholders

$$\text{Return on Equity} = \frac{\text{Net profit after Interest \& Tax}}{\text{Shareholders' funds}} \times 100$$

Shareholders' fund = Equity share capital + preference share capital + share premium + Revenue Reserve + Capital Reserve + Retained Earnings - Accumulated Losses

Shareholders' fund = Fixed Assets + current Assets - current & long term liabilities

calculate Return on Equity shareholders' funds

Particulars	₹	Particulars	₹
Current liabilities	3,40,000	Net profit after Interest & Tax	4,40,000
Long term Debt (Deb.)	8,00,000	Fixed Assets	12,00,000
18% pref share capital	1,00,000	Trade Investment	1,00,000
Equity share capital	11,00,000	Preliminary Exp.	60,000
Reserves	60,000	Underwriting commission	40,000
P&L A/c (Cr)	4,40,000	current Assets	1,00,000

Sol:- Net profit after Interest, Tax & preference Dividend

$$= 4,40,000 - 18,000 \text{ (pref. Dividend)} - 1,00,000 @ 18\%$$

$$= 4,40,000 - 18,000 - \left(\frac{1,00,000 \times 18}{100} = 18,000 \right)$$

$$= 3,42,000$$

Equity shareholder's funds = Equity share capital +
Reserves + P&L A/c (cr) -
Preference Expenses -
Underwriting commission

$$= 1,00,000 + 60,000 + 4,40,000 - 60,000$$

$$= 2,50,000$$

$$\text{Return on equity shareholder's fund} = \frac{4,22,000}{2,50,000} \times 100$$

$$= 84.4\%$$

note closing equity shareholder's funds have been used

Advantages and Disadvantages of Ratio Analysis:-

Advantages:-

- Helps in forecasting & planning by performing trend analysis
- Helps in estimating budget for the firm by analysing previous trends
- Helps in determining how efficiently a firm or an organisation is operating
- Helps in comparison of 2 or more firms
- Helps in determining both liquidity and longterm solvency of the firm
- provides significant information to users of accounting information regarding the performance of the business

Disadvantages:-

- Financial statements seem to be complicated
- Several organisations work in various enterprises each possessing different environmental positions such factors are important that a comparison of 2 organisations from varied industries might be ambiguous
- Ratio analysis illustrates the associations between prior data while users are more concerned about current & future data
- Financial accounting data is influenced by views & hypotheses. Accounting criteria provide different accounting methods which reduces comparability and thus ratio analysis is less helpful in such circumstances.

Illu .1 : The following is the Profit and Loss a/c of Alpha Manufacturing company for the year ending 31-3-2002.

	Rs.		Rs.
To Opening stock	26,000	By Sales	1,60,000
To Purchases	80,000	By Closing Stock	38,000
To Wages	24,000		
To Production expenses	16,000		
To Gross Profit b/d	52,000		
	<u>1,98,000</u>		<u>1,98,000</u>
To Selling & Distribution Expenses	4,000	By Gross Profit b/d	52,000
To Administrative expenses	22,800	By Compensation for	
To General Expenses	1,200	land acquisition	4,800
To Furniture (cost)			
lost due to fire	800		
To Interest on Debentures	6,000		
To Provision for tax	8,000		
To Net Profit	14,000		
	<u>56,800</u>		<u>56,800</u>

Calculate, Gross Profit ratio, Operating profit ratio, Operating ratio, Net profit ratio.

(Nagarjuna March, 1996)

Solution :

$$\text{i) Gross profit ratio} = \frac{\text{Gross Profit}}{\text{Net sales}} \times 100 = \frac{52,000}{1,60,000} \times 100 = 32.5\%$$

$$\text{ii) Operating Profit ratio} = \frac{\text{Operating Profit}}{\text{Net Sales}} \times 100 = \frac{24,000}{1,60,000} \times 100 = 15\%$$

Note : Operating Profit = Gross Profit - Operating Expenses.

$$= 52,000 - [4,000 + 22,800 + 1,200]$$

$$= 52,000 - 28,000 = 24,000 \quad \text{Or}$$

Operating Profit = Net Profit + Non-Operating Expenses - Non-Operating Income

$$= 14,000 + (800 + 6,000 + 8,000) - 4,800$$

$$= 14,000 + 14,800 - 4,800$$

Ratio Analysis

$$= 28,800 - 4,800 = \text{Rs.}24,000$$

$$\text{iii) Operating ratio} = \frac{(\text{Cost of goods sold} + \text{Operating expenses})}{\text{Net sales}} \times 100$$

$$\frac{1,08,000 + 28,000}{1,60,000} \times 100 = \frac{1,36,000}{1,60,000} \times 100 = 85\%$$

Note : Cost of goods sold = Sales - Gross Profit

$$1,60,000 - 52,000 = \text{Rs.}1,08,000 \quad \text{Or}$$

(Opening Stock + Purchases + Wages + Production expenses) - Closing Stock

$$(26,000 + 80,000 + 24,000 + 16,000) - 38,000 = 1,46,000 - 38,000 = \text{Rs.}1,08,000$$

Note : Operating profit ratio and operating ratio combiningly becomes 100%.

$$\text{iv) Net Profit ratio} = \frac{\text{Net Profit}}{\text{Net sales}} \times 100 = \frac{14,000}{1,60,000} \times 100 = 8.75\%$$

Illu.2 : The following figures relate to the trading activities of Ravi Raja Traders Ltd., for the year ended 30th June, 2002.

	Rs.
Sales	5,20,000
Purchases	3,22,250
Opening Stock	76,250
Closing Stock	98,500
Sales returns	20,000
Selling and Distribution Expenses :	
Salaries	15,300
Advertising	4,700
Travelling	2,000
Administration expenses :	
Salaries	27,000

Rent	2,700
Stationery, Postage etc.	2,500
Depreciation	9,300
Other charges	16,500
Provision for taxation	40,000
Non-Operating Income :	
Dividend on shares	9,000
Profit on sale of Assets	3,000
Non-Operating Expenses :	
Loss on sale of shares	4,000

You are required to

- (a) Re-arrange the figures in a form suitable for analysis and
- (b) Show separately the following ratios
 - i) Gross Profit ratio
 - ii) Operating ratio

(Nagarjuna, March 1995)

Solution : (a)

Income Statement of Raviraja Traders for the year ended 30-6-2001

	Rs.	Rs.	Rs.
Sales		5,20,000	
Less : Returns		20,000	
Net Sales			5,00,000
Less : Cost of goods sold :			
Opening stock		76,250	
Add : Purchases		3,22,250	
		3,98,500	
Less : Closing stock		98,500	3,00,000
Gross Profit			2,00,000
Less : Operating expenses :			
Administration expenses :			
Salaries	27,000		
Rent	2,700		
Stationery, Postage	2,500		
Depreciation	9,300		
Other charges	16,500	58,000	
Selling, and Distribution expenses :			
Salaries	15,300		
Advertisements	4,700		
Travelling	2,000	22,000	80,000
Operating Profit			1,20,000

Add : Non-Operating Income :

Dividends on shares

9,000

Profit on sale of assets

3,000

12,000

12,000

1,32,000

Less : Non-Operating Expenses :

Loss on sale of shares

4,000

Profit Before Interest and tax (PBT)

1,28,000

Less : Provision for tax

40,000

Profit after tax (PAT)

88,000

$$(b) (i) \text{ Gross Profit ratio} = \frac{\text{Gross Profit}}{\text{Net Sales}} \times 100 = \frac{2,00,000}{5,00,000} \times 100 = 40\%$$

$$(ii) \text{ Operating Ratio} = \frac{(\text{Cost of goods sold} + \text{Operating expenses})}{\text{Net sales}} \times 100$$

$$\frac{3,00,000 + 80,000}{5,00,000} \times 100 = \frac{3,80,000}{5,00,000} \times 100 = 76\%$$

Note : Provision for tax is treated as current liability then the ratio is = 84%

Illu.3 : The following are the transactions of a firm for the year ending 30-6-2002.

	Rs.		Rs.
Sales	2,60,000	Non-Operating Incomes :	
Purchases	1,61,125	Dividends on shares	4,500
Opening Stock	38,125	Profit on sale of shares	1,500
Closing Stock	49,250	Non-Operating expenses :	
Sales returns	10,000	Loss on sale of assets	2,000
Selling and Distribution Expenses	11,000	Provision for tax	20,000
Operating Expenses	29,000		

Calculate Gross Profit ratio, Net profit ratio, operating ratio, and operating profit ratio after arranging the above information in a firm suitable for analysis.

Solution : **Income statement for the year ended 30-6-2002**

	Rs.	Rs.
Sales	2,60,000	
Less : Sales returns	10,000	
Net sales		2,50,000
Less : Cost of goods sold :		
Purchases	1,61,125	
Add : Opening Stock	38,125	
	1,99,250	
Less : Closing stock	49,250	

Ratio Analysis

20.13

		1,50,000
		<u>1,00,000</u>
Gross Profit		
Less : Operating Expenses :		
Operating Expenses	29,000	
Selling and Distribution expenses	11,000	
	<u>40,000</u>	
Operating profit		<u>60,000</u>
Add : Non-Operating Incomes :		
Dividends on shares	4,500	
Profit on sale of shares	1,500	
	<u>6,000</u>	
		<u>66,000</u>
Less : Non-Operating Expenses		
Loss on sale of assets	2,000	
Provision for tax	20,000	
	<u>22,000</u>	
Net Profit after tax		<u>44,000</u>

a) Gross Profit ratio = $\frac{\text{Gross Profit}}{\text{Net sales}} \times 100 = \frac{1,00,000}{2,50,000} \times 100 = 40\%$

b) Net Profit ratio = $\frac{\text{Net Profit}}{\text{Net sales}} \times 100 = \frac{44,000}{2,50,000} \times 100 = 17.6\%$

c) Operating ratio = $\frac{(\text{Cost of goods sold} + \text{operating expenses})}{\text{Net sales}} \times 100$
 $= \frac{1,50,000 + 40,000}{2,50,000} \times 100 = 76\%$

d) Operating Profit ratio = $\frac{\text{Operating Profit}}{\text{Net Sales}} \times 100 = \frac{60,000}{2,50,000} \times 100 = 24\%$
 Or

Operating Profit ratio = $100 - \text{Operating Profit} = 100 - 76 = 24\%$

Illu.4 : Calculate (a) Total capital turnover ratio (b) Working capital turnover ratio and (c) Fixed assets turnover ratio from the following information.

Balance Sheet as on

Liabilities	Rs.	Assets	Rs.
Share Capital	1,00,000	Fixed assets	1,70,000
12% Debentures	80,000	Current assets	1,00,000
Reserve	20,000		
Current Liabilities	70,000		
	2,70,000		2,70,000

Net sales during the year Rs.3,00,0000

Solution :

$$(a) \text{ Total capital turnover ratio} = \frac{\text{Sales}}{\text{Capital employed}} = \frac{3,00,000}{2,00,000} = 1.5 \text{ times}$$

Capital employed =		Rs.
	Share capital	1,00,000
	Debentures	80,000
	Reserves	20,000
		2,00,000

Fixed assets + Working Capital = Rs.1,70,000 + Rs.30,000 = Rs.2,00,000

(b) Working capital turnover ratio = $\frac{\text{Sales}}{\text{Working capital}}$

$$\frac{3,00,000}{30,000} = 10 \text{ times}$$

Working capital = Current assets - Current Liabilities
1,00,000 - 70,000 = 30,000

(c) Fixed Assets turnover ratio = $\frac{\text{Net sales}}{\text{Fixed assets}}$

$$\frac{3,00,000}{1,70,000} = 1.76 \text{ times}$$

Illu.5 : Calculate stock turnover ratio in the following cases.

(i) Cost of goods sold	2,00,000
Average stock	40,000
(ii) Sales	2,20,000
Average stock	40,000
Sales returns	20,000
Gross Profit	20% on sales
(iii) Opening stock	21,000
Closing stock	29,000
Purchases	1,00,000
Wages	10,000

Solution :

(i) Sales turnover ratio = $\frac{\text{Cost of goods sold}}{\text{Average stock}} = \frac{2,00,000}{40,000} = 5 \text{ times}$

(ii) Net sales = Sales - Sales returns
2,20,000 - 20,000 = 2,00,000

Gross Profit = 20% on sales

$$2,00,000 \times \frac{20}{100} = 40,000$$

Cost of goods sold = Sales - Gross profit

$$2,00,000 - 40,000 = 1,60,000$$

Stock turnover ratio = $\frac{\text{Cost of goods Sold}}{\text{Average stock}}$

$$\frac{1,60,000}{40,000} = 4 \text{ times}$$

- (iii) Cost of goods sold = Opening stock + Purchases + Wages - Closing stock
 Rs.21,000 + 1,00,000 + 10,000 - 29,000 = 1,02,000

$$\text{Average stock} = \frac{\text{Opening stock} + \text{Closing stock}}{2}$$

$$\frac{21,000 + 29,000}{2} = \frac{50,000}{2} = 25,000$$

$$\text{Stock Turnover ratio} = \frac{\text{Cost of goods sold}}{\text{Average stock}} = \frac{1,02,000}{25,000} = \frac{102}{25} = 4.08 \text{ times}$$

Illu.6 : Stock turnover ratio is 2.5 times. Average stock is Rs.20,000. Calculate cost of goods sold and also sales if profit earned is 25% of cost.

Solution :

$$\text{Stock turnover ratio} = \frac{\text{Cost of goods sold}}{\text{Average stock}} = 2.5 \text{ times (given)}$$

It shows that cost of goods sold is 2.5 times of average stock, i.e.,

$$\text{Cost of goods sold} = 20,000 \times 2.5 = 50,000$$

$$\text{Profit} = 25\% \text{ of cost}$$

$$50,000 \times \frac{25}{100} = \text{Rs.}12,500$$

$$\text{Sales} = \text{Cost of goods sold} + \text{Profit}$$

$$= 50,000 + 12,500 = \text{Rs.}62,500$$

Illu.7 : Stock turnover ratio is 3 times. Cost of goods sold is Rs.1,20,000. Stock at the beginning is Rs.10,000 more than the stock at the end. Calculate stock in the beginning and at the end.

Solution :

$$\text{Stock turnover ratio} = \frac{\text{Cost of goods sold}}{\text{Average stock}} = 3 \text{ times (given)}$$

It shows that average stock will be $\frac{1}{3}$ rd of cost of goods sold i.e.,

$$\text{Average stock} = 1,20,000 \times \frac{1}{3} = 40,000$$

$$\text{Total stock} = 40,000 \times 2 = 80,000$$

$$\text{Let the stock in the beginning} = X$$

$$\text{Stock at the end} = X - 10,000$$

$$\text{Equation} = X + X - 10,000 = 80,000$$

$$\text{Or } 2x = 80,000 + 10,000 = 90,000$$

$$X = \frac{90,000}{2} = 45,000$$

$$\text{Stock at the end} = 45,000 - 10,000 = \text{Rs.}35,000$$

Illu.8 : If average stock is Rs.20,000 and closing stock is Rs.2,000 more than the opening stock. Calculate opening and closing stock.

Solution :

Average stock = Rs.20,000 (given)

Total stock = Rs.20,000 $\times$ 2 = 40,000

Let the Opening stock = X

Closing Stock = X + 2,000

Equation = X + X + 2,000 = Rs.40,000

2x = 40,000 - 2,000 = 38,000

Opening Stock X = $\frac{38,000}{2}$ = 19,000

Closing Stock = 19,000 + 2,000 = Rs.21,000

Illu.9 : Calculate debtors turnover ratio, if total sales is Rs.2,50,000, cash sales Rs.70,000, debtors in the beginning is Rs.16,000 and at the end Rs.8,000 more.

Solution :

Net Sales = Total Sales - Cash Sales

Rs.2,50,000 - Rs.70,000 = Rs.1,80,000

Debtors in the beginning = Rs.16,000

Debtors at the end = 16,000 + 8,000 = Rs.24,000

Average debtors = $\frac{\text{Opening Debtors} + \text{Closing debtors}}{2}$

$\frac{16,000 + 24,000}{2}$ = Rs.20,000

Debtors turnover ratio = $\frac{1,80,000}{20,000}$ = 9 times.

Illu.10 : Total Credit sales = Rs.7,30,000

Debtors = Rs.1,00,000

Bills receivable = Rs.72,000

Calculate average collection period.

Solution :

Receivables = Debtors + Bills Receivable

= Rs.1,00,000 + 72,000 = Rs.1,72,000

Average daily credit sales = $\frac{7,30,000}{365}$ = 2,000

Average collection period = $\frac{\text{Bills receivable}}{\text{Daily credit sales}}$

= $\frac{1,72,000}{2,000}$ = 86 days

Illu.11 : Calculate debtors turnover ratio and debtors collection period from the following information.

	Rs.
Credit sales of the year	9,00,000
Debtors	90,000
Bills receivable	60,000

Solution :

Debtors turnover ratio = $\frac{\text{Credit sales}}{\text{Receivables}}$ = $\frac{9,00,000}{1,50,000}$ = 6 times

Debt collection period = $\frac{\text{Months in a year}}{\text{Debtors turnover}}$ = $\frac{12}{6}$ = 2 months or 60 days.

Ratio Analysis

Alternatively

$$\text{Debts collection period} = \frac{\text{Account receivables}}{\text{Monthly credit sales}} = \frac{1,50,000}{75,000} = 2 \text{ months}$$

Alternatively,

$$\text{Debts collection period} = \frac{\text{Receivables} \times \text{Months in a year}}{\text{Credit sales}} = \frac{1,50,000 \times 12}{9,00,000} = 2 \text{ months}$$

Illu.12 : Calculate the current ratio

Current assets : Rs.8,00,000

Current Liabilities : Rs.4,00,000

$$\text{Current ratio} = \frac{8,00,000}{4,00,000} = 2:1$$

Illu.13 : Calculate the quick ratio

Current Assets : Rs.8,00,000

Current Liabilities : Rs.4,00,000

Stock : Rs.2,20,000

Solution :

$$\begin{aligned}\text{Quick ratio} &= \frac{\text{Current assets} - \text{stock}}{\text{Current Liabilities}} \\ &= \frac{8,00,000 - 2,20,000}{4,00,000} = \frac{5,80,000}{4,00,000} = 1.45:1\end{aligned}$$

Illu.14 : The following data has been taken from the balance sheet of three companies.

	Company A Rs.	Company B Rs.	Company C Rs.
Cash	20,000	40,000	1,00,000
Sundry Debtors	1,60,000	1,60,000	4,00,000
Stock in hand	1,20,000	2,00,000	6,00,000
Total current assets	3,00,000	4,00,000	11,00,000
Total current liabilities	1,00,000	1,50,000	8,00,000
Working Capital	2,00,000	2,50,000	3,00,000

Comment on their comparative liquidity or short term financial health.

Solution :

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

Ratio Analysis

20.21

		Company		
Ratio		A	B	C
(a)	Current ratio	$\frac{3,00,000}{1,00,000}$	$\frac{4,00,000}{1,50,000}$	$\frac{11,00,000}{8,00,000}$
	$\frac{\text{Current ratio}}{\text{Current liabilities}}$	3:1	2.67:1	1.375:1
(b)	Quick ratio	$\frac{1,80,000}{1,00,000}$	$\frac{2,00,000}{1,50,000}$	$\frac{5,00,000}{8,00,000}$
	$\frac{\text{Quick assets}}{\text{Current liabilities}}$	1.8:1	1.33:1	0.625:1

Comments :

- Current Ratio : Company C is less liquid. The standard should be 2:1, company A and B are more liquid more than required.
- Liquid Ratio : In this case also company C is poor, as it should be in the ratio of 1:1. Company A and B are more liquid than required.

Illu.15 : Comment on the liquidity of the following companies.

	Company A	Company B
	Rs.	Rs.
Cash	180	140
Debtors	1,420	3,200
Stock	1,800	5,400
Bills payable	270	1,000
Creditors	500	4,000
Accrued expenses	150	125
Tax payable	750	1,000

(Andhra September, 1994)

Solution :

a) Current ratio = $\frac{\text{Current assets}}{\text{Current Liabilities}}$

$$\text{Company A} = \frac{180+1,420+1,800}{270+500+150+750} = \frac{3,400}{1,670} = 2.04 : 1$$

$$\text{Company B} = \frac{140+3,200+5,400}{1,000+4,000+125+1,000} = \frac{8,740}{6,125} = 1.43 : 1$$

b) Liquid ratio = $\frac{\text{Liquid Assets}}{\text{Current liabilities}}$

$$\text{Company A} = \frac{180+1,420}{270+500+150+750} = \frac{1,600}{1,670} = 0.96 : 1$$

$$\text{Company B} = \frac{140+3,200}{1,000+4,000+125+1,000} = \frac{3,340}{6,125} = 0.55 : 1$$

c) Absolute liquid ratio = $\frac{\text{Absolute Liquid assets}}{\text{Current liabilities}}$

$$\text{Company A} = \frac{180}{1,670} = 0.11 : 1$$

$$\text{Company B} = \frac{140}{6,125} = 0.02 : 1$$

Absolute liquid assets = Cash in hand + Cash at Bank + Marketable Securities

Comments :

1. The standard current ratio is 2:1. A company's current ratio is almost equal to the standard ratio. But B company's current ratio is lower than the standard norm. (2:1)
2. Generally, the standard liquid ratio 1:1. In this case also company A's position is satisfactory. But Company B is unable to maintain the liquidity position and the position of this company is half of the ratio of the standard norm.
3. While coming the absolute liquid ratio (standard being 0.5:1), both the companies are below this ratio. More particularly Company B's financial condition in terms of this ratio is very unsatisfactory.

Illu.16 : The Assets and Liabilities of a limited company are given below. You are requested to calculate (a) Current Ratio (b) Liquidity Ratio and (c) Proprietary Ratio.

Liabilities	Rs.	Assets	Rs.
5,000 Equity shares of Rs.100 each	5,00,000	Land, Buildings	6,00,000
2,000, 8% preference shares at Rs.100 each	2,00,000	Plant, Machinery	5,00,000
9% Debentures	4,00,000	Stock	2,40,000
Reserves	3,00,000	Debtors	2,00,000
Creditors	1,50,000	Cash at Bank	55,000
Bank Overdraft	50,000	Prepaid Expenses	5,000
	<u>16,00,000</u>		<u>16,00,000</u>

(Osmania, April 1994; Sri Krishnadevaraya April, 1996)

Solution :

$$1. \text{ Current ratio} = \frac{\text{Current assets}}{\text{Current Liabilities}}$$

$$\text{Current Assets} = \text{Stock} + \text{Debtors} + \text{Cash at Bank} + \text{Prepaid Expenses}$$

$$= 2,40,000 + 2,00,000 + 55,000 + 5,000 = 5,00,000$$

$$\text{Current Liabilities} = \text{Creditors} + \text{Bank Overdraft.}$$

$$= 1,50,000 + 50,000 = 2,00,000$$

$$\text{Current ratio} = \frac{5,00,000}{2,00,000} = 2.5 : 1$$

$$2) \text{ Quick Ratio} = \frac{\text{Quick Assets}}{\text{Current Liabilities}}$$

$$\text{Liquid assets} = \text{Debtors} + \text{Cash at Bank}$$

$$= 2,00,000 + 55,000 = 2,55,000$$

$$\text{Quick Ratio} = \frac{2,55,000}{2,00,000} = 1.275 : 1$$

$$3. \text{ Proprietary Ratio} = \frac{\text{Shareholder's funds}}{\text{Total Assets}} \times 100$$

Ratio Analysis

20.23

$$\begin{aligned}\text{Shareholders' funds} &= \text{Equity share capital} + \text{Preference share capital} + \text{Reserves} \\ &= 5,00,000 + 2,00,000 + 3,00,000 = 10,00,000\end{aligned}$$

$$\begin{aligned}\text{Total Assets} &= \text{Land, Buildings} + \text{Plant, Machinery} + \text{Current Assets} \\ &= 6,00,000 + 5,00,000 + 5,00,000 = 16,00,000\end{aligned}$$

$$\text{Proprietary Ratio} = \frac{10,00,000}{16,00,000} \times 100 = 63\%$$

Illu.17 : The following is the information given from the XYZ accounts.

	1st Year		2nd Year	
	Assets Rs.	Liabilities Rs.	Assets Rs.	Liabilities Rs.
Stock	10,000		20,000	
Debtors	30,000		30,000	
Prepaid expenses	2,000			
Cash in hand	20,000		15,000	
Creditors		25,000		30,000
Bills payable		15,000		12,000
Bank overdraft				5,000
	62,000	40,000	65,000	47,000

Sales during the first Rs.3,50,000. Sales during the second Rs.3,00,000. State your opinion on the financial strength of the firm with the relevant ratios.

(Kakatiya, November, 1991)

Solution :

- The ratios are to be calculated for analysing the short-term solvency.

$$\text{Current ratio} = \frac{\text{Current assets}}{\text{Current Liabilities}}$$

$$\text{1st year} = \frac{62,000}{40,000} = 1.55 : 1$$

$$\text{2nd Year} = \frac{65,000}{47,000} = 1.38 : 1$$

$$\text{Quick ratio} = \frac{\text{Quick assets}}{\text{Current Liabilities}}$$

$$\text{1st year} = \frac{50,000}{40,000} = 1.25 : 1$$

$$\text{2nd year} = \frac{45,000}{47,000} = 0.96 : 1$$

The firms' liquidity position during the two years is satisfactory. But the liquidity of the firm declining during second year over the first year. This is mainly due to increasing the stock.

- The ratios are to be calculated for analysing the long-term solvency.

$$\text{Debt-equity ratio} = \frac{\text{Total debts}}{\text{Shareholders funds}}$$

$$\text{1st Year} = \frac{40,000}{22,000} = 1.82 : 1$$

$$\text{2nd Year} = \frac{47,000}{18,000} = 2.61 : 1$$

Shareholders funds = Assets - Liabilities.

$$\text{Proprietary ratio} = \frac{\text{Proprietor's funds}}{\text{Total Assets}}$$

$$\frac{22,000}{62,000} = 0.35:1$$

$$\frac{18,000}{65,000} = 0.28:1$$

The long-term financial position of the firm is not satisfactory. The shareholders share in the total assets of the firm is less than half. The debt-equity ratio is above the standard normal 2:1 and hence the creditors may be reluctant to give more funds.

Illu.18 : From the following information calculate 1) Current ratio 2) Quick ratio 3) Fixed assets ratio 4) Debt-equity ratio, 5) Proprietary ratio

Balance Sheet of Pallavi Limited as on 31st December, 2001

Liabilities	Rs.	Assets	Rs.
Equity Share capital	1,00,000	Cash in hand	2,000
6% Preference share capital	1,00,000	Cash at Bank	10,000
7% Debentures	40,000	Bills receivable	30,000
8% Govt. Loan	20,000	Investments	20,000
Bank Overdraft	40,000	Debtors	70,000
Creditors	67,000	Stock	40,000
Proposed dividends	10,000	Furniture	30,000
Reserves	1,50,000	Land, Buildings	2,20,000
Provision for tax	20,000	Machinery	1,00,000
Profit and Loss a/c	20,000	Goodwill	35,000
		Preliminary expenses	10,000
	<u>5,67,000</u>		<u>5,67,000</u>

Solution :

$$1. \text{ Current ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

$$\text{Current Assets} = 2,000 + 10,000 + 30,000 + 20,000 + 70,000 + 40,000$$

$$\text{Current Liabilities} = 40,000 + 67,000 + 10,000 + 20,000$$

$$= \frac{1,72,000}{1,37,000} = \frac{172}{137} = \frac{1.25}{1} = 1.25:1$$

Notes : Provision for tax and proposed dividend also current liabilities. The investments are treated as short-term.

$$2. \text{ Quick ratio} = \frac{\text{Quick assets}}{\text{Current liabilities}}$$

$$\text{Quick Assets} = \text{Current assets (Q jm)}$$

$$= 2,000 + 10,000 + 30,000 + 20,000 + 70,000 = \text{Rs.}1,32,000$$

$$\text{Current Liabilities} = 1,37,000$$

$$= \frac{1,32,000}{1,37,000} = \frac{132}{137} = \frac{0.96}{1} = 0.96:1$$

3. Fixed assets ratio = $\frac{\text{Fixed assets}}{\text{Capital employed}}$

Fixed assets = Furniture, Machinery, Land, Buildings + Goodwill

$$= 30,000 + 1,00,000 + 2,20,000 + 35,000 = 3,85,000$$

Capital employed = (Equity share capital + preference share capital + Reserves + Profit and loss a/c + Debentures, Govt. Loan) - Preliminary expenses.

$$= (1,00,000 + 1,00,000 + 1,50,000 + 20,000 + 40,000 + 20,000) - 10,000 = 4,20,000$$

$$= \frac{3,85,000}{4,20,000} = \frac{0.916}{1} = 0.916:1$$

Note : Goodwill is a fictitious asset. Further, the purchase price of goodwill is not given. Hence this is not included in the fixed assets.

4. Debt-Equity ratio = $\frac{\text{Long-term loans}}{\text{Shareholder's equity}}$

Long-term Liabilities = 7% Debentures + 8% Govt. Loan

$$= 40,000 + 20,000 = \text{Rs. } 60,000$$

Shareholders' equity = [Preference share capital + Equity share capital + Reserves + Profit and Loss a/c + Proposed dividend] - Preliminary expenses

$$= [1,00,000 + 1,00,000 + 1,50,000 + 20,000 + 10,000] - 10,000$$

$$= 3,80,000 - 10,000 = \text{Rs. } 3,70,000$$

$$= \frac{60,000}{3,70,000} = 0.16:1 \quad \text{Or)$$

Debt-Equity ratio = $\frac{\text{Total Liabilities}}{\text{Shareholders equity}}$

Total Liabilities = Long-term Liabilities + Short-term Liabilities

$$= 40,000 + 20,000 + 40,000 + 67,000 + 20,000 = \text{Rs. } 1,87,000$$

$$= \frac{1,87,000}{3,70,000} = \frac{187}{370} = 0.50:1$$

5. Proprietary Ratio = $\frac{\text{Shareholders (Equity) Funds}}{\text{Total Assets}}$

Shareholders funds = Rs. 3,70,000

Total Assets = Fixed assets + Current Assets = 5,57,000 (All assets except preliminary expenses)

Shareholders' equity = Rs. 3,70,000

$$= \frac{3,70,000}{5,57,000} = 0.66:1$$

Illu.19 : Calculate the following ratios from the financial statements of XYZ Company. (1) Current ratio, (2) Liquid ratio, (3) Stock Turnover ratio (4) Debtors turnover ratio (5) Creditors turnover ratio

	Rs.		Rs.
Opening Stock	47,000	Debtors	42,000
Closing stock	53,000	Cash	10,000
Sales	2,50,000	Bank	8,000
Provision for doubtful debts	2,000	Bills Receivable	15,000
Creditors	32,000	Provision for tax	15,000

Loose Tools	4,000	Bills payable	29,000
Purchases	1,80,000	Marketable securities	8,000

(Osmania, April 1998)

Solution :

a) **Current ratio** = $\frac{\text{Current Assets}}{\text{Current Liabilities}}$

Current Assets = Cash + Bank + Marketable Securities + Bills Receivable + Debtors + Closing Stock

$$= \text{Rs.}10,000 + 8,000 + 8,000 + 15,000 + 42,000 + 53,000 = \text{Rs.}1,36,000$$

Current Liabilities = Creditors + Bills payable + provision for tax + Provision for doubtful debts

$$= \text{Rs.}32,000 + 29,000 + 15,000 + 2,000 = \text{Rs.}78,000$$

$$\text{Current ratio} = \frac{1,36,000}{78,000} = 1.74 : 1$$

b) **Liquid ratio** = $\frac{\text{Liquid assets}}{\text{Current Liabilities}}$

Liquid Assets = Current Assets - Stock

$$= 1,36,000 - 53,000 = \text{Rs.}83,000$$

$$\text{Liquid Ratio} = \frac{83,000}{78,000} = 1.06$$

c) **Stock Turnover ratio** = $\frac{\text{Cost of goods sold}}{\text{Average stock}}$

Cost of goods sold = (Opening Stock + Purchases) - Closing stock

$$= (47,000 + 1,80,000) - 53,000 = \text{Rs.}1,74,000$$

$$\text{Average Stock} = \frac{1}{2} (\text{Opening Stock} + \text{Closing stock})$$

$$\frac{1}{2} (47,000 + 53,000) = \text{Rs.}50,000$$

$$\text{Stock Turnover ratio} = \frac{1,74,000}{50,000} = 3.48$$

d) **Debtors Turnover ratio** = $\frac{\text{Sales}}{\text{Outstanding debts}}$

Outstanding debts = Bills Receivable + Debtors

$$= 15,000 + 42,000 = \text{Rs.}57,000$$

$$\text{Debtors Turnover ratio} = \frac{2,50,000}{57,000} = 4.39$$

Note : Total sales assumed as credit sales

e) **Creditors Turnover ratio** = $\frac{\text{Purchases}}{\text{Debts unpaid}}$

Debts unpaid = Creditors + Bills payable

$$= 32,000 + 29,000 = \text{Rs.}61,000$$

$$\text{Creditors Turnover ratio} = \frac{1,80,000}{61,000} = 2.95$$

Note : Total Purchased assumed as Credit purchases

Illu.20 : From the below Profit and loss a/c and balance sheet calculate

a. Current Ratio

b. Operating Ratio

c. Stock Turnover ratio

d. Return on equity capital

Dr.		Profit and Loss a/c		Cr.	
		Rs.			Rs.
To Opening Stock		99,500	By Sales		8,79,000
To Purchases		5,40,000	By Closing Stock		1,20,000
To Expenses		19,500			
To Gross Profit		3,40,000			
		9,99,000			9,99,000
To Operating Expenses :			By Gross Profit		3,40,000
Selling Expenses	30,000		By Non-operating		
Administration Expenses	1,55,000		Income :		
Financial expenses	8,000		Interest	3,000	
		1,93,000	Profit on sale		
To Non-operating expenses			of Investments	6,000	
Loss on sale of					9,000
Assets		6,000			
Net Profit		1,50,000			
		3,49,000			3,49,000

Balance Sheet

Liabilities		Rs.	Assets		Rs.
Equity capital			Land and Buildings		1,80,000
(2,000 shares @ Rs.100)	2,00,000		Plant and Machinery		79,000
Reserves	80,000		Stock		1,20,000
Profit and Loss a/c	70,000		Debtors	75,000	
Current Liabilities	1,30,000		Less : Bad debts reserve	5,000	
					70,000
			Cash		31,000
		4,80,000			4,80,000

(Nagarjuna, April, 1996)

Solution :

$$a. \text{ Current ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}} = \frac{2,26,000}{1,35,000} = 1.67 : 1$$

$$b. \text{ Operating ratio} = \frac{(\text{Cost of goods sold} + \text{Operating Expenses})}{\text{Sales}} \times 100$$

$$\text{Cost of goods sold} = \text{Sales} - \text{Gross profit.}$$

$$8,79,000 - 3,40,000 = \text{Rs.} 5,39,000$$

$$\text{Operating expenses} = \text{Rs.} 1,93,000$$

$$\text{Operating ratio} = \frac{5,39,000 + 1,93,000}{8,79,000} \times 100 = 83.28\%$$

$$\text{c) Stock turnover ratio} = \frac{\text{Cost of goods sold}}{\text{Average stock}}$$

$$\text{Average stock} = \frac{\text{Opening stock} + \text{Closing Stock}}{2}$$

$$= \frac{99,500 + 1,20,000}{2} = \text{Rs.}1,09,750$$

$$= \frac{5,39,000}{1,09,750} = 4.91 \text{ times}$$

$$\text{Return on equity capital} = \frac{\text{Net Profit}}{\text{Shareholders funds (Equity)}} \times 100$$

$$\frac{1,50,000}{3,50,000} \times 100 = 42.86\%$$

Illu.21 : From the following financial information determine : (a) Current ratio (b) Quick Ratio (c) Stock Turnover ratio (d) Operating ratio (e) Rate of Return on equity capital.

Balance Sheet as at December 31, 2002

Liabilities	Rs.	Assets	Rs.	Rs.
Equity share capital (Rs.100 each)	10,00,000	Plant, Machinery		6,40,000
Profit and Loss a/c	3,68,000	Land, Buildings		80,000
Creditors	1,04,000	Cash		1,60,000
Bills payable	2,00,000	Debtors	3,60,000	
Other Current Liabilities	20,000	Less : Provision for bad debts	40,000	
				3,20,000
		Stock		4,80,000
		Prepaid Insurance		12,000
	<u>16,92,000</u>			<u>16,92,000</u>

Statement of the Profit for the year ended December 31st, 2002

	Rs.
Sales	40,00,000
Less : Cost of goods sold	30,80,000
	<u>9,20,000</u>
Less : Operating expenses	6,80,000
	<u>2,40,000</u>
Net Profit	1,20,000
Less : Taxes at 50%	
	<u>1,20,000</u>
Net Profit after taxes	

Sundry debtors and stock at the beginning of the year were Rs.3,00,000 and Rs.4,00,000 respectively.

(Nagarjuna October, 1998)

Solution :

$$1) \text{ Current ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}} = \frac{10,12,000}{3,64,000} = 2.78 : 1$$

$$2) \text{ Quick ratio} = \frac{\text{Quick assets}}{\text{Current Liabilities}}$$

$$\begin{aligned} \text{Quick Assets} &= \text{Current assets} - (\text{Closing Stock} + \text{Prepaid Expenses}) \\ &= 10,12,000 - (4,80,000 + 12,000) = \text{Rs.}5,20,000 \end{aligned}$$

$$\frac{5,20,000}{3,64,000} = 1.43 : 1$$

$$3) \text{ Stock Turnover ratio} = \frac{\text{Cost of goods sold}}{\text{Average stock}}$$

$$\text{Cost of goods sold} = 30,80,000$$

$$\text{Average stock} = \frac{\text{Opening Stock} + \text{Closing Stock}}{2}$$

$$\frac{4,00,000 + 4,80,000}{2} = \frac{8,80,000}{2} = \text{Rs.}4,40,000$$

$$\frac{30,80,000}{4,40,000} = 7 \text{ times}$$

$$4) \text{ Operating ratio} = \frac{(\text{Cost of goods sold} + \text{Operating expenses})}{\text{Net sales}} \times 100$$

$$\frac{30,80,000 + 6,80,000}{40,00,000} \times 100 = 94\%$$

$$5) \text{ Return on Equity capital} = \frac{\text{Net profit}}{\text{Shareholders funds (Networth)}}$$

$$\frac{1,20,000}{13,68,000} \times 100 = 8.8\%$$

Illu.22 : Current ratio = 2.5; Quick ratio = 1.5; Operating capital = Rs.30,000, Calculate the stock value.

(Osmania March, 2001)

Solution :

$$1. \text{ Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

$$2. \text{ Quick ratio} = \frac{\text{Current Assets} - \text{Stock}}{\text{Current Liabilities}}$$

$$\text{Operating capital} = \text{Current assets} - \text{Current Liabilities.}$$

$$1.5 \quad \dots \quad 30,000$$

$$2.5 \quad \dots \quad ? \quad 30,000 \times \frac{2.5}{1.5} \quad \text{Rs.}50,000$$

$$1.5 \quad \dots \quad 30,000$$

$$1 \quad \dots \quad ? \quad 30,000 \times \frac{1}{1.5} \quad \text{Rs.}20,000$$

$$\text{Stock} = 50,000 - 30,000 = \text{Rs.}20,000$$

Illu.23 : Calculate current assets of a company from the following :

- Stock turnover : 5 times
- Stock at the end : Rs.5,000 more than stock in the beginning.
- Sales (all credit) Rs.2,00,000
- Gross profit ratio : 20%
- Current liabilities Rs.60,000
- Quick Ratio 0.75

Solution :

$$\text{Gross Profit} = 2,00,000 \times \frac{20}{100} = \text{Rs.}40,000$$

$$\text{Cost of goods sold} = 2,00,000 - 40,000 = \text{Rs.}1,60,000$$

$$\text{Stock Turnover} = \frac{1,60,000}{\text{Average stock}}$$

$$8 = \frac{1,60,000}{\text{Average stock}}$$

$$8 \text{ Average stock} = \text{Rs.}1,60,000$$

$$\text{Average stock} = \frac{1,60,000}{8} = \text{Rs.}20,000$$

$$= x + (x + 5,000) = 20,000 = 2x + 5,000 = 40,000$$

$$= 2x = 40,000 - 5,000$$

$$2x = 35,000; x = 17,500;$$

$$2x = 17,500 + 5,000 = 22,500.$$

$$\text{Opening Stock} = \text{Rs.}17,500; \text{Closing Stock Rs.}22,500$$

1	.....	60,000		
0.75	.....	?	$60,000 \times \frac{0.75}{1}$	Rs.45,000

Illu.24 : The following are Ratios Extracted from Balance Sheet of a Company as on 31-12-1998. Draw up theyear 1998 Balance Sheet of the Company :

Current Liabilities	1.0
Current Assets	2.5
Working Capital	Rs.3,00,000
Quick (Liquid) Ratio	1.5
Stock Turnover Ratio	6 times
Gross profit as percentage of sales	20%
Debt Colleciton period	2 months
Shareholders Capital	Rs.5,00,000
Reserves and Surplus	Rs.2,50,000
Fixed Assets Turnover	2 times

Solution :

Current Assets :

1.5	.....	Rs.3,00,000		
2.5	.....	?	$\text{Rs.}3,00,000 \times \frac{2.5}{1.5}$	Rs.5,00,000

Current Liabilities :

1.5	.....	Rs.3,00,000		
1	.....	?	$\text{Rs.}3,00,000 \times \frac{1}{1.5}$	Rs.2,00,000

Liquid Assets :

$$\begin{array}{llll} 1 & \dots & \text{Rs.2,00,000} & \\ 1.5 & \dots & ? & \text{Rs.2,00,000} \times \frac{1.5}{1} \quad \text{Rs.3,00,000} \end{array}$$

$$\text{Stock} = 5,00,000 - 3,00,000 = \text{Rs.2,00,000}$$

$$\text{Cost of goods sold} = 6 = \frac{\text{Cost of goods sold}}{2,00,000} = \text{Rs.12,00,000}$$

$$3,00,000 \text{ Gross Profit} = 15,00,000 \times \frac{20}{100}$$

$$\begin{array}{llll} 80 & \dots & 12,00,000 & \end{array}$$

$$\begin{array}{llll} 100 & \dots & ? & 12,00,000 \times \frac{100}{80} \quad \text{Rs.15,00,000} \end{array}$$

$$\text{Fixed assets} = 2 = \frac{15,00,000}{\text{Fixed assets}} = \text{Rs.7,50,000}$$

$$\text{Debtors} = \frac{\text{Debtors}}{\text{Sales}} \times 2 = \frac{2}{12} = \frac{\text{Debtors}}{15,00,000} = 12 \text{ Debtors} = \text{Rs.30,00,000}$$

$$\text{Debtors} = \frac{\text{Rs.30,00,000}}{12} = \text{Rs.2,50,000}$$

$$\text{Cash} = 5,00,000 - (2,50,000 + 2,00,000) = \text{Rs.50,000}$$

Balance Sheet as on 31-12-2000

Liabilities	Rs.	Assets	Rs.
Capital	5,00,000	Cash	50,000
Reserves, Surplus	2,50,000	Debtors	2,50,000
Current Liabilities	2,00,000	Stock	2,00,000
Long-term Liabilities	3,00,000	Fixed assets	7,50,000
(balancing figure)			
	12,50,000		12,50,000

Illu.25 : From the following details, prepare statement of Proprietor's Fund:

- Stock velocity 6 times
- Debtor's velocity 2 months
- Capital turnover 2 times
- Creditor's velocity 73 days
- Fixed Assets Turnover 4 times
- Gross Profit Ratio 20%.

Gross profit was Rs.60,000. Reserves and surplus amounted to Rs.20,000. Closing stock was Rs.5,000 in excess of opening stock.

Solution :

$$\text{a) Gross Profit ratio} = \frac{\text{Gross Profit}}{\text{Net Sales}} \times 100; \frac{20}{100} = \frac{60,000}{\text{Net sales}}$$

$$20 \text{ Sales} = 60,000 \times 100 = 20 \text{ Sales} = \text{Rs.60,00,000}$$

$$\text{Sales} = \frac{60,00,000}{20} = \text{Rs.3,00,000}$$

$$\text{Cost of goods sold} = \text{Sales} - \text{Gross Profit.}$$

$$3,00,000 - 60,000 = \text{Rs.2,40,000}$$

$$\text{b) Stock Turnover ratio} = \frac{\text{Cost of goods sold}}{\text{Average stock}}$$

$$6 = \frac{2,40,000}{\text{Average stock}} = \text{Average stock} = \frac{2,40,000}{6} = \text{Rs.40,000}$$

$$\text{Average stock} = \frac{\text{Opening Stock} + \text{Closing Stock}}{2}$$

$$40,000 = \frac{\text{Opening Stock} + \text{Closing Stock}}{2}$$

$$40,000 \times 2 = \text{Opening stock} + \text{Closing Stock.}$$

$$80,000 = \text{Opening Stock} + \text{Closing Stock.}$$

$$\text{Closing stock} = \text{Opening Stock} + 5,000$$

$$80,000 = \text{Opening Stock} + (\text{Opening Stock} + 5,000)$$

$$80,000 = 2 \text{ Opening Stock} + 5,000$$

$$2 \text{ Opening Stock} = 80,000 - 5,000$$

$$\text{Opening Stock} = \frac{75,000}{2} = \text{Rs.}37,500$$

$$\text{Closing Stock} = 37,500 + 5,000 = \text{Rs.}42,500$$

$$\text{c) Debtors Turnover} = \frac{\text{Debtors}}{\text{Sales}} \times 12 \text{ months} = 2 \text{ months} = \frac{\text{Debtors}}{3,00,000} \times 12 \text{ months}$$

$$\text{Debtors} = \frac{3,00,000 \times 2}{12} = \text{Rs.}50,000$$

$$\text{d) Creditors Turnover} = \frac{\text{Creditors}}{\text{Purchases}} \times 365 \text{ days}$$

$$\begin{aligned} \text{Credit Purchases} &= \text{Cost of goods sold} + \text{Increase in closing stock} \\ &= 2,40,000 + 5,000 = \text{Rs.}2,45,000 \end{aligned}$$

$$73 \text{ days} = \frac{\text{Creditors}}{2,45,000} \times 365 = \frac{73}{365} = \frac{\text{Creditors}}{2,45,000}$$

$$365 \text{ Creditors} = \frac{73}{365} \times 2,45,000$$

$$\text{Creditors} = \frac{73 \times 2,45,000}{365} = \text{Rs.}49,000$$

$$\text{e) Capital Turnover ratio} = \frac{\text{Cost of goods sold}}{\text{Capital}}$$

$$2 = \frac{2,40,000}{\text{Capital}}$$

$$\text{Capital} = \frac{2,40,000}{2} = \text{Rs.}1,20,000$$

$$\text{f) Fixed assets turnover ratio} = \frac{\text{Cost of goods sold}}{\text{fixed assets}}$$

$$4 = \frac{2,40,000}{\text{fixed assets}}$$

$$\text{fixed assets} = \frac{2,40,000}{4} = \text{Rs.}60,000$$

Proprietary Statement

	Rs.	Rs.
Current assets :		
Cash in hand (Balancing figure)	16,500	
Debtors	50,000	
Stock	42,500	
		1,09,000
Less : Current Liabilities :		
Creditors		49,000
Working capital		60,000
Add : Fixed assets		60,000

Total capital employed		1,20,000
Net worth :		
Share capital	1,00,000	
Reserves, Surplus	20,000	
Capital employed		1,20,000

Illu.26 : With the help of the following ratios regarding Sarath & Co. draw the Balance Sheet of the company for the year 2002.

Current ratio	2.5
Liquidity ratio	1.5
Net working capital	Rs.3,00,000
Stock turnover ratio	6 times
Gross Profit ratio	20%
Fixed assets turnover ratio	2 times
Debt collection period	2 months
Fixed assets to shareholders net worth	0.80
Reserves and surplus to capital	0.50

(Nagarjuna March, 1996; March, 2002)

Solution :

a. $\text{Current ratio} = \frac{\text{Current assets}}{\text{Current liabilities}}$

$$2.5 = \frac{\text{Current assets}}{\text{Current liabilities}}$$

Current assets = 2.5 Current liabilities.

b) Working capital = Current Assets - Current liabilities.

$$3,00,000 = 2.5 \text{ Current Liabilities} - \text{Current assets.}$$

$$3,00,000 = 1.5 \text{ Current Liabilities}$$

$$\text{Current liabilities} = \frac{3,00,000}{1.5} = \text{Rs.}2,00,000$$

c) $\text{Liquid ratio} = \frac{\text{Liquid assets}}{\text{Current liabilities}}$

$$1.5 = \frac{\text{Liquid assets}}{2,00,000}$$

$$\text{Liquid assets} = 1.5 \times 2,00,000 = \text{Rs.}3,00,000$$

$$\text{Liquid Assets} = \text{Current Assets} - \text{Closing Stock}$$

$$\text{Rs.}3,00,000 = (2.5 \times 2,00,000) - \text{Closing stock}$$

$$\text{Closing Stock} = 5,00,000 - 3,00,000 = \text{Rs.}2,00,000$$

d) $\text{Stock Turnover ratio} = \frac{\text{Cost of goods sold}}{\text{closing stock}}$

$$6 = \frac{\text{Cost of goods sold}}{2,00,000}$$

$$\text{Cost of goods sold} = 6 \times 2,00,000 = \text{Rs.}12,00,000$$

e) $\text{Gross Profit ratio} = \frac{\text{Gross profit}}{\text{net sales}} \times 100$

Gross profit on sales 20%

Sales Rs.100; Gross Profit Rs.20; Cost of goods sold Rs.80. When cost of goods sold is Rs.12,00,000 then sales?

$$\text{Sales} = \frac{12,00,000 \times 100}{80} = \text{Rs.}15,00,000$$

f) Fixed assets turnover ratio = $\frac{\text{Cost of goods sold}}{\text{Fixed assets}}$

$$2 = \frac{12,00,000}{\text{Fixed assets}}$$

$$\text{Fixed assets} = \frac{12,00,000}{2} = \text{Rs.}6,00,000$$

g) Debt collection period = $\frac{\text{Debtors} \times 12 \text{ months}}{15,00,000}$

$$\text{Debtors} = \frac{2 \times 15,00,000}{12} = \text{Rs.}2,50,000$$

h) Fixed assets to shareholders net worth ratio = $\frac{\text{Fixed assets}}{\text{shareholders network}}$

$$0.80 = \frac{6,00,000}{\text{shareholders network}}$$

$$\text{Shareholders network} = \frac{6,00,000}{0.80} = \text{Rs.}7,50,000$$

i) Reserves and surplus to capital ratio = $\frac{\text{Reserves and Surplus}}{\text{Capital}}$

$$0.5 = \frac{\text{Reserves, Surplus}}{\text{Capital}}$$

$$\text{Reserves and Surplus} = 0.5 \text{ Capital.}$$

$$\text{Shareholders network} = \text{Capital} + \text{Reserves, Surplus}$$

$$7,50,000 = \text{Capital} + 0.5 \text{ capital}$$

$$0.5 \text{ capital} = 7,50,000$$

$$\text{Capital} = \frac{7,50,000}{0.5} = \text{Rs.}5,00,000$$

$$\text{Reserves, Surplus} = (0.5 \times 5,00,000) = \text{Rs.}2,50,000$$

j) Liquid Assets = Debtors + Cash in hand

$$3,00,000 = 2,50,000 + \text{Cash in hand}$$

$$\text{Cash in hand} = 3,00,000 - 2,50,000 = \text{Rs.}50,000$$

Balance Sheet as on 31st December 2002

Liabilities	Rs.	Assets	Rs.
Capital	5,00,000	Cash in hand	50,000
Reserves, Surplus	2,50,000	Debtors	2,50,000
Current liabilities	2,00,000	Closing stock	2,00,000
Long-term liabilities		Fixed assets	6,00,000
(Balancing figure)	1,50,000		
	<u>11,00,000</u>		<u>11,00,000</u>

Illu.27 : For the following data, prepare balance sheet :

Gross Profit (20% of sales) Rs.60,000

Equity share capital Rs.50,000

Credit sales to total sales ratio 80%

Total assets turnover 3 times

Stock turnover 8 times

Average collection period 18 days (360 days a year)

Current ratio 1.6:1

Long-term debt to equity 40%

(Andhra March, 2001)

Solution :

1. Calculation of Sales :

Gross Profit Rs.60,000. It is 20% sales.

20%	.....	60,000		
100%	.....	?	$60,000 \times \frac{100}{20}$	Rs.3,00,000

Sales = Rs.3,00,000

2. Calculation of Credit Sales :

Credit sales 80% of total sales

Total sales Rs.3,00,000; in that 80% credit sales.

$$3,00,000 \times \frac{80}{100} = \text{Rs.2,40,000}$$

Credit sales Rs.2,40,000

3. Calculation of cost of goods sold :

Gross Profit = Sales - Gross Profit

$$3,00,000 - 60,000 = \text{Rs.2,40,000}$$

4. Calculation of Total Assets :

$$\text{Total Assets turnover ratio} = \frac{\text{Cost of goods sold}}{\text{Total assets}}$$

$$3 = \frac{2,40,000}{\text{Total assets}} = 3 \quad \text{Total assets} = 2,40,000$$

$$\text{Total assets} = \frac{2,40,000}{3} = \text{Rs.80,000}$$

$$\text{Stock turnover ratio} = \frac{\text{Cost of goods sold}}{\text{Average stock}}$$

$$8 = \frac{2,40,000}{\text{Average stock}}$$

$$8 \text{ Average stock} = \text{Rs.2,40,000}$$

$$\text{Average stock} = \frac{2,40,000}{8} = \text{Rs.30,000}$$

$$\text{Calculation of Book debts} = \frac{\text{Credit Sales} \times 18 \text{ days}}{360 \text{ days}} = \frac{2,40,000 \times 18}{360} = \text{Rs.5,333}$$

Book debts Rs.5,333.

5. Calculation of Long-term loan :

Long term loan is 40% of equity

Equity = Rs.50,000;

$$40\% \text{ equity} = 50,000 \times \frac{40}{100} = \text{Rs.20,000}$$

6. Calculation of Current Liabilities :

$$\text{Current Liabilities} = \text{Total Assets} - (\text{Equity} + \text{Long-term loan})$$

$$80,000 - (50,000 + 20,000) = 80,000 - 70,000 = \text{Rs.}10,000$$

Current liabilities = Rs.10,000

7. Calculation of Current assets :

$$\text{Current ratio} = 1.6:1; \text{Current assets} = 1.6; \text{Current liabilities} = 1$$

$$\begin{array}{lclclcl} 1 & \dots & \text{Rs.}10,000 & & & \\ 1.6 & \dots & ? & 10,000 \times \frac{1.6}{1} & \text{Rs.}16,000 \end{array}$$

$$\begin{aligned} \text{Other current assets} &= \text{Total Current assets} - \text{Debtors} \\ &= \text{Rs.}16,000 - 5,333 = \text{Rs.}10,667 \end{aligned}$$

Balance Sheet as on

Liabilities	Rs.	Assets	Rs.
Current liabilities	10,000	Debtors	5,333
Long-term liabilities	20,000	Other current assets	10,667
Equity	50,000	Fixed assets	64,000
	<u>80,000</u>		<u>80,000</u>

Illu.28 : Fill the sample balance sheet of X Engineering company from the following particulars when its sales are Rs.16,00,000.

Net worth to sales = 2.3 times.

Net worth to current liabilities = 42%

Net worth to total liabilities = 75%

Current ratio = 2.9 times.

Closing stock to sales = 4.5 times

Average collection period = 64 days.

Sample Balance Sheet

Liabilities	Rs.	Assets	Rs.
Net worth	?	Fixed assets	?
Long-term liabilities	?	Cash	?
Current Liabilities	?	Stock	?
		Debtors	?
	<u> </u>		<u> </u>
	<u> </u>		<u> </u>

Calculations are to be nearest to the rupee.

Solution :

$$2.3 = \frac{\text{Sales}}{\text{Net worth}}; 2.3 = \frac{16,00,000}{\text{Net worth}}$$

$$2.3 \text{ Net worth} = 16,00,000 = \text{Net worth} = \frac{16,00,000}{2.3} = \text{Rs.}6,95,652$$

$$42\% = \frac{\text{Current Liabilities}}{\text{Networth}}; 42\% = \frac{\text{Current Liabilities}}{6,95,652}$$

$$\frac{42}{100} = \frac{\text{Current Liabilities}}{6,95,652} = 100 \text{ Current Liabilities} = 42 \times 6,95,652$$

$$\text{Current Liabilities} = \frac{42 \times 6,95,652}{100} = \text{Rs.} 2,92,174$$

Calculation of Long-term Liabilities :

$$\text{Networth to total liabilities} = 75\%$$

$$\frac{75}{100} = \frac{\text{Total Liabilities}}{\text{Net worth}}; \frac{75}{100} = \frac{\text{Total Liabilities}}{6,95,652}$$

$$100 \text{ Total Liabilities} = 75 \times 6,95,652$$

$$\text{Total Liabilities} = \frac{75 \times 6,95,652}{100} = \text{Rs.} 5,21,739$$

$$\text{Long-term Liabilities} = \text{Total Liabilities} - \text{Current Liabilities}$$

$$5,21,739 - 2,92,174 = \text{Rs.} 2,29,565$$

$$2.9 = \frac{\text{Current Assets}}{\text{Current Liabilities}}; 2.9 = \frac{\text{Current Assets}}{2,92,174}$$

$$2.9 \times 2,92,174 = \text{Current assets}; \text{Current assets} = \text{Rs.} 8,47,305$$

$$4.5 = \frac{\text{Sales}}{\text{Stock}}; 4.5 = \frac{16,00,000}{\text{Stock}}$$

$$4.5 \text{ Stock} = 16,00,000; \text{Stock} = \frac{16,00,000}{4.5} = \text{Rs.} 3,55,555$$

$$64 = \frac{\text{Debtors}}{\text{Sales}} \times 365; 64 = \frac{\text{Debtors}}{16,00,000} \times 365$$

$$\frac{64}{365} = \frac{\text{Debtors}}{16,00,000} = 365 \text{ Debtors} = 16,00,000 \times 64$$

$$\text{Debtors} = \frac{16,00,000 \times 64}{365} = \text{Rs.} 2,80,548$$

$$\begin{aligned} \text{Cash} &= \text{Current Assets} - \text{Stock} - \text{Debtors} \\ &= 8,47,305 - 3,55,555 - 2,80,548 \end{aligned}$$

$$\text{Cash} = \text{Rs.} 2,11,202$$

Balance Sheet as on

Liabilities	Rs.	Assets	Rs.
Net worth	6,95,652	Fixed assets (Balancing figure)	3,70,086
Long-term Liabilities	2,29,565	Debtors	2,80,548
Current Liabilities	2,92,174	Stock	3,55,555
		Cash	2,11,202
	12,17,391		12,17,391

Illu.29 : With the help of following ratios and further information, complete the Trading and P & L A/c and Balance Sheet:-

Gross Profit Ratio	=	25%
Net Profit Ratio	=	20%
Sales/Inventory Ratio	=	8

Fixed Assets/Current Assets	=	$\frac{3}{4}$
Fixed Assets/Total Capital	=	$\frac{3}{2}$
Capital/Total outside liabilities	=	$\frac{2}{5}$
Fixed Assets	=	Rs.15,00,000
Closing Stock	=	Rs.2,00,000

Trading and P & L A/c

	Rs.		Rs.
To Cost of sales		By Sales	.....
To Gross profit			
			
			
To Expenses		By Gross profit	.....
To Net profit			
			
			

Balance Sheet

	Rs.	Rs.		Rs.	Rs.
Capital			Fixed Assets		
Balance			Current Assets		
Add : N.P.			Stock	.....	
			Other current Assets	.....	
Other liabilities					
					
					

Solution :

Calculation of Sales :

$$8 = \frac{\text{Sales}}{\text{Inventory}} = 8 = \frac{\text{Sales}}{2,00,000}$$

$$8 \times 2,00,000 = \text{Sales};$$

$$\text{Sales} = \text{Rs.}16,00,000$$

Calculation of Gross Profit :

$$\text{Gross Profit} = 25\% \text{ on sales} = 16,00,000 \times \frac{25}{100} = 4,00,000$$

Calculation of Cost of goods sold :

$$\text{Cost of goods sold} = \text{Sales} - \text{G.P.} = 16,00,000 - 4,00,000 = 12,00,000.$$

Calculation of Net Profit : 20% on Sales

$$\text{Net Profit} = 16,00,000 \times \frac{20}{100} = 3,20,000$$

Calculation of Current Assets :

$$\frac{3}{4} = \frac{\text{Fixed Assets}}{\text{Current Assets}}; = \frac{3}{4} = \frac{15,00,000}{\text{Current Assets}}$$

$$3 \text{ Current Assets} = 60,00,000$$

$$\text{Current Assets} = \frac{60,00,000}{3} = 20,00,000.$$

Calculation of Total Capital :

$$\frac{3}{2} = \frac{\text{Fixed Assets}}{\text{Total Capital}}; = \frac{3}{2} = \frac{15,00,000}{\text{Total Capital}}$$

$$3 \text{ Total Capital} = 30,00,000$$

$$\text{Total Capital} = \frac{30,00,000}{3} = 10,00,000.$$

Calculation of Outsiders liability :

$$\frac{2}{5} = \frac{\text{Capital}}{\text{Outsiders Liability}}; = \frac{2}{5} = \frac{10,00,000}{\text{Outsiders Liability}}$$

$$2 \text{ Outsiders Liability} = 50,00,000$$

$$\text{Outsiders Liability} = \frac{50,00,000}{2} = 25,00,000.$$

Dr.	Trading and Profit and Loss a/c				Cr.
	Rs.			Rs.	
To Cost of sales	12,00,000		By Sales	16,00,000	
To Gross Profit	4,00,000				
	16,00,000			16,00,000	
To Expenses (B.F.)	80,000		By Gross Profit	4,00,000	
To Net Profit	3,20,000				
	4,00,000			4,00,000	

Balance Sheet as on.....

		Rs.			Rs.
Capital :			Fixed Assets		15,00,000
Balance	6,80,000		Current Assets :		
Add : net profit	3,20,000		Stock	2,00,000	
		10,00,000	Other current	18,00,000	
Others		25,00,000	assets		20,00,000
(Outsiders liability)		35,00,000			35,00,000