11. RATIO ANALYSIS

NO. OF PROBLEMS IN 39e OF CA INTER: CLASSROOM - 19, ASSIGNMENT - 20.

NO. OF PROBLEMS IN 40e OF CA INTER: CLASSROOM - 15, ASSIGNMENT - 16.

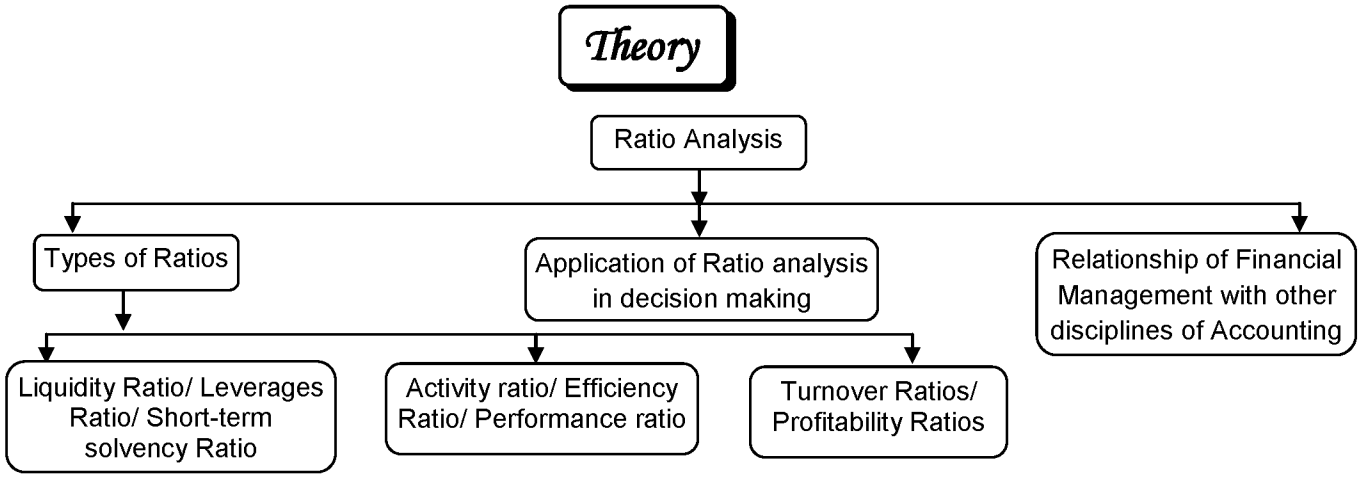
NO. OF PROBLEMS IN 41e OF CA INTER: CLASSROOM - 15, ASSIGNMENT - 16.

MODEL WISE ANALYSIS OF PAST EXAM PAPERS OF IPCC & CA INTER

No.	MODEL NAME	N-05	M-06	N-06 TO M-09	N-09	M-10	N-10	M-11	N-11	M-12	N-12	M-13	N-13	M-14	N-14 TO N-17	M-18 (O)	M-18 (N)	N-18 (O)	N-18 (N)
1.	PREPARATION OF BALANCE SHEET	12	-	-	-	15	-	-	-	-	8	-	8	5	8		-	-	-
2.	CALCULATION OF RATIOS	-	12	-	2	-	5	-	8	-	-	5	-	-	-		5	5	5

SIGNIFICANCE OF EACH PROBLEM COVERED IN THIS MATERIAL

Problem No. in this material	Problem No. in NEW SM	Problem No. in OLD SM	Problem No. in OLD PM	RTP	MTP	Previous Exams	Remarks
CR 1	PQ-1	ILL-4	-	-	-	-	
CR 2	PQ-5	ILL-9	-	-	-	-	
CR 3	ILL-1	ILL-1	-	-	-	-	
CR 4	PQ-4	ILL-7	-	-	-	-	
CR 5	ILL-5	-	-	-	-	-	
CR 6	-	-	-	-	-	N18 (N) - 5M	
CR 7	-	-	-	-	N18 (N&O)	M17 - 8M	
CR 8	ILL-2	ILL-2	-	-	-	M18 (O) - 5M	
CR 9	ILL-3	ILL-3	-	-	-	-	
CR 10	PQ-2	ILL-5	-	-	-	-	
CR 11	PQ-3	ILL-6	-	-	-	-	
CR 12	ILL-4	-	-	-	-	-	
CR 13	-	-	-	N17	-	-	
CR 14	-	-	-	-	-	N18 (O) - 5M	
CR 15	-	-	-	-	-	N05	
ASG 1	-	-	-	N16, N18 (N&O)	-	-	
ASG 2	-	-	-	-	-	-	
ASG 3	-	-	1	M17	N18 (N&O)	N17 - 8M	
ASG 4	-	-	6	-	-	-	
ASG 5	-	-	-	-	-	M10	
ASG 6	-	-	-	-	-	-	
ASG 7	-	-	-	M18 (N&O)	M18 (N)	-	
ASG 8	-	-	-	-	-	-	
ASG 9	-	-	-	-	-	-	
ASG 10	-	-	-	-	-	M16	
ASG 11	-	-	7	-	-	N10	
ASG 12	-	-	-	-	-	-	
ASG 13	-	-	5	-	-	-	
ASG 14	-	-	-	-	-	-	
ASG 15	-	-	-	-	M14	-	
ASG 16	-	-	-	-	-	-	



Introduction:

The basis for financial analysis, planning and decision making is financial statements which mainly consist of Balance Sheet and Profit and Loss Account. The profit & loss account shows the operating activities of the concern and the balance sheet depicts the balance value of the acquired assets and of liabilities at a particular point of time.

However, the above statements do not disclose all of the necessary and relevant information. For the purpose of obtaining the material and relevant information necessary for ascertaining the financial strengths and weaknesses of an enterprise, it is necessary to analyse the data depicted in the financial statement.

The financial manager has certain analytical tools which help in financial analysis and planning. The main tools are Ratio Analysis and Cash Flow Analysis. We will first discuss the Ratio Analysis.

Definitions:

Ratio: A ratio is defined as "the indicated quotient of two mathematical expressions and as the relationship between two or more things." Here ratio means financial ratio or accounting ratio which is a mathematical expression of the relationship between accounting figures.

Ratio Analysis: The term financial ratio can be explained by defining how it is calculated and what the objective of this calculation is?

a) Calculation Basis

- **i)** A relationship expressed in mathematical terms;
- **ii)** Between two individual figures or group of figures;
- **iii)** Connected with each other in some logical manner; and
- **iv)** Selected from financial statements of the concern

b) Objective for financial ratios is that all stakeholders (owners, investors, lenders, employees etc.) can draw conclusions about the

- **i)** Performance (past, present and future);
- **ii)** Strengths & weaknesses of a firm; and
- **iii)** Can take decisions in relation to the firm.

Ratio analysis is based on the fact that a single accounting figure by itself may not communicate any meaningful information but when expressed as a relative to some other figure, it may definitely provide some significant information.

Ratio analysis is not just comparing different numbers from the balance sheet, income statement, and cash flow statement. It is comparing the number against previous years, other companies, the industry, or even the economy in general for the purpose of financial analysis.

Sources of Financial Data for Analysis:

The sources of information for financial statement analysis are:

i) Annual Reports

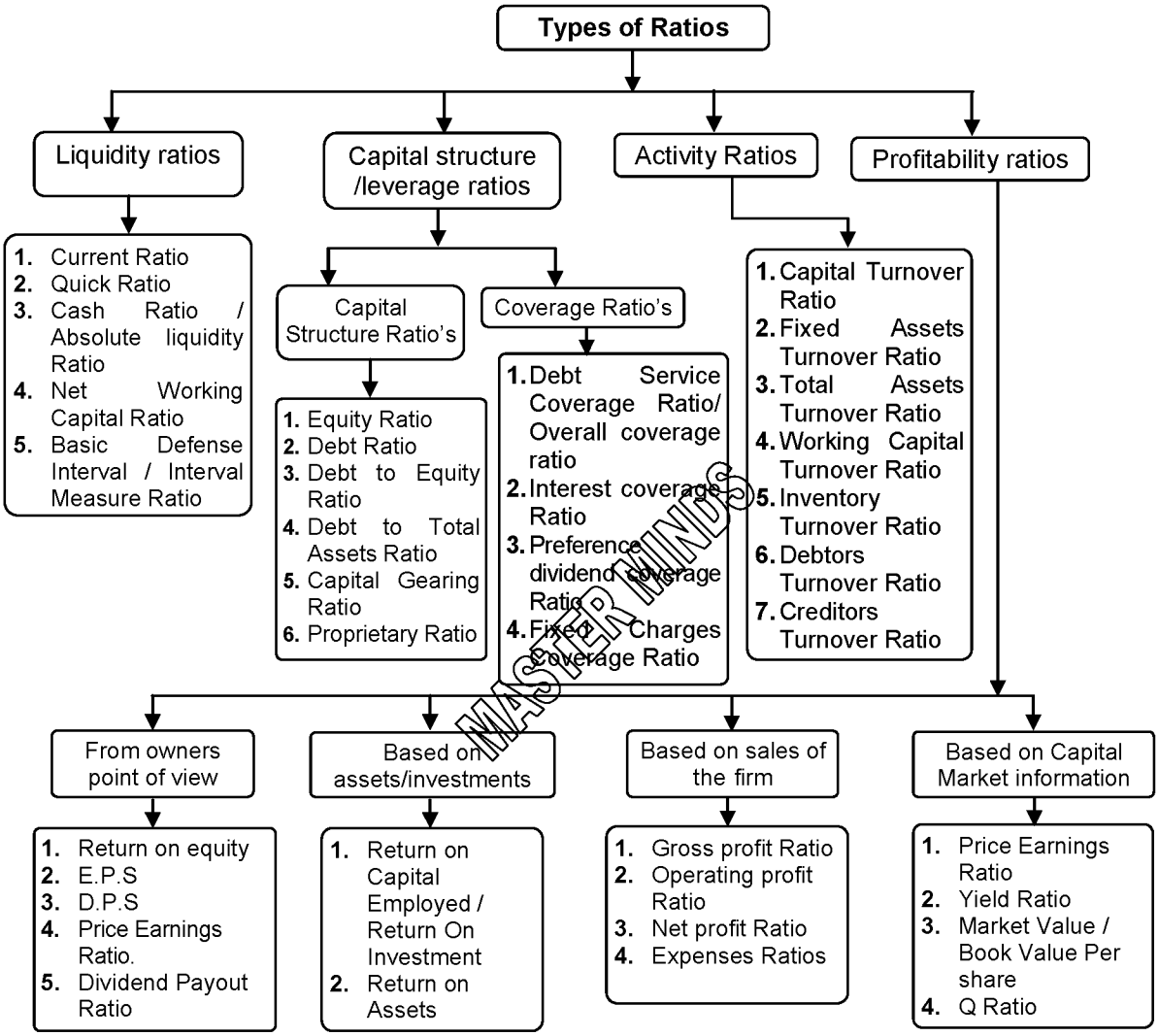
ii) Interim financial statements

iii) Notes to Accounts

iv) Statement of cash flows

v) Business periodicals.

vi) Credit and investment advisory services



1. Liquidity Ratios

The terms 'liquidity' and 'short-term solvency' are used synonymously.

Liquidity or short-term solvency means ability of the business to pay its short-term liabilities. Inability to pay-off short-term liabilities affects its credibility as well as its credit rating. Continuous default on the part of the business leads to commercial bankruptcy. Eventually such commercial bankruptcy may lead to its sickness and dissolution. Short-term lenders and creditors of a business are very much interested to know its state of liquidity because of their financial stake. Both lack of sufficient liquidity and excess liquidity is for the organization.

a) Current Ratio: The Current Ratio is one of the best known measures of short term solvency. It is the most common measure of short-term liquidity.

The main question this ratio addresses is: "Does your business have enough current assets to meet the payment schedule of its current debts with a margin of safety for possible losses in current assets?"

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilitie s}} \text{ (in a:b format)}$$

Where,

Current Assets = Inventories + Sundry Debtors + Cash and Bank Balances + Receivables/ Accruals + Loans and Advances + Disposable Investments + Any other current assets.

Current Liabilities = Creditors for goods and services + Short-term Loans + Bank Overdraft + Cash Credit + Outstanding Expenses + Provision for Taxation + Proposed Dividend + Unclaimed Dividend + Any other current liabilities.

The main question this ratio addresses is: "Does your business have enough current assets to meet the payment schedule of its current debts with a margin of safety for possible losses in current assets?"

Interpretation: A generally acceptable current ratio is 2 to 1. But whether or not a specific ratio is satisfactory depends on the nature of the business and the characteristics of its current assets and liabilities.

b) **Quick Ratios:** The Quick Ratio is sometimes called the "acid-test" ratio and is one of the best measures of liquidity.

$$\text{Quick Ratio (or) Acid Test Ratio} = \frac{\text{Quick Assets}}{\text{Current Liabilitie s}}$$

Where,

Quick Assets = Current Assets - Inventories

Current Liabilities = As mentioned under Current Ratio.

The Quick Ratio is a much more conservative measure of short-term liquidity than the Current Ratio. It helps answer the question: "If all sales revenues should disappear, could my business meet its current obligations with the readily convertible quick funds on hand?"

Quick Assets consist of only cash and near cash assets. Inventories are deducted from current assets on the belief that these are not 'near cash assets' and also because in times of financial difficulty inventory may be saleable only at liquidation value. But in a seller's market inventories are also near cash assets.

Interpretation: An acid-test of 1:1 is considered satisfactory unless the majority of "quick assets" are in accounts receivable, and the pattern of accounts receivable collection lags behind the schedule for paying current liabilities.

c) **Cash Ratio/ Absolute Liquidity Ratio:** The cash ratio measures the absolute liquidity of the business. This ratio considers only the absolute liquidity available with the firm. This ratio is calculated as:

$$\textbf{Cash Ratio: } \frac{\text{Cash and Bank Balances} + \text{Marketable Securities}}{\text{Current Liabilitie s}} \text{ (Or)}$$

$$\frac{\text{Cash and Bank Balances} + \text{Current Investment s}}{\text{Current Liabilitie s}}$$

Interpretation: The Absolute Liquidity Ratio only tests short-term liquidity in terms of cash and marketable securities/ current investments.

d) **Basic Defense Interval/ Interval Measure:**

$$\text{Basic Defense Interval} = \frac{\text{Cash and Bank balances} + \text{Marketable Securities}}{\text{Operating Expenses} \div \text{No. of days (say 360)}} \text{ Or,}$$

$$\text{Interval Measure} = \frac{\text{Current Assets - Inventories}}{\text{Daily Operating Expenses}}$$

$$\text{Daily Operating Expenses} = \frac{\text{Cost of Goods Sold + Selling Administration and other General expenses - Depreciation and other non-cash expenditure}}{\text{No. of days in a year}}$$

Interpretation: If for some reason all the company's revenues were to suddenly cease, the Basic Defense Interval would help determine the number of days the company can cover its cash expenses without the aid of additional financing.

e) Net Working Capital Ratio: Net working capital is more a measure of cash flow than a ratio. The result of this calculation must be a positive number. It is calculated as shown below:

Net Working Capital Ratio = Current Assets - Current Liabilities (excluding short term borrowing)

Interpretation: Bankers look at Net Working Capital over time to determine a company's ability to weather financial crises. Loans are often tied to minimum working capital requirements.

2. Long-term Solvency Ratio /Leverage Ratio:

The leverage ratios may be defined as those financial ratios which measure the long term stability and structure of the firm. These ratios indicate the mix of funds provided by owners and lenders and assure the lenders of the long term funds with regard to:

i) Periodic payment of interest during the period of the loan and

ii) Repayment of principal amount on maturity.

Capital Structure Ratios:

These ratios provide an insight into the financing techniques used by a business and focus, as a consequence, on the long-term solvency position.

From the balance sheet one can get only the absolute fund employed and its sources, but only capital structure ratios show the relative weight of different sources.

Various capital structure ratios are:

a) Equity Ratio:

$$\text{Equity Ratio: } \frac{\text{Shareholder's Equity}}{\text{Capital Employed}}$$

This ratio indicates proportion of owners' fund to total fund invested in the business. Traditionally, it is believed that higher the proportion of owners' fund lower is the degree of risk.

b) Debt Ratio:

$$\text{Debt Ratio: } \frac{\text{Total outside liabilities}}{\text{Total Debt} + \text{Net worth}} \text{ (or)}$$

$$\text{Debt Ratio: } \frac{\text{Total Debt}}{\text{Net Assets}}$$

Total debt or total outside liabilities includes short and long term borrowings from financial institutions, debentures/bonds, deferred payment arrangements for buying capital equipments, bank borrowings, public deposits and any other interest bearing loan.

Interpretation: This ratio is used to analyse the long-term solvency of a firm.

c) **Debt to Equity Ratio:**

$$\text{Debt to Equity Ratio} = \frac{\text{Total Outside Liabilities}}{\text{Shareholder's Equity}} = \frac{\text{Total Debt *}}{\text{Shareholder's Equity}} \text{ (or)}$$

$$= \frac{\text{Long-term Debt **}}{\text{Shareholder's Equity}}$$

*Not merely long-term debt.

** Sometimes only interest-bearing, long term debt is used instead of total liabilities (exclusive of current liabilities)

The shareholders' equity is equity and preference share capital + post accumulated profits (excluding fictitious assets etc.).

Interpretation: A high debt to equities ratio here means less protection for creditors, a low ratio, on the other hand, indicates a wider safety cushion (i.e., creditors feel the owner's funds can help absorb possible losses of income and capital). This ratio indicates the proportion of debt fund in relation to equity. This ratio is very often referred in capital structure decision as well as in the legislation dealing with the capital structure decisions (i.e. issue of shares and debentures). Lenders are also very keen to know this ratio since it shows relative weights of debt and equity. Debt equity ratio is the indicator of firm's financial leverage.

d) **Debt to Total Assets Ratio:** This ratio measures the proportion of total assets financed with debt and, therefore, the extent of financial leverage.

$$\text{Debt to Total Assets Ratio} = \frac{\text{Total Outside Liabilities}}{\text{Total Assets}} \text{ (or) } \frac{\text{Total Debt}}{\text{Total Assets}}$$

e) **Capital Gearing Ratio:** In addition to debt-equity ratio, sometimes capital gearing ratio is also calculated to show the proportion of fixed interest (dividend) bearing capital to funds belonging to equity shareholders i.e. equity funds or net worth.

$$\text{Capital Gearing Ratio} = \frac{(\text{Preference Share Capital} + \text{Debentures} + \text{Other Borrowed funds})}{(\text{Equity Share Capital} + \text{Reserves \& Surplus} - \text{Losses})}$$

f) **Proprietary Ratio:** Proprietary fund includes Equity Share Capital + Preference Share Capital + Reserve & Surplus. Total assets exclude fictitious assets and losses.

$$\text{Proprietary Ratio} = \frac{\text{Proprietary Fund}}{\text{Total Assets}}$$

Interpretation: It indicates the proportion of total assets financed by shareholders.

Coverage Ratios: The coverage ratios measure the firm's ability to service the fixed liabilities. These ratios establish the relationship between fixed claims and what is normally available out of which these claims are to be paid. The fixed claims consist of:

i) Interest on loans

ii) Preference dividend

iii) Amortisation of principal or repayment of the instalment of loans or redemption of preference capital on maturity.

The following are important coverage ratios:

a) **Debt Service Coverage Ratio (DSCR):** Lenders are interested in debt service coverage to judge the firm's ability to pay off current interest and instalments.

$$\text{Debt Service Coverage Ratio} = \frac{\text{Earnings available for debt services *}}{\text{Interest} + \text{Installments}}$$

* Earnings available for debt services = Net profit (Earning after taxes) + Non-cash operating expenses like depreciation and other amortizations + Interest +other adjustments like loss on sale of Fixed Asset etc.

Note: Fund from operation (or cash from operation) before interest and taxes also can be considered as per the requirement.

Interpretation: Normally DSCR of 1.5 to 2 is satisfactory. You may note that sometimes in both numerator and denominator lease rentals may be added.

b) Interest Coverage Ratio: This ratio also known as "times interest earned ratio" indicates the firm's ability to meet interest (and other fixed-charges) obligations. This ratio is computed as:

$$\text{Interest Coverage Ratio} = \frac{\text{Earnings before Interest and Taxes (EBIT)}}{\text{Interest}}$$

Interpretation: Earnings before interest and taxes are used in the numerator of this ratio because the ability to pay interest is not affected by tax burden as interest on debt funds is deductible expense. This ratio indicates the extent to which earnings may fall without causing any embarrassment to the firm regarding the payment of interest charges. A high interest coverage ratio means that an enterprise can easily meet its interest obligations even if earnings before interest and taxes suffer a considerable decline. A lower ratio indicates excessive use of debt or inefficient operations.

c) Preference Dividend Coverage Ratio: This ratio measures the ability of a firm to pay dividend on preference shares which carry a stated rate of return. This ratio is computed as:

$$\text{Preference Dividend Coverage Ratio} = \frac{\text{Net Profit/Earning after Taxes (EAT)}}{\text{Preference dividend liability}}$$

Earnings after tax is considered because unlike debt on which interest is charged on the profit of the firm, the preference dividend is treated as appropriation of profit.

Interpretation: This ratio indicates margin of safety available to the preference shareholders. A higher ratio is desirable from preference shareholders point of view. Similarly, Equity Dividend coverage ratio can also be calculated taking (EAT - Pref. Dividend) and equity fund figures into consideration.

d) Fixed Charges Coverage Ratio: This ratio shows how many times the cash flow before interest and taxes covers all fixed financing charges. This ratio is more than 1 is considered as safe.

$$\text{Fixed Charges Coverage Ratio} = \frac{\text{EBIT} + \text{Depreciation}}{\text{Interest} + \frac{\text{Repayment of loan}}{1 - \text{Tax Rate}}}$$

3. Activity Ratio/ Efficiency Ratio/ Performance Ratio/ Turnover Ratio:

These ratios are employed to evaluate the efficiency with which the firm manages and utilises its assets. For this reason, they are often called 'Asset management ratios'. These ratios usually indicate the frequency of sales with respect to its assets. These assets may be capital assets or working capital or average inventory.

These ratios are usually calculated with reference to sales/cost of goods sold and are expressed in terms of rate or times.

Asset Turnover Ratios: Based on different concepts of assets employed, it can be expressed as follows:

a) Total Asset Turnover Ratio: This ratio measures the efficiency with which the firm uses its total assets. This ratio is computed as:

$$\text{Total Asset Turnover Ratio} = \frac{\text{Sales/Cost of Goods Sold}}{\text{Total Assets}}$$

b) **Fixed Assets Turnover Ratio:** It measures the efficiency with which the firm uses its fixed assets.

$$\text{Fixed Assets Turnover Ratio} = \frac{\text{Sales / Cost of Goods Sold}}{\text{Fixed Assets}}$$

Interpretation: A high fixed assets turnover ratio indicates efficient utilisation of fixed assets in generating sales. A firm whose plant and machinery are old may show a higher fixed assets turnover ratio than the firm which has purchased them recently.

c) **Capital Turnover Ratio/ Net Asset Turnover Ratio:**

$$\text{Capital Turnover Ratio} = \frac{\text{Sales / Cost of Goods Sold}}{\text{Net Assets}}$$

Interpretation: This ratio indicates the firm's ability of generating sales/ Cost of Goods Sold per rupee of long term investment. The higher the ratio, the more efficient is the utilisation of owner's and long-term creditors' funds. Net Assets includes Net Fixed Assets and Net Current Assets (Current Assets - Current Liabilities). Since Net Assets equals to capital employed it is also known as Capital Turnover Ratio.

d) **Current Assets Turnover Ratio:** It measures the efficiency using the current assets by the firm.

$$\text{Current Assets Turnover Ratio} = \frac{\text{Sales / Cost of Goods Sold}}{\text{Current Assets}}$$

e) **Working Capital Turnover Ratio:**

$$\text{Working Capital Turnover Ratio} = \frac{\text{Sales / Cost of Goods Sold}}{\text{Working Capital}}$$

Interpretation: Working Capital Turnover is further segregated into Inventory Turnover, Debtors Turnover, and Creditors Turnover.

Note: Average of Total Assets/ Fixed Assets/ Current Assets/ Net Assets/ Working Capital also can be taken.

i) **Inventory/ Stock Turnover Ratio:** This ratio also known as stock turnover ratio establishes the relationship between the cost of goods sold during the year and average inventory held during the year. It measures the efficiency with which a firm utilizes or manages its inventory. It is calculated as follows:

$$\text{Inventory Turnover Ratio} = \frac{\text{Cost of Goods Sold / Sales}}{\text{Average Inventory *}}$$

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

In the case of inventory of raw material the inventory turnover ratio is calculated using the following formula:

$$\text{Raw Material Inventory Turnover Ratio} = \frac{\text{Raw Material Consumed}}{\text{Average Raw Material Stock}}$$

Interpretation: This ratio indicates that how fast inventory is used or sold. A high ratio is good from the view point of liquidity and vice versa. A low ratio would indicate that inventory is not used/ sold/ lost and stays in a shelf or in the warehouse for a long time.

ii) **Receivables (Debtors) Turnover Ratio:** In case firm sells goods on credit, the realization of sales revenue is delayed and the receivables are created. The cash is realised from these receivables later on.

The speed with which these receivables are collected affects the liquidity position of the firm. The debtor's turnover ratio throws light on the collection and credit policies of the

firm. It measures the efficiency with which management is managing its accounts receivables. It is calculated as follows:

$$\text{Receivable (Debtors) Turnover Ratio} = \frac{\text{Credit Sales}}{\text{Average Accounts Receivable}}$$

Receivables (Debtors') Velocity: Debtors' turnover ratio indicates the average collection period. However, the average collection period can be directly calculated as follows:

$$\text{Receivable Velocity/ Average Collection Period} = \frac{\text{Average Accounts Receivable}}{\text{Average Daily Credit Sales}} \text{ (or)}$$

$$= \frac{\text{12 months / 52 weeks / 360 days}}{\text{Receivable Turnover Ratio}}$$

Interpretation: The average collection period measures the average number of days it takes to collect an account receivable. This ratio is also referred to as the number of days of receivable and the number of day's sales in receivables.

iii) **Payables Turnover Ratio:** This ratio is calculated on the same lines as receivable turnover ratio is calculated. This ratio shows the velocity of payables payment by the firm. It is calculated as follows:

$$\text{Payables Turnover Ratio} = \frac{\text{Annual Net Credit Purchases}}{\text{Average Accounts Payables}}$$

A low creditor's turnover ratio reflects liberal credit terms granted by supplies. While a high ratio shows that accounts are settled rapidly.

Payable Velocity/ Average payment period can be calculated using:

$$= \frac{\text{Average Accounts Payables}}{\text{Average Daily Credit Purchases}} \text{ (or)}$$

$$= \frac{\text{12 months / 52 weeks / 360 days}}{\text{Payable Turnover Ratio}}$$

In determining the credit policy, debtor's turnover and average collection period provide a unique guideline.

Interpretation: The firm can compare what credit period it receives from the suppliers and what it offers to the customers. Also it can compare the average credit period offered to the customers in the industry to which it belongs.

The above three ratios i.e. Inventory Turnover Ratio/ Receivables Turnover Ratio is also relevant to examine liquidity of an organization.

Notes for calculating Ratios:

a) Only selling & distribution expenses differentiate Cost of Goods Sold (COGS) and Cost of Sales (COS) in absence of it, COGS will be equal to sales.

b) We can consider Cost of Goods Sold / Cost of Sales to calculate turnover ratios eliminating profit part.

c) Average of Total Assets/ Fixed Assets/ Current Assets/ Net Assets/ Working Capita/ also can be taken in calculating the above ratios. Infact when average figures of total assets, net assets, capital employed, shareholders' fund etc. are available, it may be preferred to calculate ratios by using this information.

d) Ratios shall be calculated based on requirement and availability and may deviate from original formulae.

4. Profitability Ratios:

The profitability ratios measure the profitability or the operational efficiency of the firm. These ratios reflect the final results of business operations. They are some of the most closely watched and widely quoted ratios. Management attempts to maximize these ratios to maximize firm value.

The results of the firm can be evaluated in terms of its earnings with reference to a given level of assets or sales or owner's interest etc. Therefore, the profitability ratios are broadly classified in four categories:

a) Profitability Ratios based on Sales:

i) Gross Profit (G.P) Ratio/ Gross Profit Margin: It measures the percentage of each sale in rupees remaining after payment for the goods sold.

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

Interpretation: Gross profit margin depends on the relationship between price/ sales, volume and costs. A high Gross Profit Margin is a favourable sign of good management.

ii) Net Profit Ratio/ Net Profit Margin: It measures the relationship between net profit and sales of the business. Depending on the concept of net profit it can be calculated as:

$$\text{Net Profit Ratio} = \frac{\text{Net Profit}}{\text{Sales}} \times 100 \textbf{ (or) } \frac{\text{Earnings After Tax (EAT)}}{\text{Sales}} \times 100$$

Interpretation: Net Profit ratio finds the proportion of revenue that finds its way into profits. A high net profit ratio will ensure positive returns of the business.

iii) Operating Profit Ratio: Operating profit ratio is also calculated to evaluate operating performance of business.

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

$$= \frac{\text{Earnings Before Interest and Taxes (EBIT)}}{\text{Sales}} \times 100$$

Where, Operating Profit = Sales - Cost of Goods Sold (COGS) - Expenses

Interpretation: Operating profit ratio measures the percentage of each sale in rupees that remains after the payment of all costs and expenses except for interest and taxes. This ratio is followed closely by analysts because it focuses on operating results. Operating profit is often referred to as earnings before interest and taxes or EBIT.

iv) Expenses Ratio: Based on different concepts of expenses it can be expresses in different variants as below:

$$\text{Cost of Goods Sold (COGS) Ratio} = \frac{\text{COGS}}{\text{Sales}} \times 100$$

$$\text{Operating Expenses Ratio} = \frac{\text{Admin. Exp} + \text{Selling and Distribution OH}}{\text{Sales}} \times 100$$

$$\text{Operating Ratio} = \frac{\text{COGS} + \text{Operating Expenses}}{\text{Sales}} \times 100$$

$$\text{Financial Expenses Ratio} = \frac{\text{Financial Expenses}^*}{\text{Sales}} \times 100$$

* It excludes loss due to theft, taxes, goods destroyed by fire.

Administration Expenses Ratio, Selling & Distribution Expenses Ratio also can be calculated in similar ways.

b) Profitability Ratios related to Overall Return on Assets/ Investments:

i) Return on Investment (ROI): ROI is the most important ratio of all. It is the percentage of return on funds invested in the business by its owners. In short, this ratio tells the owner whether or not all the effort put into the business has been worthwhile. It compares earnings/ returns/ profit with the investment in the company. The ROI is calculated as follows:

$$\text{Return on Investment} = \frac{\text{Return/Profit/Earnings}}{\text{Investment}} \times 100$$

$$= \frac{\text{Return/Profit/Earnings}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Investment}}$$

$$\frac{\text{Return/Profit/Earnings}}{\text{Sales}} = \text{Profitability Ratio}$$

$$\text{Investment Turnover Ratio} = \frac{\text{Sales}}{\text{Investments}}$$

So, ROI = Profitability Ratio × Investment Turnover Ratio. ROI can be improved either by improving Profitability Ratio or Investment Turnover Ratio or by both.

The concept of investment varies and accordingly there are three broad categories of ROI i.e.

- Return on Assets (ROA),
- Return on Capital Employed (ROCE) and
- Return on Equity (ROE).

We should keep in mind that investment may be Total Assets or Net Assets. Further funds employed in net assets are also known as capital employed which is nothing but Net worth plus Debt. Where Net worth is equity shareholders' fund. Similarly the concept of returns/ earnings/ profits may vary as per the requirement and availability of information.

Return on Assets (ROA): The profitability ratio is measured in terms of relationship between net profits and assets employed to earn that profit. This ratio measures the profitability of the firm in terms of assets employed in the firm. Based on various concepts of net profit (return) and assets the ROA may be measured as follows:

$$\text{ROA} = \frac{\text{Net Profit after Taxes}}{\text{Average Total Assets}} \text{ or } \frac{\text{Net Profit after Taxes}}{\text{Average Tangible Assets}} \text{ or } \frac{\text{Net Profit after Taxes}}{\text{Average Fixed Assets}}$$

Here Net Profit is exclusive of Interest. As Assets are also financed by lenders, hence ROA can be calculated as:

$$= \frac{\text{Net Profit after taxes} + \text{Interest}}{\text{Average Total Assets/ Average Tangible Assets/ Average Fixed Assets}} \text{ (or)}$$

$$\frac{\text{EBIT}\ (1-t)}{\text{Average Total Assets}} \text{ {also known as Return on Total Assets (ROTA)}}$$

$$\frac{\text{EBIT}\ (1-t)}{\text{Average Net Assets}} \text{ {also known as Return on Net Assets (RONA)}}$$

Return on Capital Employed (ROCE): It is another variation of ROI.

The ROCE is calculated as follows:

$$\text{ROCE (Pre - tax)} = \frac{\text{Earnings before Interest and Taxes (EBIT)}}{\text{Capital Employed}} \times 100$$

$$\text{ROCE (Post - tax)} = \frac{\text{EBIT } (1-t)}{\text{Capital Employed}} \times 100$$

$$\text{Sometime it is calculated as} = \frac{\text{Net Profit after Taxes (PAT / EAT)} + \text{Interest}}{\text{Capital Employed}} \times 100$$

Where, Capital Employed = Total Assets - Current Liabilities, or

= Fixed Assets + Working Capital

ROCE should always be higher than the rate at which the company borrows.

Intangible assets (assets which have no physical existence like goodwill, patents and trade-marks) should be included in the capital employed. But no fictitious asset should be included within capital employed. If information is available then average capital employed shall be taken.

Return on Equity (ROE): Return on Equity measures the profitability of equity funds invested in the firm. This ratio reveals how profitably of the owners' funds have been utilised by the firm. It also measures the percentage return generated to equity shareholders. This ratio is computed as:

$$\textbf{ROE} = \frac{\text{Net Profit after Taxes} - \text{Preference dividend (if any)}}{\text{Net Worth} \,/\, \text{Equity Shareholder's Fund}} \times 100$$

Return on Equity is one of the most important indicators of a firm's profitability and potential growth. Companies that boast a high return on equity with little or no debt are able to grow without large capital expenditures, allowing the owners of the business to withdraw cash and reinvest it elsewhere. Many investors fail to realize, however, that two companies can have the same return on equity, yet one can be a much better business. If return on total shareholders is calculated then Net Profit after taxes (before preference dividend) shall be divided by total shareholders' fund includes preference share capital.

Return on Equity using the Du Pont Model:

A finance executive at E.I. Du Pont de Nemours and Co., of Wilmington, Delaware, created the DuPont system of financial analysis in 1919. That system is used around the world today and serves as the basis of components that make up return on equity.

There are various components in the calculation of return on equity using the traditional DuPont model- the net profit margin, asset turnover, and the equity multiplier. By examining each input individually, the sources of a company's return on equity can be discovered and compared to its competitors.

(i) **Profitability/Net Profit Margin:** The net profit margin is simply the after tax profit a company generates for each rupee of revenue. Net profit margins vary across industries, making it important to compare a potential investment against its competitors. Although the general rule-of-thumb is that a higher net profit margin is preferable, it is not uncommon for management to purposely lower the net profit margin in a bid to attract higher sales.

$$\frac{\text{Profitability}}{\text{Net Profit Margin}} = \frac{\text{Profit}}{\text{Net Income}} \div \frac{\text{Sales}}{\text{Revenue}}$$

Net profit margin is a safety cushion; the lower the margin, the less room for error. A business with 1% margins has no room for flawed execution. Small miscalculations on management's part could lead to tremendous losses with little or no warning.

(ii) **Investment Turnover/ Asset Turnover/ Capital Turnover:** The asset turnover ratio is a measure of how effectively a company converts its assets into sales. It is calculated as follows:

Investment Turnover/ Asset Turnover/ Capital Turnover = Sales/ Revenue ÷ Investment/ Assets/ Capital

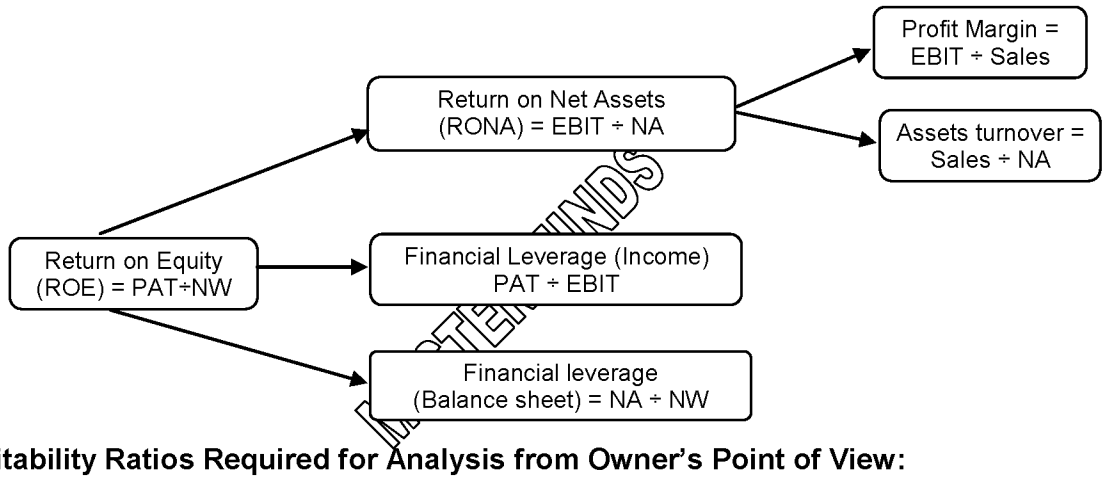
The asset turnover ratio tends to be inversely related to the net profit margin; i.e., the higher the net profit margin, the lower the asset turnover. The result is that the investor can compare companies using different models (low-profit, high-volume vs. high-profit, low-volume) and determine which one is the more attractive business.

(iii) Equity Multiplier: It is possible for a company with terrible sales and margins to take on excessive debt and artificially increase its return on equity. The equity multiplier, a measure of financial leverage, allows the investor to see what portion of the return on equity is the result of debt. The equity multiplier is calculated as follows:

Equity Multiplier =Investment/ Assets/ Capital ÷ Shareholders' Equity

Calculation of Return on Equity: To calculate the return on equity using the DuPont model, simply multiply the three components (net profit margin, asset turnover, and equity multiplier.)

Return on Equity = (Profitability/ Net profit margin) (Investment Turnover/ Asset Turnover/Capital Turnover (Equity Multiplier)



c) Profitability Ratios Required for Analysis from Owner's Point of View:

i) Earnings Per Share (EPS): The profitability of a firm from the point of view of ordinary shareholders can be measured in terms of number of equity shares. This is known as Earnings per share. It is calculated as follows:

$$\text{Earnings Per Share (EPS)} = \frac{\text{Net Profit available to Equity Shareholders}}{\text{Number of Equity shares Outstanding}}$$

ii) Dividend Per Share (DPS): Earnings per share as stated above reflects the profitability of a firm per share; it does not reflect how much profit is paid as dividend and how much is retained by the business. Dividend per share ratio indicates the amount of profit distributed to equity shareholders per share. It is calculated as:

$$\text{Dividend Per Share (DPS)} = \frac{\text{Total Dividend paid to Equity Shareholders}}{\text{Number of Equity shares Outstanding}}$$

iii) Dividend Payout Ratio (DP): This ratio measures the dividend paid in relation to net earnings. It is determined to see to how much extent earnings per share have been retained by the management for the business. It is computed as:

$$\text{Dividend Payout Ratio} = \frac{\text{Dividend per Equity Share (DPS)}}{\text{Earning Per Share (EPS)}}$$

d) Profitability Ratios related to market/ valuation/ Investors

These ratios involve measures that consider the market value of the company's shares. Frequently share prices data are punched with the accounting data to generate new set of information. These are (a) Price- Earnings Ratio, (b) Dividend Yield, (c) Market Value/ Book Value per share, (d) Q Ratio.

i) Price - Earnings Ratio (P/E Ratio): The price earnings ratio indicates the expectation of equity investors about the earnings of the firm. It relates earnings to market price and is generally taken as a summary measure of growth potential of an investment, risk characteristics, shareholders orientation, corporate image and degree of liquidity. It is calculated as

$$\text{Price-Earnings per Share (P/E Ratio)} = \frac{\text{Market Price Per Share (MPS)}}{\text{Earning Per Share (EPS)}}$$

Interpretation: It indicates the payback period to the investors or prospective investors.

ii) Dividend and Earning Yield:

$$\text{Dividend Yield} = \frac{\text{Dividend} \pm \text{Change in Share Price}}{\text{Initial Share Price}} \times 100$$

$$\text{Sometime it is calculated as } \frac{\text{Dividend per Share (DPS)}}{\text{Market Price Per Share (MPS)}} \times 100$$

Interpretation: This ratio indicates return on investment; this may be on average investment or closing investment. Dividend (%) indicates return on paid up value of shares. But yield (%) is the indicator of true return in which share capital is taken at its market value. Earning Yield also can be calculated as

$$\text{Earnings Yield} = \frac{\text{Earnings per Share (EPS)}}{\text{Market Price Per Share (MPS)}} \times 100$$

Also known as Earnings Price (EP) Ratio.

iii) Market Value /Book Value per Share (MVBV): It provides evaluation of how investors view the company's past and future performance.

$$\frac{\text{Market Value Per Share}}{\text{Book Value Per Share}} = \frac{\text{Average Share Price}}{\text{Net worth} \div \text{No. of Equity Shares}} \text{ (Or)}$$

$$\frac{\text{Closing Share Price}}{\text{Net worth} \div \text{No. of Equity Shares}}$$

Interpretation: This ratio indicates market response of the shareholders' investment. Undoubtedly, higher the ratios better is the shareholders' position in terms of return and capital gains.

iv) Q Ratio: This ratio is proposed by James Tobin, a ratio is defined as

$$\frac{\text{Market Value of Equity and Liabilities}}{\text{Estimated replacement cost of assets}}$$

Notes for calculating Ratios:

1. EBIT (Earnings Before Interest and Taxes) = PBIT (Profit Before Interest and Taxes),
   EAT (Earnings After Taxes) = PAT (Profit After Taxes),
   EBT (Earnings Before Taxes) = PBT (Profit Before Taxes)
2. In absence of preference dividend PAT can be taken as earnings available to equity shareholders.
3. If information is available then average capital employed shall be taken while calculating ROCE.

4. Ratios shall be calculated based on requirement and availability and may deviate from original formulae.
5. Numerator should be taken in correspondence with the denominator and vice-versa.

Limitations of Financial Ratios: The limitations of financial ratios are listed below:

a) **Diversified product lines:** Many businesses operate a large number of divisions in quite different industries. In such cases ratios calculated on the basis of aggregate data cannot be used for inter-firm comparisons.

b) **Financial data are badly distorted by inflation:** Historical cost values may be substantially different from true values. Such distortions of financial data are also carried in the financial ratios.

c) Seasonal factors may also influence financial data:

Illustration: A company deals in summer garments. It keeps a high inventory during October-January every year. For the rest of the year its inventory level becomes just 1/4th of the seasonal inventory level.

So liquidity ratios and inventory ratios will produce biased picture. Year end picture may not be the average picture of the business. Sometimes it is suggested to take monthly average inventory data instead of year end data to eliminate seasonal factors. But for external users it is difficult to get monthly inventory figures. (Even in some cases monthly inventory figures may not be available).

d) **To give a good shape to the popularly used financial ratios (like current ratio, debt-equity ratios, etc.):** The business may make some year-end adjustments. Such window dressing can change the character of financial ratios which would be different had there been no such change.

e) **Differences in accounting policies and accounting period:** It can make the accounting data of two firms non-comparable as also the accounting ratios.

f) **There is no standard set of ratios against which a firm's ratios can be compared:** Sometimes a firm's ratios are compared with the industry average. But if a firm desires to be above the average, then industry average becomes a low standard. On the other hand, for a below average firm, industry averages become too high a standard to achieve.

g) **It is very difficult to generalize whether a particular ratio is good or bad:** For example, a low current ratio may be said 'bad' from the point of view of low liquidity, but a high current ratio may not be 'good' as this may result from inefficient working capital management.

h) **Financial ratios are inter-related, not independent:** Viewed in isolation one ratio may highlight efficiency. But when considered as a set of ratios they may speak differently. Such interdependence among the ratios can be taken care of through multivariate analysis

Financial ratios provide clues but not conclusions. These are tools only in the hands of experts because there is no standard ready - made interpretation of financial ratios.

SUMMARY OF RATIOS

Ratio	Formulae	Comments
Liquidity Ratio:		
Current Ratio	$\frac{\text{Current Assets}}{\text{Current Liabilities}}$	A simple measure that estimates whether the business can pay short term debts. Ideal ratio is 2 : 1.
Quick Ratio	$\frac{\text{Quick Assets}}{\text{Current Liabilities}}$	It measures the ability to meet current debt immediately. Ideal ratio is 1 : 1.
Cash Ratio	$\frac{(\text{Cash and Bank balances} + \text{Marketable Securities})}{\text{Current Liabilities}}$	It measures absolute liquidity of the business.

Basic Defense Interval Ratio	$\frac{(\text{Cash and Bank balances} + \text{Marketable Securities})}{\text{Opering Expenses} \div \text{No. of days}}$	It measures the ability of the business to meet regular cash expenditures.
Net Working Capital Ratio	Current Assets - Current Liabilities	It is a measure of cash flow to determine the ability of business to survive financial crisis.
Capital Structure Ratio:		
Equity Ratio	$\frac{\text{Shareholders' Equity}}{\text{Capital Employed}}$	It indicates owner's fund in companies to total fund invested.
Debt Ratio	$\frac{\text{Total outside liabilities}}{\text{Total Debt} + \text{Net worth}}$	It is an indicator of use of outside funds.
Debt to equity Ratio	$\frac{\text{Total Outside Liabilities}}{\text{Shareholders' Equity}}$	It indicates the composition of capital structure in terms of debt and equity.
Debt to Total assets Ratio	$\frac{\text{Total Outside Liabilities}}{\text{Total Assets}}$	It measures how much of total assets is financed by the debt.
Capital Gearing Ratio	$\frac{(\text{Preference Share Capital} + \text{Debentures} + \text{Other Borrowed funds})}{(\text{Equity Share Capital} + \text{Reserves \& Surplus} - \text{Losses})}$	It shows the proportion of fixed interest bearing capital to equity shareholders' fund. It also signifies the advantage of financial leverage to the equity shareholder.
Proprietary Ratio	$\frac{\text{Proprietary Fund}}{\text{Total Assets}}$	It measures the proportion of total assets financed by shareholders.
Coverage Ratios:		
Debt Service Coverage Ratio (DSCR)	$\frac{\text{Earnings available for debt services}}{\text{Interest} + \text{Instalments}}$	It measures the ability to meet the commitment of various debt services like interest, instalment etc. Ideal ratio is 2.
Interest Coverage Ratio	$\frac{\text{EBIT}}{\text{Interest}}$	It measures the ability of the business to meet interest. Ideal ratio is > 1.
Preference Dividend Coverage Ratio	$\frac{\text{Net Profit / Earning after taxes (EAT)}}{\text{Preference dividend iability}}$	It measures the ability to pay the preference shareholders' dividend. Ideal ratio is > 1.
Fixed Charges Coverage Ratio	$\frac{\text{EBIT} + \text{Depreiation}}{\text{Interest} + \frac{\text{Re-payment of loan}}{1 - \text{tax rate}}}$	This ratio shows how many times the cash flow before interest and taxes covers all fixed financing charges. The ideal ratio is > 1.
Activity Ratio/ Efficiency Ratio/ Performance Ratio/ Turnover Ratio:		
Total Asset Turnover Ratio	$\frac{\text{Sales / Cost of Goods Sold}}{\text{Average Total Assets}}$	A measure of total asset utilisation. It helps to answer the question - What sales are being generated by each rupee's worth of assets invested in the business?
Fixed Assets Turnover Ratio	$\frac{\text{Sales / Cost of Goods Sold}}{\text{Fixed Assets}}$	This ratio is about fixed asset capacity. A reducing sales or profit being generated from each rupee invested in fixed assets may indicate overcapacity or poorer-performing equipment.
Capital Turnover Ratio	$\frac{\text{Sales / Cost of Goods Sold}}{\text{Net Assets}}$	This indicates the firm's ability to generate sales per rupee of long term investment.

Working Capital Turnover Ratio	$\frac{\text{Sales / COGS}}{\text{Working Capital}}$	It measures the efficiency of the firm to use working capital.
Inventory Turnover Ratio	$\frac{\text{COGS / Sales}}{\text{Average Inventory}}$	It measures the efficiency of the firm to manage its inventory.
Debtors Turnover Ratio	$\frac{\text{Credit Sales}}{\text{Average Accounts Receivable}}$	It measures the efficiency at which firm is managing its receivables.
Receivables (Debtors') Velocity	$\frac{\text{Average Accounts Receivables}}{\text{Average Daily Credit Sales}}$	It measures the velocity of collection of receivables.
Payables Turnover Ratio	$\frac{\text{Annual Net Credit Purchases}}{\text{Average Accounts Payables}}$	It measures the velocity of payables payment.
Profitability Ratios based on Sales:		
Gross Profit Ratio	$\frac{\text{Gross Profit}}{\text{Sales}} \times 100$	This ratio tells us something about the business's ability consistently to control its production costs or to manage the margins it makes on products it buys and sells.
Net Profit Ratio	$\frac{\text{Net Profit}}{\text{Sales}} \times 100$	It measures the relationship between net profit and sales of the business.
Operating Profit Ratio	$\frac{\text{Operating Profit}}{\text{Sales}} \times 100$	It measures operating performance of business.
Expenses Ratio:		
Cost of Goods Sold (COGS) Ratio	$\frac{\text{COGS}}{\text{Sales}} \times 100$	It measures portion of a particular expenses in comparison to sales.
Operating Expenses Ratio	$\frac{(\text{Administrative exp.} + \text{Selling \& Distribution OH})}{\text{Sales}} \times 100$	
Operating Ratio	$\frac{\text{COGS} + \text{Operating Expenses}}{\text{Sales}} \times 100$	
Financial Expenses Ratio	$\frac{\text{Financial Expenses}}{\text{Sales}} \times 100$	
Profitability Ratios related to Overall Return on Assets/ Investments:		
Return on Investment (ROI)	$\frac{\text{Return / Profit / Earnings}}{\text{Investments}} \times 100$	It measures overall return of the business on investment/ equity funds/ capital employed/ assets.
Return on Assets (ROA)	$\frac{\text{Net Profit after taxes}}{\text{Average total assets}}$	It measures net profit per rupee of average total assets/ average tangible assets/ average fixed assets.
Return on Capital Employed ROCE (Pre-tax)	$\frac{\text{EBIT}}{\text{Capital Employed}} \times 100$	It measures overall earnings (either pretax or post tax) on total capital employed.
Return on Capital Employed ROCE (Post-tax)	$\frac{\text{EBIT}(1-t)}{\text{Capital Employed}} \times 100$	It indicates earnings available to equity shareholders in comparison to equity shareholders' net worth.
Return on Equity (ROE)	$\frac{(\text{Net Profit after taxes} - \text{Preference dividend (if any)})}{\text{Net worth / equity shareholders' fund}}$	
Profitability Ratios Required for Analysis from Owner's Point of View:		
Earnings per Share (EPS)	$\frac{\text{Net profit available to equity shareholders}}{\text{Number of equity shares outstanding}}$	EPS measures the overall profit generated for each share in existence over a particular period.

Dividend per Share (DPS)	$\frac{\text{Dividend Paid to equity shareholders}}{\text{Number of equity shares outstanding}}$	Proportion of profit distributed per equity share.
Dividend payout Ratio (DP)	$\frac{\text{Dividend per equity share}}{\text{Earning per Share (EPS)}}$	It shows % of EPS paid as dividend and retained earnings.
Profitability Ratios related to market/ valuation/ Investors:		
Price - Earnings per Share (P/E Ratio)	$\frac{\text{Market price per Share (MPS)}}{\text{Earning per Share (EPS)}}$	At any time, the P/E ratio is an indication of how highly the market "rates" or "values" a business. A P/E ratio is best viewed in the context of a sector or market average to get a feel for relative value and stock market pricing.
Dividend Yield	$\frac{\text{Dividend per Share (DPS)}}{\text{Market Price per Share (MPS)}} \times 100$	It measures dividend paid based on market price of shares.
Earnings Yield	$\frac{\text{Earnings per Share (EPS)}}{\text{Market Price per Share (MPS)}} \times 100$	It is the relationship of earning per share and market value of shares.
Market Value /Book Value per Share	$\frac{\text{Market Value per Share}}{\text{Book Value per Share}}$	It indicates market response of the shareholders 'investment.
Q Ratio	$\frac{\text{Market Value of equity and liabilities}}{\text{Estimated replacement cost of assets}}$	It measures market value of equity as well as debt in comparison to all assets at their replacement cost.

PROBLEMS FOR CLASSROOM DISCUSSION

PROBLEM NO 1: The total sales (all credit) of a firm are Rs.6,40,000. It has a gross profit margin of 15 per cent and a current ratio of 2.5. The firm's current liabilities are Rs.96,000; inventories Rs.48,000 and cash Rs.16,000.

a) Determine the average inventory to be carried by the firm, if an inventory turnover of 5 times is expected? (Assume a 360 day year).

b) Determine the average collection period if the opening balance of debtors is intended to be of Rs.80,000? (Assume a 360 day year). ***(A) (NEW SM, OLD SM) (ANS.: (A) 1,08,800 (B) 72 DAYS)***

(SOLVE PROBLEM NO. 1, 2 OF ASSIGNMENT PROBLEMS AS REWORK)

Note:_____

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PROBLEM NO 2: Using the following information, complete this balance sheet:

Long-term debt to net worth	0.5 to 1
Total asset turnover	2.5 times
Average collection period*	18 days
Inventory turnover	9 times
Gross profit margin	10%
Acid-test ratio	1 to 1

* Assume a 360-day year and all sales on credit.

Particulars	Amount (Rs.)	Particulars	Amount (Rs.)
Cash	?	Notes and payables	1,00,000
Accounts receivable	?	Long-term debt	?
Inventory	?	Common stock	1,00,000
Plant and equipment	?	Retained earnings	1,00,000
Total assets	?	Total liabilities and equity	?

(A) (NEW SM, OLD SM) (ANS.: CASH: RS. 50,000; ACCOUNTS RECEIVABLE: RS.50,000; INVENTORY: RS. 1,00,000; P&E: RS. 2,00,000; TOTAL ASSETS: RS. 4,00,000) (SOLVE PROBLEM NO. 3, 4 OF ASSIGNMENT PROBLEMS AS REWORK)

Note:_____

PROBLEM NO 3: (PRINTED SOLUTION AVAILABLE) In a meeting held at Solan towards the end of 2016, the Directors of M/s HPCL Ltd. have taken a decision to diversify. At present HPCL Ltd. sells all finished goods from its own warehouse. The company issued debentures on 01.01.2017 and purchased fixed assets on the same day. The purchase prices have remained stable during the concerned period. Following information is provided to you:

Income Statements

Particulars	2016 (Rs.)		2017 (Rs.)	
Cash Sales	30,000		32,000	
Credit Sales	2,70,000	3,00,000	3,42,000	3,74,000
Less: Cost of goods sold		2,36,000		2,98,000
Gross profit		64,000		76,000
Less: Expenses Warehousing	13,000		14,000	
Transport	6,000		10,000	
Administrative	19,000		19,000	
Selling	11,000	49,000	14,000	
Interest on Debentures			2,000	59,000
Net Profit		15,000		17,000

Balance Sheet

Particulars	2016 (Rs.)		2017 (Rs.)	
Fixed Assets (Net Block)	-	30,000	-	40,000
Debtors	50,000		82,000	
Cash at Bank	10,000		7,000	
Stock	60,000		94,000	
Total Current Assets (CA)	1,20,000		1,83,000	
Creditors	50,000		76,000	
Total Current Liabilities (CL)	50,000		76,000	
Working Capital (CA - CL)		70,000		1,07,000
Total Assets		1,00,000		1,47,000
Represented by:				
Share Capital		75,000		75,000
Reserve and Surplus		25,000		42,000
Debentures		–		30,000
		1,00,000		1,47,000

You are required to calculate the following ratios for the years 2016/2017.

i) Gross Profit Ratio

ii) Operating Expenses to Sales Ratio.

iii) Operating Profit Ratio

iv) Capital Turnover Ratio

v) Stock Turnover Ratio

vi) Net Profit to Net Worth Ratio, and

vii) Receivables Collection Period.

Ratio relating to capital employed should be based on the capital at the end of the year. Give the reasons for change in the ratios for 2 years. Assume opening stock of Rs. 40,000 for the year 2017. Ignore Taxation. ***(A) (NEW SM, OLD SM)***

(ANS.: I. 21.3%; 20.3 II. 16.3%; 15.2% III. 5%; 5.08% IV. 3, 2.54 V. 4.7; 3.9 VI.15%; 14.5% VII. 67.6 DAYS; 87.5 DAYS)

(SOLVE PROBLEM NO. 5, 6 OF ASSIGNMENT PROBLEMS AS REWORK)

Note:_____

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PROBLEM NO 4: (PRINTED SOLUTION AVAILABLE) Ganapati Limited has furnished the following ratios and information relating to the year ended 31st March, 2017.

Sales	Rs. 60,00,000
Return on net worth	25%
Rate of income tax	50%
Share capital to reserves	7:3
Current ratio	2
Net profit to sales	6.25%
Inventory turnover (based on cost of goods sold)	12
Cost of goods sold	Rs. 18,00,000
Interest on debentures	Rs. 60,000
Sundry debtors	Rs. 2,00,000
Sundry creditors	Rs. 2,00,000

You are required to:

a) Calculate the operating expenses for the year ended 31st March, 2017.

b) Prepare a balance sheet as on 31st March in the following format:

Balance Sheet as on 31st March, 2017

Liabilities	Rs.	Assets	Rs.
Share Capital		Fixed Assets	
Reserve and Surplus		Current Assets	
15% Debentures		Stock	
Sundry Creditors		Debtors	
		Cash	

(A) (NEW SM, OLD SM, SIMILAR: M18 (N) - 5M) (ANS.: A. OPERATING EXPENSES: RS. 33,90,000; B. TOTAL OF BALANCE SHEET: RS.21,00,000) (SOLVE PROBLEM NO. 7 OF ASSIGNMENT PROBLEMS AS REWORK)

Note:_____

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PROBLEM NO 5: Following informations are available for Navya Ltd. along with various ratio relevant to the particulars industry it belongs to. Gives your comments on strength and weakness of Navya Ltd. comparing its ratios with the given industry norms.

Balance Sheet of Navya Ltd. as at 31.03.2017

Liabilities	Amount (Rs.)	Assets	Amount (Rs.)
Equity Share Capital	48,00,000	Fixed Assets	24,20,000
10% Debentures	9,20,0000	Cash	8,80,000
Sundry Creditors	6,60,000	Sundry debtors	11,00,000
Bills Payable	8,80,000	Stock	33,00,000
Other current Liabilities	4,40,000		-
Total	77,00,000	**Total**	77,00,000

Statement of Profitability for the year ending 31.03.2017

Particulars	Amount (Rs.)	Amount (Rs.)
Sales		1,10,00,000
Less: Cost of goods sold:	-	-
Material	41,80,000	-
Wages	26,40,000	-
Factory Overhead	12,98,000	81,18,000

Gross Profit	-	28,82,000
Less: Selling and Distribution Cost	11,00,000	-
Administrative Cost	12,28,000	23,28,000
Earnings before Interest and Taxes	-	5,54,000
Less: Interest Charges	-	92,000
Earning before Tax	-	4,62,000
Less: Taxes & 50%	-	2,31,000
Net Profit (PAT)		2,31,000

Industry Norms

Ratios	Norms
1. Current Assets/Current Liabilities	2.5
2. Sales/ debtors	8.0
3. Sales/ Stock	9.0
4. Sales/ Total Assets	2.0
5. Net Profit/ Sales	3.5%
6. Net profit /Total Assets	7.0%
7. Net Profit/ Net Worth	10.5%
8. Total Debt/Total Assets	60.0%

(A) (NEW SM) (ANS.: 1. 2.60; 2. 8.00; 3. 3.33; 4. 4.43; 5. 2.11; 6. 3.01; 7. 4.65; 8. 37.66)

(SOLVE PROBLEM NO. 8, 9 OF ASSIGNMENT PROBLEMS AS REWORK)

PROBLEM NO 6: The following is the information of XML Ltd. relates to the year ended 31-03-2018:

Gross Profit	20% of Sales
Net Profit	10% of Sales
Inventory Holding period	3 months
Receivable collection period	3 months
Non-Current Assets to Sales	1: 4
Non-Current Assets to Current Assets	1: 2
Current Ratio	2: 1
Non-Current Liabilities to Current Liabilities	1: 1
Share Capital to Reserve and Surplus	4: 1
Non-current Assets as on 31st March, 2017	50,00,000

Assume that:

i) No change in Non-Current Assets during the year 20 17-18

ii) No depreciation charged on Non-Current Assets during the year 2017- 18.

iii) Ignoring Tax

You are required to Calculate cost of goods sold, Net profit, Inventory, Receivables and Cash for the year ended on 31st March, 2018. ***(A) (N18 (N) - 5M)***

Note:_____

PROBLEM NO 7: (PRINTED SOLUTION AVAILABLE) Following information relates to a concern:

Debtors Velocity	3 months
Credits Velocity	2 months
Stock Turnover Ratio	1.5
Gross Profit Ratio	25%
Bills Receivables	Rs. 25,000
Bills Payables	Rs. 10,000
Gross Profit	Rs. 4,00,000
Fixed Assets to turnover Ratio	4

Closing stock of the period is Rs. 10,000 above the opening stock.

Calculate:

a) Sales and cost of goods sold

b) Sundry Debtors

c) Sundry Creditors

d) Closing Stock

e) Fixed Assets *(A) (M17 - 8M, MTP2 N18 (N&O))*

(ANS.: A. SALES: RS. 16,00,000, COGS: RS. 12,00,000; B. SUNDRY DEBTORS: RS. 3,75,000; C. SUNDRY CREDITORS: RS. 1,99,667; D. CLOSING STOCK: RS. 8,05,000; E. FIXED ASSETS: RS. 3,00,000)

Note:_____

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PROBLEM NO 8: (PRINTED SOLUTION AVAILABLE) Following is the abridged Balance Sheet of Alpha Ltd.

Liabilities	Rs.	Assets		Rs.
Share Capital	1,00,000	Land and Buildings		80,000
Profit and Loss Account	17,000	Plant and Machineries	50,000	
Current Liabilities	40,000	**Less:** Depreciation	15,000	35,000
				1,15,000
		Stock	21,000	
		Debtors	20,000	
		Bank	1,000	42,000
	1,57,000			**1,57,000**

With the help of the additional information furnished below, you are required to prepare Trading and Profit & loss Account and a Balance Sheet as at 31st March, 2017:

i) The company went in for reorganization of capital structure, with share capital remaining the same as follows:

Share capital	50%	Other Shareholder's funds	15%
5% Debentures	10%	Trade Creditors	25%

Debentures were issued on 1st April, interest being paid annually on 31st March.

ii) Land and Buildings remained unchanged. Additional plant and machinery has been bought and a further Rs.5,000 depreciation written off.

(The total fixed assets then constituted 60% of total gross fixed and current assets).

iii) Working capital ratio was 8:5.

iv) Quick assets ratio was 1: 1.

v) The debtors (four - fifth of the quick assets) to sales ratio revealed a credit period of 2 months. There were no cash sales.

vi) Return on net worth was 10%.

vii) Gross profit was at the rate of 15% of selling price.

viii) Stock turnover was eight times for the year.

Ignore Taxation. *(A) (NEW SM, OLD SM, SIMILAR: M18 (O) - 8M)*

(ANS.: SALES RS.2,40,000; GROSS PROFIT RS.36,000; NET PROFIT RS.13,000; SHARE CAPITAL RS.1,00,000; 5% DEBENTURES RS.20,000; TRADE CREDITORS RS.50,000) (SOLVE PROBLEM NO. 10 OF ASSIGNMENT PROBLEMS AS REWORK)

Note:_____

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PROBLEM NO 9: X Co. has made plans for the next year. It is estimated that the company will employ total assets of Rs.8,00,000; 50 per cent of the assets being financed by borrowed capital at an interest cost of 8 per cent per year. The direct costs for the year are estimated at Rs.4,80,000 and all other operating expenses are estimated at Rs.80,000. The goods will be sold to customers at 150 per cent of the direct costs. Tax rate is assumed to be 50 per cent.

You are required to calculate; (i) net profit margin; (ii) return on assets; (iii) asset turnover and (iv) return on owner' s equity. ***(A) (NEW SM, OLD SM) (ANS.: (I) 11.1%; (II) 10%; (III) 0.9 TIMES; (IV) 16%)***

(SOLVE PROBLEM NO. 11, 12 OF ASSIGNMENT PROBLEMS AS REWORK)

Note:_____

PROBLEM NO 10: The capital structure of beta limited is as follows:

Equity share capital of Rs.10/- each	8,00,000
9% Preference Share capital of Rs.10/- each	3,00,000

Additional information: Profit (after tax at 35 per cent), Rs.2,70,000; Depreciation: Rs.60,000; Equity dividend paid, 20 per cent; Market price of equity shares, Rs.40.

You are required to compute the following, showing the necessary workings:

a) Dividend yield on the equity shares

b) Cover for the preference and equity dividends

c) Earnings per shares **d)** Price - earnings ratio. ***(A) (NEW SM, OLD SM)***

(ANS.: A. 5%; B. 10 TIMES & 1.52 TIMES C. 3.04 TIMES D. 13.2 TIMES)

(SOLVE PROBLEM NO. 13 OF ASSIGNMENT PROBLEMS AS REWORK)

Note:_____

PROBLEM NO 11: (PRINTED SOLUTION AVAILABLE) The following accounting information and financial ratios of PQR Ltd. relate to the year ended 31st December, 2016:

	Particulars	2016
I.	**Accounting Information:**	
	Gross Profit	15% of Sales
	Net profit	8% of sales
	Raw materials consumed	20% of Cost of Goods Sold
	Direct wages	10% of Cost of Goods Sold
	Stock of raw materials	3 months' usage
	Stock of finished goods	6% of works cost
	Debt collection period	60 days
	All sales are on credit	
II.	**Financial Ratios:**	
	Fixed assets to sales	1:3
	Fixed assets to Current assets	13:11
	Current ratio	2:1
	Long - term loans to Current liabilities	2:1
	Capital to Reserves and Surplus	1:4

If value of fixed assets as on 31st December, 2015 amounted to Rs.26 lakhs, prepare a summarized profit and Loss Account of the company for the year ended 31st December, 2016 and also the Balance Sheet as on 31st December, 2016. ***(B) (NEW SM, OLD SM)***

(ANS.: SALES RS.78,00,000; GROSS PROFIT RS.11,70,000; NET PROFIT RS.6,24,000; STOCK OF RAW MATERIAL RS.3,31,500; STOCK OF FINISHED GOODS RS.3,97,800; DEBTORS RS.12,82,192; CASH RS.1,88,508)

(SOLVE PROBLEM NO. 14, 15 OF ASSIGNMENT PROBLEMS AS REWORK)

Note:_____

PROBLEM NO 12: (PRINTED SOLUTION AVAILABLE) ABC Company sells plumbing fixtures on terms of 2/10, net 30. Its financial statements over the last 3 years are as follows:

Particulars	2015 (Rs.)	2016 (Rs.)	2017 (Rs.)
Cash	30,000	20,000	5,000
Accounts receivable	2,00,000	2,60,000	2,90,000
Inventory	4,00,000	4,80,000	6,00,000
Net fixed assets	8,00,000	8,00,000	8,00,000
	14,30,000	15,60,000	16,95,000
	(Rs.)	(Rs.)	(Rs.)
Accounts payable	2,30,000	3,00,000	3,80,000
Accruals	2,00,000	2,10,000	2,25,000
Bank loan, short-term	1,00,000	1,00,000	1,40,000
Long-term debt	3,00,000	3,00,000	3,00,000
Common stock	1,00,000	1,00,000	1,00,000
Retained earnings	5,00,000	5,50,000	5,50,000
	14,30,000	15,60,000	16,95,000
	(Rs.)	(Rs.)	(Rs.)
Sales	40,00,000	43,00,000	38,00,000
Cost of goods sold	32,00,000	36,00,000	33,00,000
Net profit	3,00,000	2,00,000	1,00,000

Analyse the company's financial condition and performance over the last 3 years. Are there any problems? *(C) (NEW SM)*

Note:_____

PROBLEM NO 13: From the following table of financial ratios of R. Textiles Limited, comment on various ratios given at the end:

Ratios	2016	2017	Average of Textile Industry
Liquidity Ratios			
Current ratio	2.2	2.5	2.5
Quick ratio	1.5	2	1.5
Receivable turnover ratio	6	6	6
Inventory turnover	9	10	6
Receivables collection period	87 days	86 days	85 days
Operating profitability			
Operating income -ROI	25%	22%	15%
Operating profit margin	19%	19%	10%
Financing decisions			
Debt ratio	49.00%	48.00%	57%
Return			
Return on equity	24%	25%	15%

Comment on the following aspect of R. Textiles Limited

i) Liquidity

ii) Operating profits

iii) Financing

iv) Return to the shareholders *(C) (RTP N17,M19(O&N))*

Note:_____

PROBLEM NO 14: A Limited Company's books reveal following information:

Net Income	Rs. 3,60,000
Shareholder's Equity	Rs. 4,00,000
Asset Turnover	2.5 times
Net profit Margin	12%

You are required to calculate ROE (Return on Equity) of the company based on the 'Dupont Model'.

(A) (N18 (O) - 5M)

Note:_____

PROBLEM NO 15: (PRINTED SOLUTION AVAILABLE) Preparation of balance sheet by using ratios.

Exe Limited is a dealer in Automobile Components. While preparing the financial statements for the year ended 31.03.2001, it was discovered that a substantial portion of the record was missing. However, the Accountant was able to gather the following data:

Liabilities		Rs.	Assets		Rs.
Share Capital			**Fixed Assets**		
Authorised and subscribed:			Land		1,20,000
20,000 E. shares of Rs.10 each		2,00,000	Plant & Machinery at cost	?	
Reserves & Surplus			**Less:** Dep.	?	?
General Reserve:			**Current Assets**		
Balance on 1.4.2000	60,000		Stock	?	
Add: Transfer during the year	?	?	Debtors	?	
Secured Loans			Cash & Bank	?	?
15% Loan		?			
Current Liabilities					
Creditors	?				
Provision for tax	?				
Proposed Dividend	?	3,00,000			
					?

The following additional information is provided to you:

Current ratio	2 times
Cash and Bank	30% of total current assets
Debtors velocity (Sales/Debtors)	12 times
Stock velocity (Cost of goods sold/Stock)	12 times
Creditors velocity (cost of goods sold/Creditors)	12 times
Gross profit/sales	25%
Proposed dividend	20%
Tax rate	33 1/3%
Debt service coverage ratio	1 time
Interest coverage ratio	3 times interest on the balance of loan outstanding on 1.4.2000
Selling and distribution expenses	Rs.1,80,000
Depreciation rate	40%

Cost of goods sold does not include Depreciation. On the basis of the above-mentioned information, you are required to complete the Balance Sheet as on 31.03.2001. ***(B) (N-05)MTP-M19(N)(SIMILAR)***

(ANS.: PLANT & MACHINERY RS.3,00,000, DEPRECIATION RS.1,20,000, STOCK RS.1,20,000, DEBTORS RS.1,60,000, CASH & BANK RS.1,20,000)

Note:_____

ASSIGNMENT PROBLEMS

PROBLEM NO 1: Assuming the current ratio of a Company is 2, STATE in each of the following cases whether the ratio will improve or decline or will have no change:

a) Payment of current liability

b) Purchase of fixed assets by cash

c) Cash collected from Customers

d) Bills receivable dishonoured

e) Issue of new shares *(B) (RTP N16, RTP N18 (N&O))*

PROBLEM NO 2: A business furnishes you the following details:

a)	Opening Stock		50,000
b)	Closing Stock		70,000
c)	**Sales:**		
	Credit		2,10,000
	Cash		1,50,000
d)	Gross profit		60,000
e)	Year end debtors	20,000	
	Less: Provision for bad debts	2,000	18,000
f)	Year end Bills Receivable		15,000

A year may be taken to be of 360 days. You are asked to **(i)** Work out stock turnover and debtor's turnover ratios. *(A) (ANS.: (I) STOCK TURNOVER RATIO IS 5 TIMES & DEBTORS TURNOVER RATIO IS 6 TIMES)*

PROBLEM NO 3: From the following information, prepare a summarized balance sheet as at 31st march, 2002

Working capital	2,40,000
Bank overdraft	40,000
Fixed assets to proprietary ratio	0.75
Reserves and surplus	1,60,000
Current ratio	2.5
Liquid ratio	1.5

(A) (OLD PM, RTP M17, MTP1 N18 (N&O), MTP1 M19(O), SIMILAR: N17 - 8M) (ANS.: TOTAL OF BALANCE SHEET: RS. 11,20,000)

PROBLEM NO 4: Using following data complete balance sheet given below:

Gross profit	Rs.54,000
Shareholder funds	Rs.6, 00,000
Gross profit margin	20%
Credit sales to total sales	80%
Total asset turn over	0.3 times
Inventory turnover	4 times
Average collection period (360 days per a year)	20 days
Current ratio	1.8
Long-term debt of equity	40%

Balance sheet

Liabilities	Amount (Rs.)	Assets	Amount (Rs.)
Creditors	?	Cash	?
Long term debts	?	Debtors	?
Shareholders fund	?	Inventory	?
		Fixed assets	?

(A) (OLD PM) (ANS.: TOTAL OF BALANCE SHEET – RS.9,00,000)

PROBLEM NO 5: Preparation of balance sheet by using Ratios.

The following figures and ratios are related to company:

Sales for the year (all credit)	Rs.30,00,000
Gross profit ratio	25%
Fixed assets turnover (basis on cost of goods sold)	1.5
Stock turnover (basis on cost of goods sold)	6
Liquid ratio	1:1
Current ratio	1.5:1
Debtor's collection period	2 months
Reserves and surplus to share capital	0.6:1
Capital gearing ratio	0.5
Fixed assets to net worth	1.20:1

You required to prepare:

Balance sheet of the company on the basis of above details.

The statement showing working capital requirement, if the company wants to make a provision for contingencies @ 10% of net working capital including such provision. *(A) (M10,SIMILAR: N16-8M;M19-5M(N))*

(ANS.: TOTAL OF BALANCE SHEET: RS.26,25,000; WORKING CAPITAL: RS. 4,16,667)

PROBLEM NO 6: From the following information, prepare the Balance Sheet of XYZ Co. Ltd. showing the details of working:

Paid-up capital	50 Lakh
Plant & Machinery	125 Lakh
Total sales (Annual)	500 Lakh
Gross Profit margin	25%
Annual credit sales	80% of net sales
Current Ratio	2
Inventory turnover	4
Fixed assets turnover	2
Sales returns	20% of sales
Average collection period	73 days
Bank credit to trade credit	2
Cash to inventory	1:15
Total debt to current liabilities	3

(A) (ANS.: RESERVES & SURPLUS: RS.78 LAKHS, OTHER FIXED ASSETS: RS.75 LAKHS, CASH: RS.5 LAKHS, STOCK: RS.75 LAKHS, ACCOUNTS RECEIVABLE: RS.64 LAKHS)

PROBLEM NO 7: Following figures are available in the books Tirupati Ltd.

Fixed assets turnover ratio	8 times
Capital turnover ratio	2 times
Inventory Turnover	8 times
Receivable turnover	4 times
Payable turnover	6 times
G P Ratio	25%

Gross profit during the year amounts to Rs. 8,00,000. There is no long-term loan or overdraft. Reserve and surplus amount to Rs. 2,00,000. Ending inventory of the year is Rs 20,000 above the beginning inventory.

You are required to calculate various assets and liabilities and Prepare a Balance sheet of Tirupati Ltd. ***(A) (RTP M18 (N&O), MTP1 M18 (N), MTP1 M19 (O)) (ANS.: TOTAL OF BALANCE SHEET: RS. 16,03,333)***

PROBLEM NO 8: ABC Limited has an average cost of debt at 10 per cent and tax rate is 40 per cent. The Financial leverage ratio for the company is 0.60. Calculate Return on Equity (ROE) if its Return on Investment (ROI) is 20 per cent. ***(C) (ANS.: ROE 15.6%)***

PROBLEM NO 9: The Balance Sheet of Pilcom Ltd. for the last 3 years read as below:

Particulars	(Rs. in Lakhs)		
	2001	2002	2003
Sources:			
Share Capital (shares of Rs.10)	2,000	2,000	3,000
Share Premium	1,500	1,500	500
Reserves (after 10% dividend)	1,500	1,700	1,800
Long Term Loan	1,000	800	800
	6,000	6,000	6,100
Represented by:			
Fixed Assets	2,000	2,500	3,000
Less: Depreciation	700	950	1,250
Capital Work-in-progress	1,300	1,550	1,750
Investments	800	900	700
Net Current Assets	200	200	200
Current Assets:			
Debtors	1,700	1,800	1,850
Stocks	1,800	1,900	2,400
Cash & Bank	500	500	500
Others	400	600	1,400
	4,400	4,800	6,150
Current Liabilities	700	1,450	2,700
	3,700	3,350	3,450
Total Assets	6,000	6,000	6,100
Sales	3,900	4,000	5,000

Sales excludes excise duty and sales tax at 20%. Calculate for the years 2002 & 2003:

i) Fixed Assets Turnover Ratio,

ii) Stock Turnover Ratio,

iii) Debtors Turnover Ratio in terms of numbers of day's sales,

iv) Earnings per shares. Briefly comment on the performance of the company.

(B) (ANS.: (I) 1.63, 2.04 (II) 2.15, 2.33 (III) 2.74, 3.29 (IV) 133.2 DAYS, 110.94 DAYS (V) RS.2, RS.1.33)

PROBLEM NO 10: With the following ratios and further information given below prepare a Trading Account, Profit and Loss Account and Balance Sheet of ABC Company.

Fixed Assets	Rs.40,00,000
Closing Stock	Rs.4,00,000
Stock turnover ratio	10
Gross profit ratio	25 percent
Net profit ratio	20 percent
Net profit to capital	1/5
Capital to total liabilities	1/2

Fixed assets to capital	5/4
Fixed assets/Total current assets	5/7

(B) (M16 - 8M) (ANS.: NET PROFIT: RS. 6,40,000; TOTAL OF BALANCE SHEET: RS. 96,00,000)

PROBLEM NO 11: MNP Limited has made plans for the next year 2010 -11. It is estimated that the company will employ total assets of Rs.25,00,000; 30% of assets being financed by debt at an interest cost of 9% p.a. The direct costs for the year are estimated at Rs.15,00,000 and all other operating expenses are estimated at Rs.2,40,000. The sales revenue are estimated at Rs.22,50,000. Tax rate is assumed to be 40%. Required to calculate:

a) Net profit margin (After tax);

b) Return on Assets (After tax);

c) Asset turnover; and

d) Return on Equity. *(B) (OLD PM, N10 - 4M) (ANS.: A. 13.6; B. 12.24%; C. 0.9; D. 15.17%)*

PROBLEM NO 12: The financial statements of a company contain the following information for the year ending 31st March, 2011:

Particulars	Amount (Rs.)
Cash	1,60,000
Sundry Debtors	4,00,000
Short-term Investment	3,20,000
Stock	21,60,000
Prepaid Expenses	10,000
Total Current Assets	30,50,000
Current Liabilities	10,00,000
10% Debentures	16,00,000
Equity Share Capital	20,00,000
Retained Earnings	8,00,000
Statement of Profit for the year ended 31st March, 2011	
Sales (20% cash sales)	40,00,000
Less: Cost of goods sold	28,00,000
Profit before Interest & Tax	12,00,000
Less: Interest	1,60,000
Profit before tax	10,40,000
Less: Tax @ 30%	3,12,000
Profit After Tax	7,28,000

You are required to calculate:

a) Quick Ratio

b) Debt-equity Ratio

c) Return on Capital Employed, and

d) Average collection period (Assuming 360 days in a year). *(A) (ANS.: I. 0.88:1 II. 0.57:1 III. 27.27% IV. 45 DAYS)*

PROBLEM NO 13: MN Limited gives you the following information related for the year ending 31st March, 2009:

1.	Current Ratio	2.5 : 1
2.	Debt-Equity Ratio	1 : 1.5
3.	Return on Total Assets	15%
4.	Total Assets Turnover Ratio	2
5.	Gross Profit Ratio	20%
6.	Stock Turnover Ratio	7

7.	Current Market Price per Equity Share	Rs.16
8.	Net Working Capital	Rs.4,50,000
9.	Fixed Assets	Rs.10,00,000
10.	60,000 Equity Shares of	Rs.10 each
11.	20,000, 9% Preference Shares of	Rs.10 each
12.	Opening Stock	Rs.3,80,000

You are required to calculate:

a) Quick Ratio

b) Fixed Assets Turnover Ratio

c) Proprietary Ratio

d) Earnings per Share

e) Price-Earnings Ratio ***(A) (OLD PM) (ANS.: I. 1.1:1 II.3.5 III. 0.6:1 IV RS.4.075 PER SHARE V .3.926 TIMES)***

PROBLEM NO 14: From the following information and ratios, prepare the Profit & Loss A/c for the year ended 31st March, 2001, and the Balance Sheet as on that date of M/s Stan & Co., an export Company:

Current Assets to Stock	3 : 2
Current Ratio	3.00
Acid Test Ratio	1.00
Financial Leverage	2.20
Earnings per share (each of Rs.10)	10.00
Book Value per Share (Rs.)	40.00
Average Collection Period (assume 360 days in a year)	30 days
Stock Turnover Ratio	5.00
Fixed Assets, Turnover Ratio	1.20
Total Liabilities to Net Worth	2.75
Net Working Capital	Rs.10.00 lakh
Net Profit to Sales	10%
Variable Cost	60%
Long-term Loan Interest	12%
Taxation	Nil

(A) (ANS.: EQUITY SHARE CAPITAL RS.5,00,000, RESERVE & SURPLUS RS.15,00,000, CURRENT LIABILITIES RS.5,00,000, LONG TERM LOAN RS.50,00,0000)

PROBLEM NO 15: Gamma Limited's financial statements contain the following information:

Particulars	Previous year	Current year
Cash	Rs. 2,00,000	Rs. 1,60,000
Sundry debtors	3,20,000	4,00,000
Temporary investments	2,00,000	3,20,000
Stock	18,40,000	21,60,000
Pre-paid expenses	28,000	12,000
Total current assets	**25,88,000**	**30,52,000**
Total assets	**56,00,000**	**64,00,000**
Current liabilities	6,40,000	8,00,000
10% Debentures	16,00,000	16,00,000
Equity share capital	20,00,000	20,00,000
Retained earnings	4,68,000	8,12,000

Statement of profit for the current year

Sales	Rs. 40,00,000

Less: Cost of goods sold	28,00,000
Interest	1,60,000
Net profit	10,40,000
Less: Taxes (0.35)	3,64,000
Profit after taxes	6,76,000
Dividends declared on equity shares	2,20,000

From the above, appraise the financial position of Gamma Limited from the point of view of (i) liquidity, (ii) solvency (iii) profitability, and (iv) activity. ***(B) (MTP M14)***

(ANS.: (I). 3.82:1, 1.1:1; (II) 0.85, 0.65; 7.5 TIMES; (III) 30%, 16.9%, 12.2%, 17.7%, 24%; (IV) 11.1 TIMES, 1.4 TIMES, 0.44 TIMES)

PROBLEM NO 16: The following information was taken from the financial statements of Gamma Limited **(Amount in thousands of rupees)**.

Particulars	Year 1	Year 2	Year 3
Total Assets	750	850	860
Credit Sales	420	520	550
Cost of goods sold	450	595	645
Cash	50	60	55
Debtors	150	165	180
Inventory	130	160	170
Net Fixed Assets	120	250	250
Creditors	75	85	100
Short term debt	125	175	170
Long-term Debt	125	185	175
Equity	200	210	-

You are required to calculate those ratios which indicate the efficient use of assets and discuss potential sources of trouble.

(B) (ANS.: YEAR 1: 1.36, 2.8, 3.46, 3.75, 1; YEAR 2: 1.55, 3.30, 4.10, 2.38, 0.93; YEAR 3: 1.59, 3.19, 3.91 ,2.58, 0.98)

PRINTED SOLUTIONS TO SELECTIVE PROBLEMS

PROBLEMS FOR WHICH PRINTED SOLUTIONS ARE PROVIDED: 3, 4, 7, 8, 11, 12, 15

PROBLEM NO.3

Computation of Ratios	2016	2017
1. Gross profit ratio Gross profit/sales	$\frac{64,000 \times 100}{3,00,000} = 21.3\%$	$\frac{76,000 \times 100}{3,74,000} = 20.3$
2. Operating expense to sales ratio Operating exp / Total sales	$\frac{49,000 \times 100}{3,00,000} = 16.3\%$	$\frac{57,000 \times 100}{3,74,000} = 15.2\%$
3. Operating profit ratio Operating profit/ Total sales	$\frac{15,000 \times 100}{3,00,000} = 5\%$	$\frac{19,000 \times 100}{3,74,000} = 5.08\%$
4. Capital turnover ratio Sales/capital employed	$\frac{3,00,000}{1,00,000} = 3$	$\frac{3,74,000}{1,47,000} = 2.54$
5. Stock turnover ratio COGS Average stock	$\frac{2,36,000}{50,000} = 4.7$	$\frac{2,98,000}{77,000} = 3.9$
6. Net Profit to Net worth Net Profit Net worth	$\frac{15,000 \times 100}{1,00,000} = 15\%$	$\frac{17,000 \times 100}{1,17,000} = 14.5\%$
7. Receivables collection period Average receivables / Average daily sales	$\frac{50,000}{739.73} = 67.6$ days	$\frac{82,000}{936.99} = 87.5$ days

(Refer to working note)		

WORKING NOTE:

Average daily sales = Credit sales / 365 $\frac{2,70,000}{365}$ = Rs.739.73 $\frac{3,42,000}{365}$ = Rs. 936.99

Analysis: The decline in the Gross profit ratio could be either due to a reduction in the selling price or increase in the direct expenses (since the purchase price has remained the same).

Similarly there is a decline in the ratio of Operating expenses to sales. However since operating expenses have little bearing with sales, a decline in this ratio cannot be necessarily be interpreted as an increase in operational efficiency. An in -depth analysis reveals that the decline in the warehousing and the administrative expenses has been partly set off by an increase in the transport and the selling expenses. The operating profit ratio has remained the same in spite of a decline in the Gross profit margin ratio. In fact the company has not benefited at all in terms of operational performance because of the increased sales.

The company has not been able to deploy its capital efficiently. This is indicated by a decline in the Capital turnover from 3 to 2.5 times. In case the capital turnover would have remained at 3 the company would have increased sales and profits by Rs. 67,000 and Rs. 3,350 respectively.

The decline in the stock turnover ratio implies that the company has increased its investment in stock. Return on Net worth has declined indicating that the additional capital employed has failed to increase the volume of sales proportionately. The increase in the Average collection period indicates that the company has become liberal in extending credit on sales. However, there is a corresponding increase in the current assets due to such a policy.

It appears as if the decision to expand the business has not shown the desired results.

PROBLEM NO.4

a) Calculation of Operating Expenses for the year ended 31st March, 2013

Particulars		(Rs.)
Net Profit [@ 6.25% of Sales]		3,75,000
Add: Income Tax (@ 50%)		3,75,000
Profit Before Tax (PBT)		7,50,000
Add: Debenture Interest		60,000
Profit before interest and tax (PBIT)		8,10,000
Sales		60,00,000
Less: Cost of goods sold	18,00,000	
PBIT	8,10,000	26,10,000
Operating Expenses		33,90,000

b) Balance Sheet as on 31st March, 2013

Liabilities	Rs.	Assets	Rs.
Share Capital	10,50,000	Fixed Assets	17,00,000
Reserve and Surplus	4,50,000	Current Assets:	
15% Debentures	4,00,000	Stock	1,50,000
Payables	2,00,000	Receivables	2,00,000
		Cash	50,000
	21,00,000		21,00,000

WORKING NOTES:

i) The return on net worth is 25%. Therefore, the profit after tax of Rs. 3,75,000 should be equivalent to 25% of the net worth.

$$\text{Net worth} \times \frac{25}{100} = \text{Rs.}3,75,000$$

$$\therefore \text{ Net worth} = \frac{\text{Rs.}3,75,000 \times 100}{25} = \text{Rs.}15,00,000$$

The ratio of share capital to reserves is 7:3

$$\text{ShareCapital} = 15,00,000 \times \frac{7}{10} = \text{Rs.}10,50,000$$

$$\text{Reserves} = 15{,}00{,}000 \times \frac{3}{10} = \text{Rs. } 4{,}50{,}000$$

ii) Debentures:

Interest on Debentures @ 15% = Rs. 60,000.

$$\text{Debentures} = \frac{60{,}000 \times 100}{15} = \text{Rs. } 4{,}00{,}000$$

iii) Current Assets:

Current Ratio = 2

Payables = Rs. 2,00,000.

Current Assets = 2 Current Liabilities = 2 x 2,00,000 = Rs. 4,00,000.

iv) Fixed Assets:

Liabilities	Rs.
Share capital	10,50,000
Reserves	4,50,000
Debentures	4,00,000
Payables	2,00,000
	21,00,000
Less: Current Assets	(4,00,000)
Fixed Assets	17,00,000

v) Composition of Current Assets

Inventory Turnover = 12

$$\frac{\text{Cost of goods sold}}{\text{Closing stock}} = 12$$

$$\text{Closing stock} = \frac{18{,}00{,}000}{12} = \text{Closing stock} = \text{Rs } 150{,}000$$

Composition:	(Rs.)
Stock	1,50,000
Receivables	2,00,000
Cash (balancing figure)	50,000
Total Current Assets	4,00,000

PROBLEM NO.7

i) Determination of Sales and Cost of goods sold:

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

$$\text{Or, } \frac{25}{100} = \frac{\text{Rs. } 4{,}00{,}000}{\text{Sales}}$$

$$\text{Or, Sales} = \frac{\text{Rs. } 4{,}00{,}00{,}000}{25} = \text{Rs. } 16{,}00{,}000$$

Cost of Goods Sold = Sales - Gross Profit = Rs. 16,00,000 - Rs. 4,00,000 = Rs. 12,00,000

ii) Determination of Sundry Debtors:

Debtors velocity is 3 months or Debtors' collection period is 3 months,

$$\text{So, Debtors' turnover ratio} = \frac{12 \text{ months}}{3 \text{ months}} = 4$$

$$\text{Debtors' turnover ratio} = \frac{\text{Credit Sales}}{\text{Average Accounts Receivable}} = \frac{\text{Rs. } 16{,}00{,}000}{\text{Bills Receivable} + \text{Sundry Debtors}} = 4$$

Or, Sundry Debtors + Bills receivable = Rs. 4,00,000

Sundry Debtors = Rs. 4,00,000 - Rs. 25,000 = Rs. 3,75,000

iii) Determination of Sundry Creditors:

Creditors velocity of 2 months or credit payment period is 2 months.

So, Creditors' turnover ratio = $\frac{12\,\text{months}}{2\,\text{months}} = 6$

Creditors turnover ratio = $\frac{\text{Credit Purchases}^*}{\text{Average Accounts Payables}} = \frac{\text{Rs. 12,10,000}}{\text{Sundry Creditors + Bills Payables}} = 6$

So, Sundry Creditors + Bills Payable = Rs. 2,01,667

Or, Sundry Creditors + Rs. 10,000 = Rs. 2,01,667

Or, Sundry Creditors = Rs. 2,01,667 - Rs. 10,000 = Rs. 1,91,667

iv) Closing Stock:

Stock Turnover Ratio = $\frac{\text{Cost of Goods Sold}}{\text{Average Stock}} = \frac{\text{Rs. 12,00,000}}{\text{Average Stock}} = 1.5$

So, Average Stock = Rs. 8,00,000

Now Average Stock = $\frac{\text{Opening Stock} + \text{Closing Stock}}{2}$ (or)

$\frac{\text{Opening Stock} + (\text{Opening Stock} + \text{Rs. 10,000})}{2}$ = Rs. 8,00,000

Or, Opening Stock = Rs. 7,95,000

So, Closing Stock= Rs. 7,95,000 + Rs. 10,000 = Rs. 8,05,000

v) Calculation of Fixed Assets:

Fixed Assets Turnover Ratio = $\frac{\text{Cost of Goods Sold}}{\text{Fixed Assets}} = 4$

Or, $\frac{\text{Rs. 12,00,000}}{\text{Fixed Assets}} = 4$

Or, Fixed Asset = Rs. 3,00,000

Workings:

***Calculation of Credit purchases:**

Cost of goods sold = Opening stock + Purchases - Closing stock

Rs. 12,00,000 = Rs. 7,95,000 + Purchases - Rs. 8,05,000

Rs. 12,00,000 + Rs. 10,000 = Purchases

Rs. 12,10,000 = Purchases (credit).

Assumption:

i) All sales are credit sales

ii) All purchases are credit purchase

iii) Stock Turnover Ratio and Fixed Asset Turnover Ratio may be calculated either on Sales or on Cost of Goods Sold.

PROBLEM NO.8

Particulars	Percentage	Rs.
Share Capital	50%	1,00,000
Other Shareholders funds	15%	30,000
5% Debentures	10%	20,000
Trade creditors	25%	50,000
	100%	**2,00,000**

Land and Buildings

Total liabilities = Total Assets

Rs.2,00,000 = Total Assets

Fixed Assets = 60% of total gross fixed assets and current assets

= Rs.2,00,000 x 60/100 = Rs.1,20,000

Calculation of additions to Plant & Machinery:

Particulars	Amount	Particulars	Amount
To Opening P & M	50,000	By Depreciation	15,000
To Bank Account (additions)	10,000	By Addl. Depreciation	5,000
		By Closing P&M	40,000
	60,000		**60,000**

Current assets = Total assets – Fixed assets = Rs.2,00,000 – Rs.1,20,000 = Rs.80,000

Calculation of Quick Ratio:

$$= \frac{\text{Current assets} - \text{Stock}}{\text{Current liabilities}} = \frac{\text{Rs. 80,000} - \text{stock}}{\text{Rs. 50,000}} = 1 \Rightarrow \text{Rs.50,000} = \text{Rs.80,000} - \text{Stock}$$

Stock = Rs.80,000 – Rs.50,000 = Rs.30,000

Debtors = $4/5^{th}$ of quick assets = (Rs.80,000 – 30,000) x 4/5 = Rs.40,000

Debtors Turnover Ratio:

$$= \frac{\text{Debtors}}{\text{Credit sales}} \times 365 = 60 \text{ Days} \qquad = \frac{40,000 \times 12}{\text{Credit Sales}} = 2 \text{ Months}$$

2 credit sales = 4,80,000

Credit sales = $\frac{4,80,000}{2}$ = 2,40,000

Gross profit (15% of sales) Rs. $\frac{2,40,000 \times 15}{100}$ = Rs.36,000

Return on net worth (profit after tax):

Net worth = Rs.1,00,000 + Rs.30,000 = Rs.1,30,000

Net profit = Rs. $\frac{1,30,000 \times 10}{100}$ = Rs.13,000

Debenture Interest = Rs. $\frac{20,000 \times 5}{100}$ = Rs.1,000

Dr. Projected Profit and Loss account for the year ended 31-3-2005 Cr.

Particulars	Rs.	Particulars	Rs.
To Cost of goods sold	2,04,000	By Sales	2,40,000
To Gross profit	36,000		
	2,40,000		**2,40,000**
To Debenture interest	1,000	By Gross profit	36,000
To Administration and other expenses	22,000		
To Net profit	13,000		
	36,000		**36,000**

Projected Balance Sheet as at 31st March, 2005

Liabilities	Rs.	Assets	Rs.	Rs.
Share capital	1,00,000	**Fixed assets:**		
Profit and loss A/c	30,000	Land & Buildings		80,000
(17,000 + 13,000)		Plant & Machinery	60,000	
5% Debentures	20,000	**Less:** Depreciation	20,000	40,000
Current liabilities:		**Current assets:**		
Trade creditors	50,000	Stock	30,000	
		Debtors	40,000	
		Bank	10,000	80,000
	2,00,000			**2,00,000**

PROBLEM NO.11

a) Working Notes:

i) Calculation of Sales $= \frac{\text{Fixed Assets}}{\text{Sales}} = \frac{1}{3} = \frac{26,00,000}{\text{Sales}} = \frac{1}{3} \Rightarrow \text{Sales} = \text{Rs. } 78,00,000$

ii) Calculation of Current Assets:

$$\frac{\text{Fixed Assets}}{\text{Current Assets}} = \frac{13}{11}$$

$$\therefore \frac{26,00,000}{\text{Current Assets}} = \frac{13}{11} \Rightarrow \text{Current Assets} = \text{Rs. } 22,00,000$$

iii) Calculation of Raw Material Consumption and Direct Wages

Particulars	Rs.
Sales	78,00,000
Less: Gross Profit	11,70,000
Works Cost	**66,30,000**

Raw Material Consumption (20% of Works Cost) Rs.13,26,000

Direct Wages (10% of Works Cost) Rs.6,63,000

iv) Calculation of Stock of Raw Materials (= 3 months usage)

$$= 13,26,000 \times \frac{3}{12} = \text{Rs. } 3,31,500$$

v) Calculation of Stock of Finished Goods (= 6% of Works Cost)

$$= 66,30,000 \times \frac{6}{100} = \text{Rs. } 3,97,800$$

vi) Calculation of Current Liabilities:

$$\frac{\text{Current Assets}}{\text{Current Liabilities}} = 2 = \frac{22,00,000}{\text{Current Liabilities}} = 2 \Rightarrow \text{Current Liabilities} = \text{Rs. } 11,00,000$$

vii) Calculation of Debtors = Average Collection period $= \frac{\text{Debtors}}{\text{Credit Sales}} \times 365$

$$\frac{\text{Debtors}}{78,00,000} \times 365 = 60 \Rightarrow \text{Debtors} = \text{Rs. } 12,82,19178 \text{ or } 12,82,192$$

viii) Calculation of Long term Loan $= \frac{\text{Long term Loan}}{\text{Current Liabilities}} = \frac{2}{1}$

$$\frac{\text{Long term loan}}{11,00,000} = \frac{2}{1} \Rightarrow \text{Long term loan} = \text{Rs. } 22,00,000$$

ix) Calculation of Cash Balance:

Particulars		Rs.
Current Assets		22,00,000
Less: Debtors	12,82,192	
Raw Materials stock	3,31,500	
Finished goods stock	3,97,800	20,11,492
Cash Balance		**1,88,508**

x) Calculation of Net Worth:

Particulars		Rs.
Fixed Assets		26,00,000
Current Assets		22,00,000
Total Assets		48,00,000
Less: Long term Loan	22,00,000	
Current Liabilities	11,00,000	33,00,000
Net worth		**15,00,000**

Net worth = Share capital + Reserves = 15,00,000

$$\frac{\text{Capital}}{\text{Reserves and Surplus}} = \frac{1}{4} \Rightarrow \text{Share Capital} = 15,00,000 \times \frac{1}{5} = \text{Rs. } 3,00,000$$

$$\text{Reserves and Surplus} = 15,00,000 \times \frac{4}{5} = \text{Rs. } 12,00,000$$

Dr. Profit and Loss Account of PQR Ltd., for the year ended 31st December, 2006 Cr.

Particulars	Rs.	Particulars	Rs.
To Direct Materials	13,26,000	By Sales	78,00,000
To Direct Wages	6,63,000		
To Works (Overhead) Balancing figure	46,41,000		
To Gross Profit c/d (15% of Sales)	11,70,000		
	78,00,000		**78,00,000**
To Selling & Distribution Expenses (Bal. figure)	5,46,000	By Gross Profit b/d	11,70,000
To Net Profit (8% of Sales)	6,24,000		
	11,70,000		**11,70,000**

Balance Sheet of PQR Ltd. As at 31st December, 2006

Liabilities	Rs.	Assets	Rs.
Share Capital	3,00,000	Fixed assets	26,00,000
Reserves and Surplus	12,00,000	**Current Assets:**	
Long term Loans	22,00,000	Stock of Raw Material	3,31,500
Current liabilities	11,00,000	Stock of Finished Goods	3,97,800
		Debtors	12,82,192
		Cash	1,88,508
	48,00,000		**48,00,000**

PROBLEM NO.12

Ratios	2015	2016	2017
Current ratio	1.19	1.25	1.20
Acid-test ratio	0.43	0.46	0.40
Average collection period	18	22	27
Inventory turnover	NA*	8.2	6.1
Total debt to net worth	1.38	1.40	1.61
Long-term debt to total capitalization	0.33	0.32	0.32
Gross profit margin	0.200	0.163	0.132
Net profit margin	0.075	0.047	0.026
Asset turnover	2.80	2.76	2.24
Return on assets	0.21	0.13	0.06

Analysis: The company's profitability has declined steadily over the period. As only Rs. 50,000 is added to retained earnings, the company must be paying substantial dividends. Receivables are growing slower, although the average collection period is still very reasonable relative to the terms given. Inventory turnover is slowing as well, indicating a relative buildup in inventories. The increase in receivables and inventories, coupled with the fact that net worth has increased very little, has resulted in the total debt-to-worth ratio increasing to what would have to be regarded on an absolute basis as a high level.

The current and acid-test ratios have fluctuated, but the current ratio is not particularly inspiring. The lack of deterioration in these ratios is clouded by the relative build up in both receivables and inventories, evidencing deterioration in the liquidity of these two assets. Both the gross profit and net profit margins have declined substantially. The relationship between the two suggests that the company has reduced relative expenses in 2016 in particular. The buildup in inventories and receivables has resulted in a decline in the asset turnover ratio, and this, coupled with the decline in profitability, has resulted in a sharp decrease in the return on assets ratio.

PROBLEM NO. 15

Step 1: Given Current liabilities = Rs.2,00,000

Current ratio = 2 times $\Rightarrow \frac{\text{Current assets}}{\text{Current liab}} = 2 \Rightarrow \frac{CA}{2,00,000} = 2$

$\therefore$ Current assets = 4,00,000

Step 2: Given Cash & Bank balance = 30% of total CA = 30% (4,00,000) = 1,20,000

Step 3: Given proposed dividend = 20 % (Capital) = 20% (2,00,000) = 40,000

Step 4:

Given Debtors velocity = 12 times i.e. $\frac{\text{Sales}}{\text{Debtors}}$ = 12 times Closing debtors = $\frac{\text{Sales}}{12}$	Given stock velocity = 12 times i.e. $\frac{\text{COGS}}{\text{cl.stock}}$ = 12 times Closing stock = $\frac{\text{COGS}}{12}$

Whereas closing deb. + Cl. Stock = 2,80,000 $\Rightarrow \frac{\text{Sales}}{12\text{ times}} + \frac{\text{COGS}}{12\text{ times}} = 2,80,000$

Sales + cogs = 2,80,000 × 12

Sales + sales – GP = 33,60,000

Let the value of sales be 'X'

X + X – 0.25X = 33,60,000 $\Rightarrow$ X = 19,20,000

Sales = 19,20,000

COGS = 19,20,000 – 19,20,000 × 25% = 14,40,000

Given that debtors velocity = 12 times $\Rightarrow \frac{\text{sales}}{\text{Debtors}} = 12$ times

i. e Debtors = $\frac{19,20,000}{12}$ = 1,60,000

Closing Stock = 2,80,000 – 1,60,000 = 1,20,000

Step 5: Given creditors velocity = 12 times

$\Rightarrow \frac{\text{COGS}}{\text{creditors}} = 12 \Rightarrow \text{creditors} = \frac{14,40,000}{12} = 1,20,000$

Step 6: Given current liabilities = 2,00,000

$\Rightarrow$ Creditors + Prov. for tax + Prop. Div. = 2,00,000

i.e. 1,20,000 + Prov. for tax + 40,000 = 20,00,000

$\therefore$ Provision for tax = 40,000

Step 7: Given tax rate = 33.33%

Profit before tax = 40,000 × 3 = 1,20,000

W.N.1: PBT = 100

(-) PFT = 33.33

PAT = 66.67

Step 8: Given interest coverage ratio = 3 times $\Rightarrow \frac{PBIT}{Interest} = 3$

$\frac{PBIT + Interest}{Interest} = 3 \Rightarrow \frac{1,20,000 + Interest}{Interest} = 3$

∴ Interest = 60,000.

Step 9: Given rate of int. on loan = 15%

Whereas int. as per step 8 = 60,000

∴ Value of loan = $\frac{60,000}{15\%}$ = 4,00,000

Step 10: Gross profit = 4,80,000

(-) Sell. & dis. Exp. = 1,80,000

PBDIT = 3,00,000

(-) Dep. (B/F) = 1,20,000

PBIT = 1,80,000

(-) Interest = 60,000

PBT = 1,20,000

Step 11: Given that depreciation ratio = 40%

i.e. P&M at cost = $\frac{12,000}{40\%}$ = 3,00,000

Step 12:

Particulars	Amount
Profit Before Tax	1,20,000
Less: Tax	40,000
Profit after tax	80,000
Less: Proposed dividend	40,000
Profit after app.	40,000

∴ Transfer to General reserve during the year = 40,000

Step 13: Given debt service coverage ratio = 1 time

$\frac{\text{Earnings available for debt ser.}}{\text{Interest + installment}}$ = 1time

$\frac{PAT + INT. + Dep}{\text{Interest + installment}}$ = 1 time

$\frac{80,000 + 60,000 + 1.2L}{60,000 + \text{installment}}$ = 1 time

∴ Installment = Rs.2,00,000

Balance Sheet as on 31.03.01

Liabilities	Rs.	Rs.	Assets	Rs.	Rs.
Share capital:			**Fixed assets:**		
Authorized and subscribed:			Land		1,20,000
20,000 E.S. of Rs.10,each		2,00,000	Plant & Machinery	3,00,000	
Reserves & Surplus:			(-) Depreciation	1,20,000	1,80,000
General Reserve:			**Current Assets:**		
Balance On 1. 4. 2000	60,000		Stock	1,20,000	
(+) T/s during the year	40,000	1,00,000	Debtors	1,60,000	
Secured Loans:			Cash & Bank Balance	1,20,000	
15% loan	4,00,000				4,00,000
(-) Instalment	2,00,000	2,00,000			
Current liabilities:					
Creditors	1,20,000				
Provision for tax	40,000				
Proposed dividend	40,000	2,00,000			
		7,00,000			**7,00,000**

THE END