# 8. RATIO ANALYSIS

## MODEL - WISE ANALYSIS OF PREVIOUS EXAMINATIONS

| 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 | M-15 | N-15 | M -16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. | PREPARATION OF BALANCE SHEET | 12 | - | - | - | 15 | - | - | - | - | 8 | - | 8 | 5 | 8 | 8 | 8 | 8 |
| 2. | CALCULATION OF RATIOS | - | 12 | - | 2 | - | 5 | - | 8 | - | - | 5 | - | - | - | - | - | - |

*Theory*

**Introduction:** Financial statements- P&L A/c and Balance Sheet do not disclose all of the necessary and relevant information for better Planning and Decision Making. They provide only financial data to analyze the financial position which is not only necessary for proprietors alone but also to the parties demanding financial information i.e., Government, Nationalized Banks, Investors and Customers. There are various tools available for financial analysis.

They are:

a) Comparative Statements

b) Common size statements

c) Trend Ratios

d) Ratio Analysis

e) Cash Flow Statements

f) Fund Flow Statements

The most important tool for Financial Analysis is Ratio Analysis. It is useful in understanding the Financial Statements and drawing conclusions about the financial position of the firm.

### Ratio Analysis:

a) The Ratio Analysis has emerged as the principal technique of the Annual financial statements.

b) A ratio is a relationship expressed in mathematical terms between two individual figures or group of figures connected with each other in some logical manner.

c) A financial ratio helps to summarize a large mass of financial data into a concise form and to make meaningful interpretations and conclusions about the performance and positions of a firm.

d) For example, a firm having Net Sales of Rs.5,00,000 is making a gross profit of Rs.1,00,000. It means that the ratio of the Gross Profit to Net Sales is 20% i.e. (Rs.1,00,000 ÷ Rs.5,00,000) x 100.

**Steps in Ratio Analysis:** The Ratio Analysis requires two steps as follows:

a) Calculation of a ratio (as discussed later), and

b) Comparing the ratio with some predetermined standard. The standard ratio may be the past ratio of the same firm or industry average ratio or a projected ratio or the ratio of the most successful firm in the industry.

**Forms of Ratios:** Since a ratio is a mathematical relationship between two or more variables or accounting figures, such relationship can be expressed in different ways as follows:

a) **As a pure ratio:** For example, the equity share capital of a company is Rs.20,00,000 and the preference share capital is Rs.5,00,000, the ratio of equity share capital to preference share capital is 20,00,000: 5,00,000 or simply 4:1.

b) **As a rate of times:** In the above case the equity share capital may also be described as 4 times that of preference share capital. Similarly, the cash sales of a firm are Rs.12,00,000 and the credit sales are Rs.30,00,000. So, the ratio of credit sales to cash sales can be described as 2.5 (30, 00,000 ÷ 12, 00,000) or simply by saying that the credit sale are 2.5 times that of cash sales.

c) **As a percentage:** In such a case, one item may be expressed as a percentage of some other item. For example, net sales of the firm are Rs.50,00,000 and the amount of the gross profit is Rs.10,00,000, then the gross profit may be described as 20% of sales i.e. (Rs.10,00,000 ÷ Rs.50,00,000) x 100 or simply 20%.

**Types of Comparisons:** The ratios can be compared in three different ways.

a) Cross - Section Analysis.          b) Time – Series Analysis.          c) Combined Analysis.

a) **Cross-Section Analysis:** One way of comparing the ratio or ratios of a firm is to compare them with the ratio or ratios of some other selected firm in the same industry at the same point of time. So, it involves the comparison of two or more firm's financial ratios at the same point of time. The cross section analysis helps the analyst to find out as to how a particular firm has performed in relation to its competitors.

b) **Time-Series Analysis:** The analysis is called Time-Series Analysis when the performance of a firm is evaluated over a period of time. By comparing the present performance of a firm with the performance of the same firm over last few years, an assessment can be made about the trend in progress of the firm, about the direction of progress of the firm. The information generated by the Time- series Analysis can be of immense help to the firm to make planning for future operations.

c) **Combined Analysis:** It consists of both cross section analysis and time series analysis.

**Pre - requisites to Ratio Analysis:** In order to use the Ratio Analysis as a device to make purposeful conclusions, there are certain pre-requisites which must be taken care of. It may be noted that these pre requisite are not conditions for calculations but conditions for meaningful conclusions.
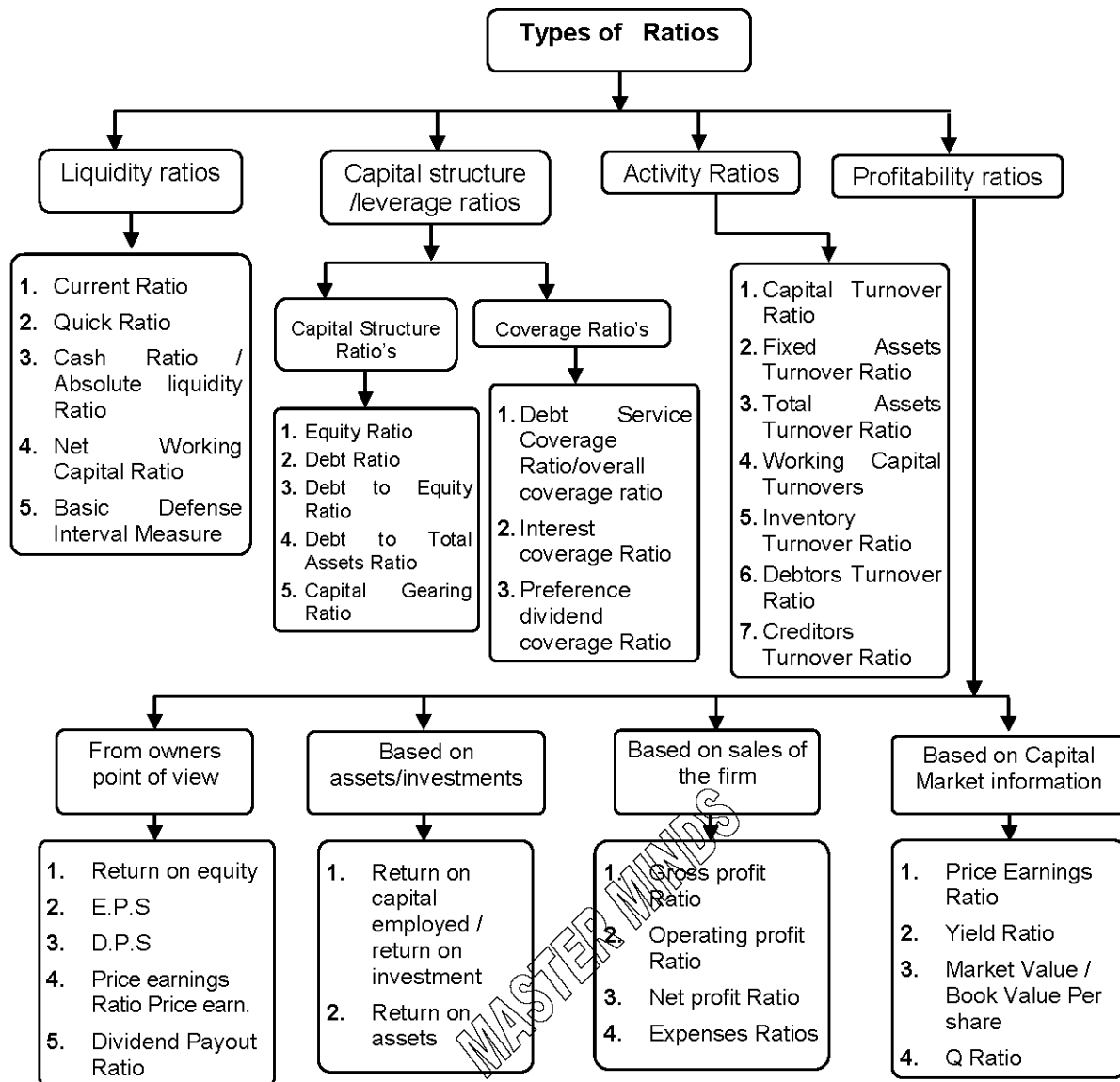
a) The dates of different financial statements from where data is taken must be same.

b) If possible, only audited financial statements should be considered. Otherwise, there must be sufficient evidence that the data is correct.

c) Accounting policies followed by different firms must be same in case of Cross-Section Analysis otherwise the results of the Ratio Analysis would be distorted.

d) One ratio may not throw light on any area of performance of the firm. Therefore, a group of ratios must be preferred. This will also be conducive to counter checks.

## Classification of Ratios:

The ratios can be classified into following four broad categories:

a) Liquidity Ratios

b) Capital Structure/Leverage Ratios

c) Activity Ratios

d) Profitability Ratios

**Types of Ratios**

- Liquidity ratios
- Capital structure /leverage ratios
- Activity Ratios
- Profitability ratios

**Liquidity ratios**

1. Current Ratio
2. Quick Ratio
3. Cash Ratio / Absolute liquidity Ratio
4. Net Working Capital Ratio
5. Basic Defense Interval Measure

**Capital structure /leverage ratios**

Capital Structure Ratio's

Coverage Ratio's

1. Equity Ratio
2. Debt Ratio
3. Debt to Equity Ratio
4. Debt to Total Assets Ratio
5. Capital Gearing Ratio

1. Debt Service Coverage Ratio/overall coverage ratio
2. Interest coverage Ratio
3. Preference dividend coverage Ratio

**Activity Ratios**

1. Capital Turnover Ratio
2. Fixed Assets Turnover Ratio
3. Total Assets Turnover Ratio
4. Working Capital Turnovers
5. Inventory Turnover Ratio
6. Debtors Turnover Ratio
7. Creditors Turnover Ratio

**Profitability ratios**

From owners point of view

Based on assets/investments

Based on sales of the firm

Based on Capital Market information

1. Return on equity
2. E.P.S
3. D.P.S
4. Price earnings Ratio Price earn.
5. Dividend Payout Ratio

1. Return on capital employed / return on investment
2. Return on assets

1. Gross profit Ratio
2. Operating profit Ratio
3. Net profit Ratio
4. Expenses Ratios

1. Price Earnings Ratio
2. Yield Ratio
3. Market Value / Book Value Per share
4. Q Ratio

# 1. LIQUIDITY RATIOS / SHORT TERM SOLVENCY RATIOS

a) The term Liquidity or short-term solvency means ability of the business to pay its short-term liabilities.

b) 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.

c) Short-term lenders and creditors of a business are very much interested to know its state of liquidity because of their financial stake.

d) Consequently, these ratios focus on current assets and current liabilities.

e) The Liquidity Ratios provide a quick measure of liquidity position of the firm by establishing a relationship between its current assets and its current liabilities.

1. **CURRENT RATIO:**

   a) **Meaning: It is the most common measure of short term liquidity.** It is also referred as the working capital ratio because net working capital is the difference between current assets and current liabilities.

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

b) **Definitions:**

i) **Current Assets:** The total Current Assets include those assets which are in form of cash, near cash or convertible into cash within a period of 1 year.

> **Current Assets =** Inventory/Stock in Trade (S.I.T) + Sundry Debtors + Cash & Bank balances + Receivables i.e. B/R + Accruals i.e. Rent receivable + Loans & Advances + Prepaid Expenses and Short Investments, if any

ii) **Current Liabilities:** The Current Liabilities include all type of liabilities which will mature for payment within in a period of 1 year.

> **Current Liabilities =** Creditors for Goods & Services + Short Term Loans + Bank OD + Cash Credit + O/s Expenses + Provision for Taxation + Proposed Dividend + Unclaimed Dividend + Payables i.e. B/P+ Accrued Interest etc.

c) **Precautions:**

i) Sale proceeds of Fixed Assets received shortly before the close of the year should be excluded.

ii) Sundry debtors, Loans and Advances which include advances to suppliers of machinery, advances to employees and doubtful debts should also be excluded.

iii) Stocks which include obsolete or slow moving items should be excluded.

iv) CLs should include LT liabilities which are payable within the year.

d) **Conclusion:** This represents a margin of safety for the liabilities. The higher the current ratio, the greater is the margin available and the less is the chance of firm's failure to meet its commitments in time. For E.g.: as against a standard of 2:1, if a firm is having a Current Ratio of 3:1 signifying that the firm's current assets are 3times that of its current liabilities.

2. **ACID TEST RATIOS / QUICK RATIOS / LIQUID RATIOS:**

a) **Why it is preferable:** What happens if the current assets are primarily consisting of obsolete stock or defaulting debtors? Obviously, the firm's payment ability will not be as good as it seems to be on the basis of the Current Ratio. That is why, the Current Ratio is considered to be an over all and a broad measure of liquidity. A current asset is considered to be liquid if it is convertible into cash with out loss of time and value. Hence the real ability to pay can be measured with the help of QUICK RATIO.

$$\textbf{Formula} = \frac{\text{Quick Assets}}{\text{Current Liabilities}}$$

**Note:** Sometimes, a variation in the above formula is also suggested. Instead of current liabilities, only those current liabilities are taken into denominator, which are really payable within a period of 1 year. So, the amount of bank overdraft which is by a nature a current liabilities, but which is usually availed by the firm more or less on a regular basis, and is not payable in real sense, is therefore, deducted from the amount of current liabilities. So,

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

**As per Institute's Material, they used Quick Ratio as per the formula given above in a) So, it is suggested to use the formula referred by ICAI study Material**

b) **Glossary:**

> **Quick Assets =** Current assets - Stock - Prepaid Expenses (as they aren't realizable back).
> Quick Liabilities = Current Liabilities – Bank OD – Cash Credit.
> Current Liabilities = Same as above.

**Note:**

i) Stock has the nature of slow convertibility. So, it is not included from the definition of Quick Assets.

ii) Prepaid Expenses once paid are generally not realizable back. So, they are also excluded from the definition of Quick Assets.

iii) In Debtors also the size, age and location of the accounts must be analyzed before taking any final decision.

c) **Conclusion:** Generally, **a Quick Ratio of 1:1 is considered to be satisfactory** because its means that the quick assets of the firm are just equal to the Current liabilities and therefore does not seems to be a better test of liquidity than the current ratio. Therefore a firm having a Quick Ratio of 1:1 or even higher may still face problems in meeting its commitments if the liquid assets are consists of slow paying or defaulting customers. To conclude, the QUICK RATIO is definitely a better measure of the liquidity of the firm as compared to the current ratio.

3. **ABSOLUTE CASH RATIO / ABSOLUTE LIQUIDITY RATIO/ CASH RATIO/ SUPER QUICK RATIO / CASH RESERVOIR RATIO:**

a) **Meaning: The cash ratio measures the absolute liquidity of the business.** This ratio considers only the absolute liquidity available with in firm. The absolute liquidity ratio only tests short-term liquidity in terms of cash and marketable securities.

$$\text{Formula} = \frac{\text{Bank} + \text{Cash} + \text{Marketable Securities}}{\text{Current Liabilities}}$$

**Glossary:**

**Current Liabilities** = Same as above

b) **Conclusion: The Cash Ratio of magnitude up to 1:2 may be satisfactory** and a firm need not maintain too much of high/super liquid assets. If the super liquid assets are too much, it may affect the profitability of the firm as these super liquid assets are the most unproductive assets of all.

4. **NET WORKING CAPITAL RATIO: Net working capital is more a measure of cash flow than a ratio.** The result of this calculation must be positive number.

**Formula:** Current Assets – Current Liabilities (excluding short term bank borrowings)

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

5. **INTERVAL MEASURES/ DEFENSIVE INTERVAL RATIO:**

a) **Meaning:** This Ratio measures a relationship between Quick Assets and Average Daily operating expenses.

$$\text{Formula} = \frac{\text{Total Defensive Assets/Liquid Assets}}{\text{Projected daily cash requirement}}$$

b) **Glossary:**

**Defensive or Liquid Assets** = cash + bank + debtors + marketable securities (or) current assets – inventory – prepaid expenses.
Projected daily cash requirements = Operating Expenses +Interest+ Income taxes ÷ 365

c) **Interpretation:** It indicates the period for which average daily operating expenses can be met out of available Quick Assets.

d) **Conclusion:** DIR measures the **capacity of the firm to meet its immediate cash requirements without resorting to sales or other sources** i.e. the time lag for which the firm can operate without resorting to the sales receipts.

**Conclusion on Liquidity Ratios:** The significance of the Liquidity Ratios can be explained in terms of the consequences which the firm may have to face otherwise .For e.g. (i) Inability of the firm to meet its commitments and thus loosing goodwill and credit worthiness, (ii) Loosing the profitable opportunities. For obvious reasons, the liquidity ratios are particularly interesting to short term creditors. The following limitations must be considered by an analyst:

a) The liquidity ratio depicted by the liquidity ratios is essentially static in nature i.e. on the balance sheet date only. The firm might have faced severe difficulties in paying liabilities through out the year. Similarly, two specific current liabilities i.e. provision for tax and proposed dividend appear only on the last working day. Hence the liquidity ratios are unnecessarily affected by these current liabilities which were not there through out the year.

b) The different components of the current assets and current liabilities may change even next day and the measures of the liquidity may rapidly become out of date.

## 2. LEVERAGE RATIOS/ LONG TERM SOLVENCY RATIOS / CAPITAL STRUCTURE RATIOS

**Purpose:** Leverage Ratios are used to measure the firm's ability to meet the Long term Obligations .These Ratios indicate the mix of the Funds provided by owners and lenders and assure the lenders of the Long term funds with regard to:

a) Periodic payment of interest during the period of the loan

b) Repayment of principal amount on maturity.

Therefore, Leverage Ratios are of two types:

1. Capital Structure Ratios

2. Coverage Ratios

1. **CAPITAL STRUCTURE RATIOS:** These Ratios provide an insight in to the financing techniques used by a business and focus, as a consequence, on the long term solvency position.

   From the Balance Sheet we can get only the absolute fund employed and its sources, but only Capital structure ratios show the relative proportion of different sources.
   Four Popularly known Capital structure Ratios are

   a) Equity Ratio

   b) Debt Ratio

   c) Debt To Equity Ratio or Long term Debt to Networth Ratio

   d) Debt to Total Assets Ratio.

   e) Capital gearing ratio

   a) **Equity Ratio:** 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.

   **Formula:** shareholder's equity/ total capital employed

   **Capital Employed:** 　　Total Assets – Current Liabilities( OR) = Fixed Assets +Working Capital

   **Note:** While Calculating the Total Assets, Not trading Assets should not be included i.e. Non Trading assets do not form part of Capital Employed .E.g. Advance for the Purchase of Fixed Assets, Capital Work in Progress, Non Trade Investments.

   b) **Debt Ratio:** This ratio is used to analyze **the long-term solvency of a firm.**

   **Formula:** $\dfrac{\text{Total Debt}}{\text{Net Assets/Capital Employed}}$

> Total debt 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.
>
> Capital employed includes total debt and net worth.

c) **Debt to Equity Ratio:**

    i) **Meaning:** This Ratio establishes a relationship between long term debts and Shareholders funds.

    ii) **Objective:** The objective of computing this ratio is to measure the relative proportion of debt and equity in financing the assets of the firm.

**Formula:** Debt Equity ratio = Long term debt/ Share Holders fund. (Or) $\dfrac{\text{Total Debt}}{\text{Shareholde rs Equity}}$

**Satisfactory Standard:** A Debt Equity Ratio of 2:1 is considered to be a satisfactory ratio which means Debt should be twice the Equity.

**Note:** Debt Equity ratio is calculated on a particular date and not for a particular period.

**Glossary:**

> Long term Debt which means long term loans (whether Secured or unsecured)(eg. Debentures, bonds, loans from Financial institutions
> Share Holders Funds or Shareholders equity means Equity Share capital + Preference Share capital + reserves and Surpluses- fictitious assets.

**Conclusion:** The DE Ratio of a firm should be compared with the industry average. The reason being that every industry has its own characteristic relating to capital requirements. For example, in case of basic and heavy industries the DE Ratio will be higher as compared to general manufacturing concerns.

**Note:** In case of Low Debt Equity ratio, lower the Risk to creditors.

    In case of High Debt Equity Ratio, greater the risk to creditors.

d) **Debt to Total Assets Ratio:**

**Meaning:** This ratio measures the **proportion of total assets financed with debt** and, therefore, the extent of financial leverage.

**Formula:** Debt to Total Assets = $\dfrac{\text{Total debt / Total Out side liabilities}}{\text{Total Assets}}$

e) **Capital Gearing Ratio:**

**Meaning:** This Ratio establishes the relationship between Fixed Interest bearing funds and Equity Shareholders funds.

**Objective: The objective of computing this ratio is to measure the relative proportion of Fixed Interest bearing Funds to Equity shareholders funds.**

**Formula =** $\dfrac{\text{FixedInterest bearing funds}}{\text{Equity share holders funds}}$

**Glossary:**

> **Fixed interest bearing funds means** : Debentures + Long Term Loans +Preferential Share capital.
> **Equity share holder's funds means** : Equity share capital+ Reserves & Surplus.

For judging long term solvency position ,in addition to debt equity ratio and capital gearing ratio, the following ratios are also used.

    i) **Fixed assets to long term funds:**

**Meaning:** It indicates the proportion of LT funds deployed in Fixed Assets.

$$\text{Formula} = \frac{\text{Fixed Assets}}{\text{LT funds}}$$

**Glossary:**

> **Fixed Assets** = Gross Block – Dep. to date
> **LT funds** = Share capital (Equity & Preference) + Reserves & surpluses + LT Loans.

### ii) Shareholders Equity ratio/ Proprietary ratio:

**Meaning:** Ratio indicates the extent to which the total assets of entity are financed by proprietary funds. i.e. Share holders funds.

$$\text{Formula} = \frac{\text{Share Holder funds}}{\text{Total Assets/Fixed Assets}}$$

**Glossary:**

> Proprietary fund includes Equity Share Capital + Preference Share Capital + Reserve & Surplus – Fictitious Assets.
> Total assets exclude fictitious assets and losses

## 2. COVERAGE RATIOS

**Purpose:** The ability to service the debt refers to how easily and readily the firm will be able to meet its commitments in respect of the contractual interest payment and the repayment schedule. In addition to the interest and the repayments, a firm may also have to pay the scheduled payment. The firm's ability to service the fixed liabilities can be measured with the help of Coverage ratios.

### a) Overall Coverage Ratio/ Debt Service Coverage Ratio:

**Meaning:** Overall Coverage Ratio, also known as Overall Fixed Charges Coverage Ratio, measures the ability of the enterprise to service all fixed obligations out of its earnings.

$$\text{Formula: Overall Coverage Ratio:} \frac{\text{Earnings available for Debt service}}{\text{Interest} + \text{Installments}}$$

**Glossary:**

> **Earnings available for Debt service** = Net Profit + Non cash operating expenses like depreciation and other amortization + non operating adjustments like loss on sale of fixed assets + Interest on debt fund.

**Conclusion:** Lenders are interested in debt service coverage to judge the firm's ability to pay off current interest and instalments.

### b) Interest Coverage Ratio/ Times Interest Earned:

**Meaning:** It measures the **ability of the firm to pay the fixed interest liabilities** i.e. how many times interest can be paid out of EBIT.

$$\text{Formula} = \frac{\text{EBIT}}{\text{Interest}}$$

> **EBIT** = Earnings before interest and taxes
> **Interest** = Fixed interest liability of the firm

**Example:** If a firm has EBIT of Rs.25, 00,000 and its fixed interest liability amounts to Rs.6,25,000, then IC Ratio is

$$\text{IC Ratio} = \frac{\text{EBIT}}{\text{Interest}} = 25,00,000/6,25,000 = 4$$

It means that the operating profit of the firm is 4 times that of its interest liability. The higher the IC ratio, better it is both for the firm and for the lenders.

**Note:** The figure of EBIT indicates only the operating profit out of which interest payment is to be made. However, in practice the interest is to be paid in cash form and therefore, it is better to compare the interest liability with cash profits of the firm. Further, the **IC Ratio ignores the repayment liability of the firm.**

c) **Preference dividend Coverage Ratio:**

**Meaning:** This ratio attempts to **measure the Preference Shares servicing capacity of the firm so far as Fixed Dividend on Preference shares is concerned.**

$$\text{Formula} = \frac{\text{Net Profit after Tax}}{\text{Dividend on Pref. shares}}$$

**Note:** The calculation of the PC Ratio is based on the assumption that the payment of preference dividend is contractual and must be made.

**Conclusion:** This ratio **indicates margin of safety available to the preference shareholders.** The higher the PC ratio, better it is for the preference shareholders.

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.

$$\text{Formula} = \frac{\text{EBIT} + \text{Depreciation}}{\text{Interest} + \dfrac{\text{Repayment of loan}}{1 - \text{Tax}}}$$

**Conclusion on Coverage Ratio:** The lower the coverage ratio, the more risky the firm would be from the point of view of the lenders/investors. Thus, the analysis of the coverage ratios (and in particular the IC Ratio) would reveal whether the firm has the capacity to service the additional debts or not.

## 3. ACTIVITY RATIOS/TURNOVER RATIO/PERFORMANCE RATIOS

**Purpose:** Activity Ratios are used to measure the efficiency or effectiveness with which a firm manages its Assets or resources. Under this head we study the following Ratios.

a) **CAPITAL TURNOVER RATIO/ SALES TO CAPITAL EMPLOYED RATIO:**

**Meaning:** It indicates the efficiency in **utilization of the capital employed in generating revenue.**

$$\text{Formula} = \frac{\text{Sales / Cost of goods sold}}{\text{Net Asets}}$$

$$\text{Alternative formula} = \frac{\text{Sales / Cost of goods sold}}{\text{Average Capital Employed}}$$

**Glossary:**

> Net assets = net fixed assets + current assets – current liabilities. Since net assets equal to capital employed it also known as Capital Turnover ratio.
> Net sales = Gross Sales – Returns

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.

b) **FIXED ASSETS TURNOVER RATIO:**

**Meaning:** It measures the **efficiency with which the firm uses its fixed assets**. It indicates that how well the fixed assets are being utilized for improving sales.

$$\text{Formula} = \frac{\text{Net Sales /Cost of Sales}}{\text{Fixed Assets}}$$

## c) TOTAL ASSETS TURNOVER RATIO:

**Meaning:** This ratio measures the **efficiency with which the firm uses its total assets.**

$$\text{Formula} = \frac{\text{Net Sales}}{\text{Average Total Assets}}$$

**Conclusion:** This Ratio measures how efficiently the total assets have been used by the Management.

## d) WORKING CAPITAL TURNOVER RATIO:

**Meaning:** The WCT Ratio studies the **velocity or utilization of the working capital of the firm during a year.**

$$\text{Formula} = \frac{\text{Annual Net Sales or Cost of Sales}}{\text{Net Working Capital}}$$

**Glossary:**

> **Net Sales =** Gross Sales – Returns
> **Net Working capital =** Total current assets – Total current liabilities

**Conclusion:** A high WCT Ratio reflects the better utilization of the working capital of the firm. However, a high WCT Ratio also implies a low net working capital in relation to the sales volume and therefore implies over trading by the firm in relation to its net working capital. This may be a risky proposition for the firm.

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

### i) Inventory Turnover Ratio / Stock Turnover Ratio:

**Meaning:** This ratio, also known as **stock turnover ratio establishes the relationship between the cost of goods sold during the year** and the average inventory held during the year by the firm. It is calculated as follows:

$$\text{Formula} = \frac{\text{Cost of Goods sold}}{\text{Average Inventory}}$$

**Glossary:**

> **Cost of Goods sold =** Opening Stock + Purchases - Closing Stock or Net Sales -Gross profit.
> **Average Inventory =** $\dfrac{\text{Opening Inventory + Closing Inventory}}{2}$

**Notes:**

- The term inventory may include all types of stock (i.e. Raw material, Work-in-Progress and finished goods). But it is better to compute the ratio on the basis of stock of finished goods only.

- In case of inventory turnover ratio of all types of stock is computed as follows:

$$\text{Inventory Turnover Ratio (for Raw Materials)} = \frac{\text{Raw Material consumed}}{\text{Average Raw Material Stock}}$$

$$\text{WIP Turnover Ratio} = \frac{\text{Annual cost of production}}{\text{Average work-in-progress}}$$

$$\text{FG Turnover Ratio} = \frac{\text{Annual cost of production}}{\text{Average Finished Goods}}$$

- The denominator is the cost of goods sold (i.e. net sales – gross profit) and not the net sales. This is because the inventory account is carried at cost and it must be compared with the other figure at cost level only. However, in case the value of cost of goods sold is not available, then it may be replaced by the amount of net sales.

- The average stock may be taken as the average of yearly opening stock and closing stock. In case the firm is dealing in seasonal goods, then the average of monthly opening and closing stock may be preferred, if provided.

**Conclusion:** No ideal standard for this ratio so it should be compared with the I/T Ratio of other firms or past I/T Ratios of the same firm. Test of efficient inventory management, the higher the I/T Ratio, the better it is.

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**STOCK VELOCITY RATIO/ STOCK HOLDING PERIOD:**

**Meaning:** It indicates the no. of days does average stock is taking to be sold. It is also known as average age of inventory.

**Formula:** $\text{Stock Holding Period} = \dfrac{365 \text{ Days}/12M/52 \text{ weeks}}{\text{Stock turnover Ratio}}$

**Note:** In case Stock Velocity is given in problems in no. of times then it represents Stock Turnover Ratio.

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ii) **Debtors Turnover Ratio / Receivable Turnover Ratio:**

**Meaning:** It measures the efficiency with which **management is managing its accounts receivables**. The speed with which these receivables are collected affects the liquidity position of the firm. The R/T Ratio attempts to throw light on the collection and credit policies of the firm. The R/T Ratio reveals the velocity of receivables collection by matching the annual credit sales to the average receivables as follows:

$$\text{Formula} = \frac{\text{Net Credit Annual Sales}}{\text{Average Accounts receivable}}$$

**Glossary:**

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**Credit Sales** = Credit sales for the year – Sales returns for the year.

**Average Accounts Receivables** = $\dfrac{\text{Opening A/cs Receivable} + \text{Closing A/cs Receivable}}{2}$

**Accounts Receivable** = Trade Debtors + Bills Receivables from Customers.

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**Notes:**

- Trade Debtors are to be taken at Gross figures i.e., provision for bad debts, provision for discount on debtors are not be deducted from Trade Debtors.

- Where the information regarding credit sales, opening & closing balances of accounts receivables is not available Debtors turnover ratio may be calculated as follows:

$$\text{Debtors Turnover Ratio} = \frac{\text{Total Sales}}{\text{Closing Debtors}}$$

**Conclusion:** A high R/T Ratio (or a low average collection period) depicts highly liquid receivables on one hand and a very restrictive credit policy on the other. Such a policy could limit the profits by denying the credit to potential customers who may then go elsewhere. The R/T Ratio and the average collection period of the firm should be compared with the industry's acceptable standard and be viewed in terms of the credit policy of the firm.

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**DEBTORS COLLECTION PERIOD / DEBTORS VELOCITY RATIO:**

**Meaning:** It indicates the average length of time that the firm must wait after making a sale before receiving cash i.e., how long its takes to collect amount from Debtors.

$$\text{Formula} = \frac{365\ Days/12M/52\ weeks}{Debtors\ turnover\ Ratio}$$

**Note:** In case Debtors Velocity is given in problems in no. of times, it represents Debtors Turnover Ratio.

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**iii) Creditors Turnover Ratio:**

**Meaning:** The P/T Ratio is calculated in the same manner and on the same lines as the R/T Ratio is calculated. The P/T Ratio shows the velocity of debt payment by the firm. It compares the annual credit purchases with the average payables (creditors and bills) as follows:

$$\text{Formula} = \frac{Net\ Credit\ Annual\ purchase}{Average\ Accounts\ payable}$$

**Glossary:**

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**Net Credit Annual purchase =** Total Credit purchases for the year – Purchase returns.

$$\text{Avg. Account payable} = \frac{Opening\ Accounts\ Payable + Closing\ Accounts\ Payable}{2}$$

**Accounts Payable =** Trade Creditors + Bills Payables from Customers.

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**Notes:**

• Trade Creditors are to be taken at Gross figures i.e., provision for discount on creditors are not be deducted from Trade Creditors.

• Where the information regarding credit purchases, opening & closing balances of accounts payables is not available Creditors turnover ratio may be calculated as follows:

$$\text{Creditors Turnover Ratio} = \frac{Total\ Purchases}{Closing\ Creditors}$$

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**CREDITORS VELOCITY RATIO/ AVERAGE PAYMENT PERIOD:**

**Meaning:** It indicates how many days it takes to pay for goods and services purchased by the company.

$$\text{Formula} = \frac{365\ Days/12M/52weeks}{Creditors\ Turnover\ Ratio}$$

**Note:** In case Creditors Velocity is given in problems in no. of times, it represents Creditors Turnover Ratio.

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## 4. PROFITABILITY RATIOS/ CASUAL 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

1. Profitability ratios required for analysis from owners' point of view

2. Profitability ratios based on assets/investments

3. Profitability ratios based on sales of the firm

4. Profitability ratios based on capital market information

1. **PROFITABILITY RATIOS REQUIRED FOR ANALYSIS FROM OWNERS' POINT OF VIEW**

a) **Return on Equity /Return on Share Holders funds:**

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

$$\text{Formula} = \frac{\text{PAT - Preference dividend}}{\text{Networth/ Equity Share Holders funds}}$$

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.

Alternatively we can calculate Return on Equity from total shareholders perspective by using the following formula

$$\text{Formula} = \frac{\text{PAT}}{\text{Share Holders funds}}$$

b) **Earnings Per Share (EPS):**

**Meaning:** The profitability of a firm can also be **measured in terms of number of equity shares**. This is known as EPS which is derived by dividing the Earnings Available to Equity holders by the number of equity shares. So,

$$\text{Formula} = \frac{\text{Net Profit available to equity shareholders}}{\text{No. of equity shares outstanding}}$$

**Glossary:**

> Net profits available to equity shareholders = PAT – Preference Dividend

c) **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 shareholders per share.

$$\text{Dividend per Share} = \frac{\text{Total Profits Distributed}}{\text{Number of Equity Shares}}$$

d) **Price Earnings Ratio:**

**Meaning:** It is the most commonly quoted market measure. It indicates the **payback period to the investors or prospective investors.**:

$$\text{Formula} = \frac{\text{Market Price per share}}{\text{Earnings per share}}$$

The PE Ratio **indicates the expectations of the equity investors about the earnings of the firm.** The investor's expectations are reflected in the market price of the share and therefore the PE Ratio gives an idea of investor's perception of the EPS. Companies having high and growth prospects have higher PE Ratio as compared to no-growth or slow growth firms.

e) **Dividend Payout Ratios (D/P):**

**Meaning:** The DP Ratio is the ratio between the DPS and the EPS of the firm i.e. **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.

$$\text{Formula} = \frac{\text{Dividend Per Share}}{\text{Earnings Per Share}} \times 100$$

**Objective:** The Objective of computing this ratio is to measure the portion of EPS distributed as Dividends.

2. **PROFITABILITY RATIOS BASED ON ASSETS/INVESTMENTS:** A financial analyst can employ another set of financial ratios to find out how efficiently the firm is using its assets because the profitability of a firm can also be analyzed with reference to assets employed to earn a return. There are different concepts of assets employed/investments made in the firm such as total assets, tangible assets, net assets, fixed assets, capital employed etc

a) **Return on Capital Employed /Return on Investment:**

**Meaning:** The profitability of the firm can also be analyzed from the point of view of the total funds employed in the firm. The term funds employed or the capital employed refers to the total long term sources of funds. It means that the capital employed comprises of shareholders funds plus long term debts. Alternatively, it can also be defined as fixed assets plus net working capital.

$$\text{Formula (Pretax)} = \frac{\text{EBIT}}{\text{Average / Total Capital Employed}}$$

$$\text{Formula (Post tax)} = \frac{\text{EBIT}(1-\text{tax})}{\text{Average / Total Capital Employed}}$$

$$\text{Sometimes it is calculated as} \quad \frac{\text{PAT + Interest}}{\text{Average / Total Capital Employed}}$$

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.

**Glossary:**

> **Capital employed =** Total Assets <u>less</u> Current liabilities Or E.S.C + P.S.C + Reserves & Surplus + Debt funds (Other than current liabilities) - Miscellaneous expenses not written off.

**Note:** It would be better to adjust the amount of interest on long term debts in the numerator in the following way:

$$\text{ROCE} = \frac{\text{EBIT}}{\text{Average Capital Employed}} \times 100$$

b) **Return on Assets:** 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:

$$\text{ROA} = \frac{\text{Net Profit After Taxes}}{\text{Average Total Assets}} \times 100 \text{ (Or) } \frac{\text{Net Profit After Taxes}}{\text{Average Tangible Assets}} \times 100$$

$$\text{(Or) } \frac{\text{Net Profit After Taxes}}{\text{Average Fixed Assets}} \times 100$$

$$ROA = \frac{PAT + Interest}{Average\ Total\ Assets/Average\ Tangible\ Assets/\ Average\ Fixed\ Assets} \times 100$$

$$ROTA\ (Return\ on\ Total\ Assets) = \frac{EBIT(1-Tax)}{Average\ Total\ Assets} \times 100$$

$$RONA\ (Return\ on\ Net\ Assets) = \frac{EBIT(1-Tax)}{Average\ Net\ Assets} \times 100$$

All these versions of the ROA show as to how much is the profit earned by the firm per rupee of assets used.

**Conclusion:** If a firm increases its size but is unable to increase its profits proportionately, then the ROA will decrease. In such a case, increasing the size of the assets i.e. the size of the firm will not by itself advance the financial welfare of the owners. The ROA of a particular firm should be compared with the industry average as the amount of assets required depends upon the nature and characteristics of the industry.

3. **Profitability Ratios based on Sales of Firm:** The Profit Margin refers to the profit contributed per rupee of sales revenue and therefore, the Profit Margin ratios measure the relationship between the profit and the sales. Different Profit Margin ratios have been suggested as follows:

   a) **Gross Profit Ratio:** It measures the efficiency with which Production and/or Purchase operations and selling operations are carried on. It is used to compare the profitability department wise or product wise.

$$Formula = \frac{Gross\ Profit}{Net\ Sales} \times 100$$

**Glossary:**

> **Gross Profit =** Net sales – cost of goods sold, Net **Sales =** Same as above

**Notes**

i) Sometimes, it is calculated by taking cost of goods sold instead of sales.

ii) The gross profit amount and the GP Ratio depends upon the relationship between the selling price and the cost of production including direct expenses.

iii) If the efficiency of the firm is same then the change in GP Ratio may result because of change in selling price or cost price or raw material consumption per unit.

**Conclusion:** The GP Ratio should be analyzed and studied as a time series. For a single year, the GP Ratio may not indicate much about the efficiency level of the firm. However, when studied as a time series, it may give the increasing or decreasing trend and hence an idea of the level of operating efficiency of the firm. A high GP Ratio or a low GP Ratio for a particular period does not have any meaning unless compared with some other firm operating in the same industry or compared with the industry average.

   b) **Operating Profit Ratio:**

   **Meaning:** The operating profit refers to **the pure operating profit of the firm** i.e. the profit generated by the operation of the firm and hence is calculated before considering any financial charge (such as interest payment), non-operating income/loss and tax liability etc. The operating profit is also termed as the Earnings before Interest and Taxes (EBIT). The OP Ratio may be calculated as follows:

$$Formula = \frac{Operting\ Profit\ or\ EBIT}{Net\ Sales}$$

**Significance:** With the help of **this ratio one can judge the managerial efficiency which may not be reflected in net profit ratio.** For example, a concern may have a large amount of non-operating income like dividend & interest which represents major proportion of the concern's net profit. The net profit ratio may show high efficiency of the management.

**Conclusion:** The OP Ratio shows the percentage of pure profit earned on every 1 rupee of sales made. The OP Ratio will be less than the GP Ratio as the indirect expenses such as general and administrative expenses, selling expenses, financial expenses and depreciation charge etc. are deducted from the gross profit to arrive at the operating profits i.e. EBIT. Thus the OP Ratio measures the efficiency with which the firm not only manufactures/purchases the goods but also sells the goods.

c) **Net profit Ratio:**

**Meaning:** It measures overall profitability, due to various factors such as operational efficiency ,trading on equity etc.

$$\text{Formula} = \frac{\text{PAT}}{\text{Net Sales}}$$

**Interpretation:** This ratio indicates (a) an average net margin earned on a sale of Rs.100/- (b) what portion of sales is left to pay dividend and to create reserves and (c) firm's capacity to withstand adverse economic conditions when selling price is declining, cost of production is rising and demand for the production is falling. Higher the ratio, greater is the capacity of the firm to withstand adverse economic conditions and vice versa.

An enterprise should have a satisfactory ratio .To judge whether the ratio is satisfactory or not, it should be compared with its own past ratios or with the ratio of similar enterprises in the same industry or with the industry average.

$$\text{Pretax profit ratio} = \frac{\text{EBT}}{\text{Net Sales}} \times 100$$

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

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

$$\text{Operating Expenses Ratio} = \frac{\text{Administrative exp. Selling \& DistributionOH}}{\text{Sales}} \times 100$$

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

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

Financial expenses exclude taxes, loss due to theft, goods destroyed by fire etc.

4. **PROFITABILITY RATIOS BASED ON CAPITAL MARKET INFORMATION:**

   These ratios are called **Market ratios.** They are measured by considering 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) Yield, (c) Market Value/Book Value per share, (d) Q Ratio.

   a) **Price - Earnings Ratio:** It is the most commonly quoted market measure. It indicates **the payback period to the investors or prospective investors.**

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

The PE Ratio **indicates the expectations of the equity investors about the earnings of the firm.** The investor's expectations are reflected in the market price of the share and therefore the PE Ratio gives an idea of investor's perception of the EPS. Companies having high and growth prospects have higher PE Ratio as compared to no-growth or slow growth firms.

b) **Yield ratio:** The Yield is defined as the rate of return on the amount invested. With reference to the equity shares, the Yield may be defined as the rate of return on the market price of equity shares. In order to find out the yield of an equity share, the market price may be compared with the EPS or the DPS to find out the Earnings Yield or Dividend Yield respectively as follows:

**Earnings yield:** It measures relationship between earnings per share to the market price per share. This ratio helps the investors to know the real worth of the concern.

$$\text{Formula} = \dfrac{\text{EPS}}{\text{Market Price per share}}$$

**Dividend yield:** It measures relationship between dividends per share to the market price.

$$\text{Formula} = \dfrac{\text{DPS}}{\text{Market Price per share}}$$

**Note:** It may be observed that the Earnings Yield is the inverse of the PE Ratio. The Earnings Yield is also known as Earnings Price Ratio.

**Conclusion:** The Earnings Yield and the Dividend Yield evaluate the profitability of the firm in terms of the market price of the share and hence are useful measures from the point of view of a prospective investor who is evaluating a share worth to take a buy or not to buy decision.

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

Market value per share / book value per share = average share price/ net worth/no of equity shares

**Or** = closing share price/ net worth/no of equity shares

**Conclusion:** 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.

d) **Q Ratio:** This ratio is proposed by James Tobin, Q ratio is defined as

$$\dfrac{\text{Market Value of equity and liabilities}}{\text{Estimated replacemen t cos t of assets}}$$

**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.

<u>Limitations of Financial Ratios:</u> 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 1/4$^{th}$ 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:** Some times 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.

## COMPOSITION OF RETURN ON EQUITY USING THE DUPONT MODEL:

There are three 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.

**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.

Net profit margin = Net Income ÷ 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.

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

Asset Turnover = Revenue ÷ Assets

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.

**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 = Assets ÷ 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 = (Net Profit Margin) (Asset Turnover) (Equity Multiplier)



The analysis of profitability on the above pattern is also known as DU PONT ANALYSIS, as it was developed by the DU PONT Corporation of the US. This analysis brings together the profit margin with the assets turnover and shows that the profitability depends not only on the profit margin but also on how efficiently the firm has used its assets to generate sales.

## SUMMARY

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

| Basic Defense Interval Ratio | $\dfrac{\left(\begin{array}{l}\text{Cash and Bank balances} + \\ \text{Marketable Securities}\end{array}\right)}{\text{Opering Expenses} \div \text{No.of days}}$ | 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 | $\dfrac{\text{Share holders' Equity}}{\text{Capital Employed}}$ | It indicates owner's fund in companies to total fund invested. |
|---|---|---|
| Debt Ratio | $\dfrac{\text{Total outside liabilities}}{\text{Total Debt} + \text{Net worth}}$ | It is an indicator of use of outside funds. |
| Debt to equity Ratio | $\dfrac{\text{Total Outside Liabilities}}{\text{Shareholde rs'Equity}}$ | It indicates the composition of capital structure in terms of debt and equity. |
| Debt to Total assets Ratio | $\dfrac{\text{Total Outside Liabilities}}{\text{Total Assets}}$ | It measures how much of total assets is financed by the debt. |
| Capital Gearing Ratio | $\dfrac{\left(\begin{array}{l}\text{Preference Share Capital} + \text{Debentures} \\ + \text{Other Borrowed funds}\end{array}\right)}{\left(\begin{array}{l}\text{Equity Share Capital} + \\ \text{Re serves \& Surplus} - \text{Losses}\end{array}\right)}$ | 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 | $\dfrac{\text{Proprietary Fund}}{\text{Total Assets}}$ | It measures the proportion of total assets financed by shareholders. |

**Coverage Ratios**

| Debt Service Coverage Ratio (DSCR) | $\dfrac{\text{Earnings available for debt services}}{\text{Interest} + \text{Instalment s}}$ | It measures the ability to meet the commitment of various debt services like interest, instalment etc. Ideal ratio is 2. |
|---|---|---|
| Interest Coverage Ratio | $\dfrac{\text{EBIT}}{\text{Interest}}$ | It measures the ability of the business to meet interest. Ideal ratio is > 1. |
| Preference Dividend Coverage Ratio | $\dfrac{\text{Net Profit / Earning after taxes(EAT)}}{\text{Preference dividend liability}}$ | It measures the ability to pay the preference shareholders' dividend. Ideal ratio is > 1. |
| Fixed Charges Coverage Ratio | $\dfrac{\text{EBIT} + \text{Depreiatio n}}{\text{Interest} + \dfrac{\text{Re} - \text{payment of loan}}{1 - \text{tax rate}}}$ | 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 | $\dfrac{\text{Sales / Cost of Goods Sold}}{\text{Average Total Assets}}$ | 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 | $\dfrac{\text{Sales / Cost of Goods Sold}}{\text{Fixed Assets}}$ | 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 | $\dfrac{\text{Sales / Cost of Goods Sold}}{\text{Net Assets}}$ | This indicates the firm's ability to generate sales per rupee of long term investment. |
| Working Capital Turnover Ratio | $\dfrac{\text{Sales / COGS}}{\text{Working Capital}}$ | It measures the efficiency of the firm to use working capital. |
| Inventory Turnover Ratio | $\dfrac{\text{COGS / Sales}}{\text{Average Inventory}}$ | It measures the efficiency of the firm to manage its inventory. |
| Debtors Turnover Ratio | $\dfrac{\text{Credit Sales}}{\text{Average Accounts Receivable}}$ | It measures the efficiency at which firm is managing its receivables. |
| Receivables (Debtors') Velocity | $\dfrac{\text{Average Accounts Receivables}}{\text{Average Daily Credit Sales}}$ | It measures the velocity of collection of receivables. |
| Payables Turnover Ratio | $\dfrac{\text{Annual Net Credit Purchases}}{\text{Average Accounts Payables}}$ | It measures the velocity of payables payment. |

## Profitability Ratios based on Sales

| | | |
|---|---|---|
| Gross Profit Ratio | $\dfrac{\text{Gross Profit}}{\text{Sales}} \times 100$ | 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 | $\dfrac{\text{Net Profit}}{\text{Sales}} \times 100$ | It measures the relationship between net profit and sales of the business. |
| Operating Profit Ratio | $\dfrac{\text{Operating Profit}}{\text{Sales}} \times 100$ | It measures operating performance of business. |

## Expenses Ratio

| | | |
|---|---|---|
| Cost of Goods Sold (COGS) Ratio | $\dfrac{\text{COGS}}{\text{Sales}} \times 100$ | |
| Operating Expenses Ratio | $\dfrac{\left(\begin{array}{l}\text{Administrative exp.}+\\ \text{Selling \& Distribution OH}\end{array}\right)}{\text{Sales}} \times 100$ | It measures portion of a particular expenses in comparison to sales. |
| Operating Ratio | $\dfrac{\text{COGS} + \text{Operating Expenses}}{\text{Sales}} \times 100$ | |
| Financial Expenses Ratio | $\dfrac{\text{Financial Expenses}}{\text{Sales}} \times 100$ | |

## Profitability Ratios related to Overall Return on Assets/ Investments

| | | |
|---|---|---|
| Return on Investment (ROI) | $\dfrac{\text{Return/Profit/Earnings}}{\text{Investments}} \times 100$ | It measures overall return of the business on investment/ equity funds/ capital employed/ assets. |
| Return on Assets (ROA) | $\dfrac{\text{Net Profit after taxes}}{\text{Average total assets}}$ | It measures net profit per rupee of average total assets/ average tangible assets/ average fixed assets. |

| Return on Capital Employed ROCE (Pre-tax) | $\dfrac{EBIT}{Capital\,Employed}\times100$ | It measures overall earnings (either pretax or post tax) on total capital employed. |
|---|---|---|
| Return on Capital Employed ROCE (Post-tax) | $\dfrac{EBIT(1-t)}{Capital\,Employed}\times100$ | It indicates earnings available to equity shareholders in comparison to equity shareholders' networth. |
| Return on Equity (ROE) | $\dfrac{\left(\begin{array}{l}Net\,Profit\,after\,taxes-\\Preference\,dividend\,(if\,any)\end{array}\right)}{Net\,worth\,/\,equity\,shareholders'fund}$ | |

**Profitability Ratios Required for Analysis from Owner's Point of View**

| Earnings per Share (EPS) | $\dfrac{Net\,profit\,available\,to\,equity\,share\,holders}{Number\,of\,equity\,shares\,outstanding}$ | EPS measures the overall profit generated for each share in existence over a particular period. |
|---|---|---|
| Dividend per Share (DPS) | $\dfrac{Dividend\,Paid\,to\,equity\,share\,holders}{Number\,of\,equity\,shares\,outstanding}$ | Proportion of profit distributed per equity share. |
| Dividend payout Ratio (DP) | $\dfrac{Dividend\,per\,equity\,share}{Earning\,per\,Share\,(EPS)}$ | It shows % of EPS paid as dividend and retained earnings. |

**Profitability Ratios related to market/ valuation/ investors**

| Price - Earnings per Share (P/E Ratio) | $\dfrac{Market\,price\,per\,Share\,(MPS)}{Earning\,per\,Share\,(EPS)}$ | 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 | $\dfrac{Dividend\,per\,Share\,(DPS)}{Market\,Price\,per\,Share\,(MPS)}\times100$ | It measures dividend paid based on market price of shares. |
| Earnings Yield | $\dfrac{Earnings\,per\,Share\,(EPS)}{Market\,Prie\,per\,Share\,(MPS)}\times100$ | It is the relationship of earning per share and market value of shares. |
| Market Value /Book Value per Share | $\dfrac{Market\,Value\,per\,Share}{Book\,Value\,per\,Share}$ | It indicates market response of the shareholders 'investment. |
| Q Ratio | $\dfrac{Market\,Value\,of\,equity\,and\,liabilities}{Estimated\,replacement\,cost\,of\,assets}$ | It measures market value of equity as well as debt in comparison to all assets at their replacement cost. |

## PROBLEMS FOR CLASSROOM DISCUSSION

**Problem 1:** (PRINTED SOLUTION AVAILABLE) 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:

i) Payment of current liability

ii) Purchase of fixed assets by cash

iii) Cash collected from Customers

iv) Bills receivable dishonored

v) Issue of new shares.                                              **(RTP NOV 16)**
*(Ans: Current Ratio: 2:1)*
***(Solve Problem No: 1 of Assignment Problems as rework)***

Note:_____

_____

**Problem 2:** **(PRINTED SOLUTION AVAILABLE) Preparation of statement of Proprietors funds:** From the following information, relating to a Limited Company, prepare a Statement of Proprietors' Funds:

| | |
|---|---:|
| Current Ratio | 2 |
| Liquid Ratio | 1.5 |
| Fixed Assets/Proprietary Fund | 3/4 |
| Working Capital | Rs.75 Lakh |
| Reserves & Surplus | Rs.50 Lakh |
| Bank Overdraft | Rs.10 Lakh |

There were no long - term loans or fictitious assets.

*(Ans.: Stock Rs.37,50,000; Equity share capital is Rs.250,00,000; Fixed assets Rs.225,00,000; Working capital is Rs.75,00,000)*

***(Solve Problem No: 9 of Assignment Problems as rework)***

Note:_____

_____

**Problem 3: (PRINTED SOLUTIONS AVAILABLE)** The following accounting information and financial ratios of M Limited relate to the year ended 31ˢᵗ March, 2012:

| | |
|---|---|
| Inventory Turnover Ratio | 6 Times |
| Creditors Turnover Ratio | 10 Times |
| Debtors Turnover Ratio | 8 Times |
| Current Ratio | 2.4 |
| Gross Profit Ratio | 25% |

Total sales Rs.30,00,000; cash sales 25% of credit sales; cash purchases Rs.2,30,000; working capital Rs.2,80,000; closing inventory is Rs.80,000 more than opening inventory.

You are required to calculate:

a) Average Inventory

b) Purchases

c) Average Debtors

d) Average Creditors

e) Average Payment Period

f) Average Collection Period

g) Current Assets

h) Current Liabilities.                                              **(PM)**

*(Ans: i.3,75,000 ii.23,30,000 iii. 3,00,000 iv.2,10,000 v.36.5 days vi.45.625 days vii.current assets 4,80,000 viii.2,00,000)*

Note:_____

_____

**Problem 4:** (PRINTED SOLUTION AVAILABLE) Ascertain the amount of cash & bank balance with the help of following Ratios:

The Directors of Bharucha Enterprises Ltd. ask you to ascertain:

a) Proprietors funds

b) Fixed assets

c) Closing debtors

d) Closing creditors

e) Closing stock

f) Share capital

g) Cash & bank balances

The following information is provided to you:

Inventory turnover ratio is 6 times.

Year end debtors are outstanding for 2 months.

Year end creditors are outstanding for 73 days.

Ratios of cost of goods sold to:

Proprietors' funds is 2:1

Fixed Assets is 4:1

Ratio of Gross Profit to Sales is 20%.

Closing stock is greater than the opening stock by Rs.10, 000.

The Gross Profit for the year is Rs.1, 20,000.

Reserves & Surplus appearing in the Balance Sheet at the end of the year total to Rs.40, 000.

*(Ans.: COGS is Rs.4, 80,000; Equity share capital is Rs.2, 00,000; Closing Debtors & Creditors is 1, 00,000 & 98,000; Cash & Bank is Rs.33,000)*

Note:_____


**Problem 5:** (PRINTED SOLUTION AVAILABLE) Computation of Debt Service Coverage Ratio:

Profit and Loss Account for the period ended 31.3.2014

|  | ('000) |  | ('000) |
|---|---|---|---|
| **Particulars** | **Amount** | **Particulars** | **Amount** |
| To Administrative Exp. | 300 | By Gross Profit (after | |
| To Selling & Dis. Exp. | 100 | charging depreciation | |
| To Interest | 50 | Rs.1,00,000) | 1250 |
| To Loss on sales of Fixed Assets | 12 | By Income from Investment | 50 |
| To Goodwill written off | 15 | By Misc. Income | 2 |
| To Tax provision | 412 | | |
| To Net profit | 413 | | |
| | **1302** | | **1302** |

Calculate debt - service coverage ratio. Current installment of long term loan is Rs.5 lakhs.

**(PM)** *(Ans:1.07)*

Note:_____


**Problem No 6:** (PRINTED SOLUTION AVAILABLE) Given below is the Balance Sheet of Ahuja Company as on 31.12.2012

|  | Rs.('000) |  | Rs.('000) |
|---|---|---|---|
| **Liabilities** | **Rs.** | **Assets** | **Rs.** |

| Share Capital | | Net Block | 180 |
|---|---|---|---|
| Equity shares of Rs.10 each | 100 | Inventories | 100 |
| General Reserve | 10 | Sundry Debtors | 40 |
| Capital Reserve | 15 | Cash and Bank Balances | 40 |
| Capital Redemption Reserve | 50 | Profit & Loss A/c | 20 |
| 12% Convertible Debentures (convertible into equity shares by 31.3.2013 at a 10% premium) | 55 | | |
| 14% Debentures (25% Redeemable by 31.3.2013) | 50 | | |
| Current Liabilities | 100 | | |
| Total | 380 | Total | 380 |

The company plans to issue 14% fresh debentures at the debt-equity ratio of 2:1 excluding capital redemption reserve and capital reserve for which it has no cash backing. Tanuja Co. Ltd. wants to subscribe fully the fresh debentures of Ahuja Co. Ltd. You are asked to calculate the amount needed to be set aside for this purpose. Also you are asked by Ahuja Co Ltd. to determine the proprietary ratio after conversion of debentures and fresh issue.     **(PM)** *(Ans: Rs.2, 52,500; 0.35)*

Note:_____

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**Problem 7:** (PRINTED SOLUTION AVAILABLE) Calculation of operating cycle by using inventory velocity and debtors velocity ratios.

A business furnishes you the following details:

| i. Opening Stock | | 50,000 |
|---|---|---|
| ii. Closing Stock | | 70,000 |
| iii. Sales: | | |
| Credit | | 2,10,000 |
| Cash | | 1,50,000 |
| iv. Gross profit | | 60,000 |
| v. Year end debtors | 20,000 | |
| Less: Provision for bad debts | 2,000 | 18,000 |
| vi. 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 **(ii)** Calculate the operating cycle and state its significance.

*(Ans.:(i) stock turnover ratio is 5 times & Debtors turnover ratio is 6 times (ii) Operating cycle period is 132 days)*

Note:_____

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**Problem 8:** (PRINTED SOLUTION AVAILABLE) Estimation of working capital using Ratios.

Important ratios of a firm for the year 1999 are given below:

| 1. Stock velocity | 4 |
|---|---|
| 2. Debt collection period | 2 months |
| 3. Creditors payment period | 73 days |
| 4. Gross Profit | Rs.2,00,000 |
| 5. Gross Profit margin | 20% |
| 6. Cash & Bank balance | 5% of sales |
| 7. Credit purchases | 25% |

The firm expects an increase of 50% in sales in the ensuring year. Estimate the working capital requirement of the firm for the ensuring year.   *(Ans.: Estimated WC for 2000 is Rs.7,08,333)*

Note:_____

_____

**Problem 9: (PRINTED SOLUTION AVAILABLE)** 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.

| | Rs. | | 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 | ? |

*(Ans.:Cash 50,000; accounts receivable Rs.50,000; inventory 1,00,000; p&e: 2,00,000; total assets 4,00,000)*

**(SM)**

*(Solve Problem No: 5, 15 of Assignment Problems as rework)*

Note:_____

_____

**Problem 10: (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 31.3.2001, 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 | | Stock                        ? | |
| 60,000 | ? | Debtors                      ? | |
| **Add:** Transfer during the year  ? | | Cash & Bank                  ? | ? |
| **Secured Loans** | ? | | |
| 15% Loan | | | |
| **Current Liabilities** | | | |
| Creditors                    ? | | | |
| Provision for tax            ? | 2,00,000 | | |
| Proposed Dividend           ? | ? | | ? |

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 31.3.2001.          **(N-05)**

*(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)*

*(Solve Problem No: 2,6 of Assignment Problems as rework)*

Note:_____


### Problem 11: (PRINTED SOLUTION AVAILABLE) Preparation of balance sheet by using Ratios.

The following figure 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.          **(M-10)**

*(Ans.: Total of Balance Sheet – Rs.26,25,000; Working Capital – Rs.4,16,667)*

*(Solve Problem No: 4, 14 of Assignment Problems as rework)*

Note:_____


### Problem No 12: (PRINTED SOLUTION AVAILABLE) Given below are the Profit and Loss Statement of Om Limited for the year ended 31st March, 2014 and Balance Sheet as on that date:

**Profit and Loss Statement**

| | | Rs. in lakhs | Rs. in lakhs |
|---|---|---|---|
| | Sales | | 7,850 |
| Less: | Cost of goods sold | | 5,232 |

| | | | |
|---|---|--:|--:|
| | Gross Profit | | 2,618 |
| Less: | Administrative Expenses | 240 | |
| | Selling & Distribution Expenses | 545 | |
| | Finance Charge | 280 | |
| | Depreciation | 540 | 1,605 |
| | Profit Before Tax | | 1,013 |
| Less: | Tax Provision | | 500 |
| | Net Profit | | 513 |
| Less: | Proposed dividend | | 400 |
| | Retained Earnings | | 113 |

**Balance Sheet**

| Liabilities | Rs. in lakhs | Rs. in lakhs | Assets | Rs. in lakhs | Rs. in lakhs |
|---|--:|--:|---|--:|--:|
| Share Capital (Rs.10 each) | | 4,000 | Gross Block | 6,550 | |
| Reserve & Surplus | 2,000 | | Less: Accumulated depn. | 1,540 | 5,010 |
| Add: Retained Earnings | 113 | 2,113 | | | |
| Secured loans | | 2,500 | | | |
| Unsecured loans | 1,500 | | Investments | | 2,500 |
| Current liabilities and provisions: | | | Stock | 1,500 | |
| Sundry Creditors | 550 | | Debtors | 1,800 | |
| Tax Provision | 500 | | Cash at bank | 700 | |
| Proposed dividend | 400 | 1,450 | Cash in hand | 53 | 4,053 |
| Total | | 11563 | Total | | 11563 |

You are required to show the following ratios:

1. Gross yield percentage
2. Market value to book value per share
3. Price-earnings ratio
4. Market price to cash flow

Market price per share may be taken as Rs.30 which was arrived at by taking average share price for the month of March, 2014.          **(PM)**   *(33.35%; 1.96; 23.39; 11.4)*

**Note:**_____


**Problem.13:** (PRINTED SOLUTIONS AVAILABLE)The assets of SONA Ltd. consist of fixed assets and current assets, while its current liabilities comprise bank credit in the ratio of 2 : 1. You are required to prepare the Balance Sheet of the company as on 31st March 2016 with the help of following information:          **(PM)**

| | |
|---|---|
| Share Capital | Rs. 5,75,000 |
| Working Capital (CA-CL) | Rs. 1,50,000 |
| Gross Margin | 25% |
| Inventory Turnover | 5 times |
| Average Collection Period | 1.5 months |
| Current Ratio | 1.5 : 1 |
| Quick Ratio | 0.8 : 1 |
| Reserves & Surplus to Bank & Cash | 4 times |

Assume 360 days in a year                      *(Ans.: Total of Balance Sheet – Rs.11,35,000)*

Note:_____

_____

**Problem.14:** (PRINTED SOLUTION AVAILABLE) Calculation of ratios that indicate financial position of company.

JKL Limited has the following Balance Sheets as on March 31, 06 and March 31, 05:

**Balance Sheet**                      **(Rs.in Lakhs)**

| Particulars | March 31, 2006 | March 31, 2005 |
|---|---|---|
| **Source of Funds:** | | |
| Shareholders Funds | 2,377 | 1,472 |
| Loan Funds | 3,570 | 3,083 |
| | **5,947** | **4,555** |
| **Applications of Funds:** | 3,466 | 2,900 |
| Fixed Assets | 489 | 470 |
| Cash and bank | 1,495 | 1,168 |
| Debtors | 2,867 | 2,407 |
| Stock | 1,567 | 1,404 |
| Other Current Assets | (3,937) | (3,794) |
| **Less: Current Liabilities** | **5,947** | **4,555** |

The Income Statement of the JKL Ltd. for the year ended is as follows:

**(Rs.in Lakhs)**

| Particulars | March 31, 2006 | March 31, 2005 |
|---|---|---|
| Sales | 22,165 | 13,882 |
| **Less:** Cost of Goods sold | 20,860 | 12,544 |
| Gross Profit | 1,305 | 1,338 |
| **Less:** Selling, General and Administrative expense | 1,135 | 752 |
| Earning Before Interest and Tax (EBIT) | 170 | 586 |
| Interest Expenses | 113 | 105 |
| Profits before Tax | 57 | 481 |
| Tax | 23 | 192 |
| Profits after Tax (PAT) | 34 | 289 |

**Required:**

a) **Calculate for the year 2005-06:**

   i)  Inventory turnover ratio.        iv) Return on Equity (ROE).

   ii)  Financial Leverage.           v)  Average Collection period

   iii) Return on Investment (ROI).

b) Give a brief comment on the Financial Position of JKL Limited.                      **(PM)**

*(Ans.: (a) i. 7.91; ii. 2.98; iii. 0.65%; iv. 1.76; v. 22 days)*

*(Solve Problem No: 8, 12 of Assignment Problems as rework)*

Note:_____

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**Problem 15:** (PRINTED SOLUTION AVAILABLE) Preparation of financial statements by using Ratios.

Following is the abridge 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, 2005:

a) 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.

b) 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).

c) Working capital ratio was 8:5.

d) Quick assets ratio was 1: 1.

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

f) Return on net worth was 10%.

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

h) Stock turnover was eight times for the year.

Ignore Taxation.                                                                 (SM)

*(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)*

Note:_____

_____

**Problem 16:** (PRINTED SOLUTIONS AVAILABLE) 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

Return on Equity.                    (PM)*(Ans.: 13.6 ii.12.24% iii. 0.9 iv. 15.17%)*

*(Solve Problem No: 10, 11 of Assignment Problems as rework)*

Note:_____

_____

**Problem 17:** (PRINTED SOLUTION AVAILABLE) Calculation of profitability Ratios

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.                **(SM)**

*(Ans.: a. 5%; b. 10 times & 1.52 times c. 3.04 times d. 13.2 times)*

**(Solve Problem No: 7 of Assignment Problems as rework)**

Note:_____

_____

**Problem 18:** (PRINTED SOLUTION AVAILABLE) Preparation of financial statements by using Ratios.

The following information and financial ratios of PQR Ltd. relate to the year ended 31st December, 2015:

| | Particulars | 2015 |
|---|---|---|
| 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, 2014 amounted to Rs.26 lakhs, prepare a summarized profit and Loss Account of the company for the year ended 31st December, 2015 and also the Balance Sheet as on 31st December, 2015.                **(SM) (PM)**

*(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: 13 of Assignment Problems as rework)**

Note:_____

_____

**Problem 19:** (PRINTED SOLUTIONS AVAILABLE) NOOR Limited provides the following information for the year ending 31st March, 2014:

| Equity Share Capital | Rs. 25,00,000 |
|---|---|
| Closing Stock | Rs. 6,00,000 |
| Stock Turnover Ratio | 5 times |

| Gross Profit Ratio | 25% |
|---|---|
| Net Profit / Sale | 20% |
| Net Profit / Capital | 1/4 |

You are required to prepare:

Trading and Profit & Loss Account for the year ending 31st March, 2014. **(PM)**

*(Ans.: Total Trading a/c:37,25,000; Total P& L a/c 7,81,250)*

***(Solve Problem No: 17 of Assignment Problems as rework)***

Note:_____

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**Problem: 20** **(PRINTED SOLUTION AVAILABLE)** The Net sales of A Ltd. is Rs.30 crores. Earnings before interest and tax of the company as a percentage of net sales are 12%. The capital employed comprises Rs.10 crores of equity, Rs.2crores of 13% Cumulative Preference Share Capital and 15% Debentures of Rs.6 crores. Income - tax rate is 40%.

**(i)** Calculate the Return-on-equity for the company and indicate its segments due to the Presence of Preference Share Capital and Borrowing (Debentures). **(PM) (Ans: 13.60%)**

***(Solve Problem No: 16 of Assignment Problems as rework)***

Note:_____

_____

**Problem: 21 (PRINTED SOLUTIONS AVAILABLE)** Gamma Limited's financial statements contain the following information:

| | 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 | 9,04,000 |

**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. **(MTP MAR - 14)**

*(Ans.: (i). (a) 3.82:1 (b). 1.1:1, (ii)(a)(1)0.85(2)0.65, (b) 7.5 times (iii).(a) 30%,(b) 16.9%(c)12.2% (d).17.7%*

*(e). 24%, (iv). (a) 11.1 times,(b) 1.4 times,(c). 0.44 times)*

***(Solve Problem No: 18 of Assignment Problems as rework)***

Note:_____

_____

**Problem: 22 (PRINTED SOLUTIONS AVAILABLE)** The following data applies to Alpha Limited                                                                      (Rs. in crores)

|  | *Rs.* |
|---|---|
| Cash and marketable securities | 10.00 |
| Fixed Assets | 28.35 |
| Sales | 100.00 |
| Net income | 5.00 |
| Current liabilities | 10.55 |
| Current ratio | 3.0 × |
| DSO* | 40.55 days |
| ROE | 12% |

*Calculation is based on a 365 days year.

The company has no preference shares – only equity shares, current liabilities, and long-term debt.

You are to calculate Alpha Limited's (i) Accounts receivable (A/R), (ii) Current assets, (iii) Total assets, (iv) ROA, (v) Common equity, and (vi) Long-term debt.

If Alpha Limited's accounts receivable (A/R) = Rs. 11.10 crores. If the company could reduce its DSO from 40.55 days to 30.4 days while holding other things constant, how much cash would it generate? If this cash were used to buy back equity shares (at book value), thus reducing the amount of equity, how would this affect (i) the ROE, (ii) the ROA, and (iii) the total debt/total assets ratio?                                                        **(MTP SEP - 14)**

*(Ans.:(i)12.86% (ii)8.74% (iii)30.6% &32%)*

*(Solve Problem No: 3 of Assignment Problems as rework)*

Note:_____

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**Problem: 23** Some of the financial figures for Harsha & Co. for three years are given below:

|  | **2013** | **2014** | **2015** |
|---|---|---|---|
| Gross profit ratio (G.P.) | 30% | 25% | 20% |
| Stock turnover | 20 times | 25 times | 16 times |
| Opening Stock (Rs.) | 33,000 | 30,400 | 53,000 |
| Closing stock (Rs.) | 37,000 | 34,400 | 57,000 |
| Tax | 30% | 30% | 30% |

Administrative expenses in 2013 amounted to 5% of sales and the annual increase was 5% over the previous year.

Prepare a statement of profits in a comparative form for all the three years, and comment on the reasons for decrease in profitability. **(MTP mar-16)**

*(Ans.: profit after tax in 2013 - 1,75,000 ,2014 – 1,52,250 & 2015 - 1,15,412)*

*(Solve Problem No: 19,20 of Assignment Problems as rework)*

Note:_____

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# ASSIGNMENT PROBLEMS

**Problem 1: significance of ratios on particular situations:** Explain the important ratios that would be used in each of the following situations:

a) A bank is approached by a company for a loan of Rs.50 lakhs for working capital purposes.

b) A long term creditor interested in determining whether his claim is adequately secured.

c) A shareholder who is examining his portfolio and who is to decide whether he should hold or sell his holding in the company.

d) A finance manager interested to know the effectiveness with which a firm uses its available resources.**(PM)***(Ans.: a. Liquidity Ratios, b. Leverage Ratios, c. Profitability Ratios, d. Activity Ratios)*

**Problem 2:** 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 | assets | Amount |
|---|---|---|---|
| Creditors | ? | Cash | ? |
| Long term debts | ? | Debtors | ? |
| Share holders fund | ? | Inventory | ? |
| | | Fixed assets | ? |

**(PM)** *(Ans.: Total of Balance sheet – Rs.9,00,000)*

**Problem 3:** The Sales Manager of AB Limited suggests that if credit period is given for 1.5 months then sales may likely to increase byRs1,20,000 per annum. Cost of sales amounted to 90% of sales. The risk of non-payment is 5%. Income tax rate is 30%. The expected return on investment is Rs 3,375 (after tax). Should the company accept the suggestion of Sales Manager?　　**(PM)** *(Ans.: Net profit: Rs.4,200; Proposal should be accepted.)*

**Problem 4:** In a meeting held at Solan towards the end of 2012, 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 01.01.2013 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**

| | 2012 (Rs.) | | 2013(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 | | 14,000 | |
| Interest on Debenture | | 49,000 | 2,000 | 59,000 |
| Net Profit | | 15,000 | | 17,000 |

## Balance Sheet

| | 2012 (Rs.) | | 2013 (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 2012 and 2013.

a) Gross Profit Ratio

b) Operating Expenses to Sales Ratio.

c) Operating Profit Ratio

d) Capital Turnover Ratio

e) Stock Turnover Ratio

f) Net Profit to Net Worth Ratio, and

g) Debtors 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 2012. Ignore Taxation. **(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)*

**Problem 5:** 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). **(SM)** *(Ans.: (a) 1,08,800 (b) 72 days)*

**Problem 6:** Ganapati Limited has furnished the following ratios and information relating to the year ended 31st March, 2013.

| 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, 2013.

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

### Balance Sheet as on 31st March, 2013

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

**(SM)** *(Ans: a. Operating expenses 33,90,000  b. balance sheet total Rs.21,00,000)*

**Problem 7:** 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-Earning Ratio      **(PM)***(Ans.: i. 1.1:1 ii.3.5 iii. 0.6:1 iv Rs.4.075 per share v .3.926 times)*

**Problem 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.      **(PM)** *(Ans.: ROE 15.6%)*

**Problem 9:** From the information given below calculate the amount of Fixed assets and Proprietor's fund.

Ratio of fixed assets to proprietors fund    = 0.75

Net Working Capital            = Rs.6,00,000

**(PM)***(Ans.: Proprietor fund Rs.24,00,000 ; fixed assets Rs.18,00,000)*

**Problem 10: Calculation of net profit margin, return on assets, return on owner's equity**

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.      **(SM) (N -10)**

*(Ans.: (i) 11.1%; (ii) 10%(iii) 0. 9 times (iv) 16%)*

**Problem 11:** The financial statements of a company contain the following information for the year ending 31st March, 2011:

| Particulars | |
|---|---|
| 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).

**(PM)** *(Ans: i. 0.88:1  ii. 0.57:1  iii. 27.27% iv. 45 days)*

**Problem 12:** Calculation of ratios that indicates performance of the company:

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.

*(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)*

<u>Problem 13:</u> **Preparation of financial statements by using Ratios**

From the following information and ratios, prepare the Profit & Loss A/c for the year ended 31$^{st}$ 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 |

*(Ans.: Equity share capital Rs.5,00,000, Reserve & Surplus Rs.1,50,000, Current Liabilities Rs.5,00,000, Long term Loan Rs.50,00,0000)*

<u>Problem 14:</u> **Preparation of balance sheet by using Ratios.**

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 |

*(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 15:** 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 |

**(PM)***(Ans.: Total of balance sheet: Rs.11, 20,000)*

**Problem 16:** Calculation of ratio that indicate return on capital employed and other ratios

The Balance Sheet of Y Ltd. stood as follows as on: (Rs. in Lakhs)

| Liabilities | 31.3.01 | 30.3.00 | Assets | | | 31.3.01 | 31.3.00 |
|---|---|---|---|---|---|---|---|
| Capital | 250 | 250 | Fixed Assets | 400 | 300 | | |
| Reserves | 116 | 100 | **Less: Dep.** | 140 | 100 | 260 | 200 |
| Loans | 100 | 120 | Investment | | | 40 | 30 |
| Creditors & other Current Liabilities | 129 | 25 | Stock | | | 120 | 100 |
| | | | Debtors | | | 70 | 50 |
| | | | Cash/Bank | | | 20 | 20 |
| | | | Other Current Assets | | | 25 | 25 |
| | | | Miscellaneous Exp. | | | 60 | 70 |
| | 595 | 495 | | | | 595 | 495 |

You are given the following information for the year 2000-2001:

| Particulars | Rs. in Lakhs |
|---|---|
| Sales | 600 |
| PBIT | 150 |
| Interest | 24 |
| Provision for Tax | 60 |
| Proposed Dividend | 50 |

From the above particulars, calculate for the year 2000-2001 (i) Return of Capital Employed Ratio (ii) Stock Turnover Ratio (iii) Return on Net Worth Ratio (iv) Current Ratio (v) Proprietary Ratio. *(Ans.: (i) 37% (ii) 5.45 (iii) 23% (iv) 1.82 (v) 57%)*

**Problem 17:** 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                                              **(MAY 16)**

*(Ans: Trading a/c 36, 00,000; P &L a/c 8, 00,000; Balance sheet:96,00,000)*

**Problem 18:** Computation of ratios that indicates liquidity and capital structure positions of a company:

Following is the Balance Sheet of M/s Weldone Ltd. as on 31.3.2001:

| Liabilities | Rs. | Assets | Rs. |
|---|---|---|---|
| Equity Share Capital | 30,00,000 | Land | 5,00,000 |
| Pref. Share Capital | 40,00,000 | Building | 30,00,000 |
| General Reserve | 5,00,000 | Plant & Machinery | 30,00,000 |
| Profit & Loss A/c | 5,00,000 | Furniture | 4,00,000 |
| 12% Debentures | 20,00,000 | Debtors | 20,00,000 |
| Trade Creditors | 6,00,000 | Stock | 15,00,000 |
| O/s Expenses | 1,50,000 | Cash | 4,00,000 |
| Provision for Taxation | 2,00,000 | Prepaid Expenses | 1,00,000 |
| Proposed Dividends | 3,00,000 | Preliminary Expenses | 3,50,000 |
|  | **1,12,50,000** |  | **1,12,50,000** |

From the above particulars, you are required to calculate (i) Current Ratio  (ii) Debt Equity Ratio  (iii) Capital Gearing Ratio (iv) Liquid Ratio.

*(Ans.: (i) 3.2 times (ii) 0.26:1 (iii) 1.64 times (iv) 1.92 times)*

**Problem 19:** 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.                                              **(RTP)**

*(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)*

**Problem 20:** You have been hired as an analyst for the Bank of Delhi and your team is working on an independent assessment of Meyland Limited. Meyland Limited specializes in the production of freshly imported cheese from Switzerland. Your colleague has provided you with the following data for your reference:

| Ratios | 2014 | 2013 | 2012 | 2014 Industry Average |
|---|---|---|---|---|
| Long-term Debt | 0.45 | 0.40 | 0.35 | 0.35 |
| Inventory Turnover | 62.65 | 42.42 | 32.25 | 53.25 |
| Depreciation/Total Assets | 0.25 | 0.014 | 0.018 | 0.015 |

| Days' Sales in Receivables | 113 | 98 | 94 | 130.25 |
|---|---|---|---|---|
| Debt to Equity | 0.75 | 0.85 | 0.90 | 0.88 |
| Profit Margin | 0.082 | 0.07 | 0.06 | 0.075 |
| Total Asset Turnover | 0.54 | 0.65 | 0.70 | 0.40 |
| Quick Ratio | 1.028 | 1.03 | 1.029 | 1.031 |
| Current Ratio | 1.33 | 1.21 | 1.15 | 1.25 |
| Times Interest Earned | 0.9 | 4.375 | 4.45 | 4.65 |
| Equity Multiplier | 1.75 | 1.85 | 1.90 | 1.88 |

a) In the annual report to the shareholders, the CEO of Meyland Limited wrote, "2012 was a good year for the company with respect to our ability to meet our short-term obligations. We had higher liquidity largely due to an increase in highly liquid current assets (cash, account receivables and short-term marketable securities)." Is the CEO correct? Explain and use only relevant information in your analysis.

b) What can you say about Meyland Limited's asset management? Be as complete as possible given the above information, but do not use any irrelevant information.

c) You are asked to provide the shareholders with an assessment of Meyland Limited's solvency and leverage. Be as complete as possible given the above information, but do not use any irrelevant information.          *(RTP)*

# THEORY QUESTIONS

1. Discuss any three ratios computed for investment analysis.          (Nov-2004)

2. Discuss the financial ratios for evaluating company performance on operating efficiency and liquidity position aspects.          (Nov-2006)

3. Explain the need of debt-service coverage ratio.          (May-2007)

4. Diagrammatically present the DU PONT CHART to calculate return on equity.   (May-2007)

5. How return on capital employed is calculated? What is its significance?   (Nov- 2008)

6. What is quick ratio? What does it signify?          (Nov- 2008)

7. What do you mean by Stock Turnover ratio and Gearing ratio?          (Nov-2008)

8. How is Debt service coverage ratio calculated? What is its significance?

9. Discuss the composition of Return on Equity (ROE) using the DuPont model.   (May-2009)

10. Explain the following ratios:
    a) Operating ratio
    b) Price earnings ratio

11. Explain briefly the limitations of Financial ratios.          (Nov-2009)

## ABC ANALYSIS

| | A category | B category | C category |
|---|---|---|---|
| **Classroom problems** | 1,2,3,4,5,7,8,9,11,13,16,17,18,21, | 6,10,14,15,19,20,23 | 12, 22 |
| **Assignment problems** | 1,2,5,6,7,8,9,10,13,14,15 | 4,11,12,18,19 | 3,16,17,20 |

Verified by: Phaneendra Sir, M.P. Raju Sir, Venkanna Sir

Executed by: Dhanalakshmi

# THE END