11
Ratio Analysis

Learning objectives :

The study of this chapter would enable you to understand :

- Meaning of ratio analysis
- Meaning of ratio and its expression
- Objectives of ratio analysis
- Limitation of ratio analysis
- Precaution in using ratios
- Classification of ratios
  - ✯ Liquidity ratios
  - ✯ Solvency ratios
  - ✯ Activity ratios
  - ✯ Profitability ratios
  - ✯ Investment analysis ratios

Ratio Analysis

Each item in financial statement is significant in itself till its relation is established with some other item. Figures are important only when their relationship is established with other relevant figures. For example: when profit is related with sales or capital, it indicates whether profit is sufficient or not. Ratio analysis is a method of presenting items or group of items of financial statements, establishing relationship between the items in simple and brief-manner.

Meaning of Ratio : The arithmetical expression of relationship between two numbers is called ratio.

Hunt, William and Donalson-"Ratios are simply a means of highlighting in arithmetical terms the relationship between figures drawn from financial statements."

R.N Anthony-"A ratio is simply one number expressed in terms of another. It is found by dividing one number into the other.'

Expression of Ratio : Normally Ratios can be expressed in the following three forms :

1. **As a pure proportion :** In this method, relationship of two items is directly expressed in proportion. This relationship is obtained by simple division of one number by another. For example, in a business if current assets are ₹100,000 and current liabilities are ₹ 50,000, the ratio between current assets and current liabilities will be ₹ 100,000 ÷ ₹ 50,000 = 2 or say 2:1.
2. **As a rate :** In this method, a quotient is calculated by dividing one figure with another figure, on a certain date or for a period. For example, credit sales made for a year by a businessman is ₹ 500,000 and average debtors during this period were ₹ 100,000, then debtors turnover ratio will be ₹ 500,000 / ₹ 100,000 = 5 or say credit sales are 5 times of average debtors.

3. **As a Percentage :** In this method, the relationship between two items is expressed in percentage. For example, a trader earned a net profit of ₹ 60,000 on sales of ₹ 3,00,000 during a year, then his net profit on sales will be (60,000 × 100 / 3,00,000) = 20%.

Objectives of Ratio Analysis :

Ratio analysis plays a significant role in financial analysis of a concern. By making financial analysis based on ratios we can know about progress or decadence and financial position of a concern. Various parties interested in ratio analysis are : Shareholders, loan providers, suppliers, employees, bank and government. Various objectives of ratio analysis are as follows :

1. **Helpful in financial analysis :** Financial condition of a business concern can be analysed easily with the help of ratios. Ratio analysis based on Balance Sheet and Statement of Profit & Loss provides complete knowledge to investors, banks, loan providers about the concern.
2. **Simplifies Figures :** Ratio analysis converted complex figures into simple and brief data so that they become intelligible.
3. **Knowledge of Liquidity :** Conclusions can be drawn about the liquidity position of a concern with the help of ratio analysis. Liquidity position of a concern is said to be good, if it is capable to meet its current obligations. Liquidity ratios are useful to bank etc.
4. **Knowledge of Long Term Solvency :** Ratio analysis is useful in evaluating the long term solvency along with liquidity position of the concern. This reveals the financial soundness or weakness of the firm. Debt-equity ratio and capital structure ratios are useful for this purpose.
5. **Knowledge of Activity :** Operating efficiency of a concern can be evaluated with the comparative study of current ratios with previous ratios. Various activity ratios like stock turnover ratio, Debtor turnover ratio, Assets turnover ratio etc. measure the efficiency of the concern.
6. **Knowledge of Profitability :** Absolute amount of profit revealed by profit & loss statement is not more important unless its relation is being established with sale or capital invested in the concern. This relation is called profitability. So, accounting ratios are useful to measure the profitability.
7. **Help in Comparison :** On the basis of ratio analysis a firm can be compared with other firm or ratio of a period can be compared with the same ratio of other period. This can provide information about efficiency easily.
8. **Help in Trend analysis :** By the study of different ratios of many years, financial position of the concern can be measured, or say it comes to be known whether firm is improving or deteriorating over years.

Lmitations of Ratio Analysis :

Ratio analysis is a useful tool of financial analysis of a business concern, on the other hand ratio analysis has some limitations also. Therefore, the analyst should keep in view the imitation, of this. These limitations are as follows:

1. **Inherent limitations of accounting** : Ratio are calculated on the basis of financial statements. Financial statements are based on different conventions, concepts of accounting and personal judgments. Therefore, the weakness in the financial statements will also have an impact on ratios. As a result ratio analysis would be misleading.
2. **Affected by window dressing :** Financial statements are affected by window dressing, For example: write off less depreciation than actual depreciation, over stated the closing stock, It is done to show financial position better and to show higher quantum of profits. Therefore, the results of ratio analysis would be wrong.
3. **Comparison based on different accounting policies :** If different accounting policies are followed by a firm in two different periods or by two different firms, in such a case inter period comparison or inter firm comparison will be unbelievable. Therefore, result from comparison of financial statements of such firms will provide misleading informations.
4. **Effect of personal ability and bias of the Analyst :** Conclusions drawn on the basis of ratio analysis are affected by personal ability and bias of the analyst. If the analyst is biased in calculating ratios, the conclusions will also be misleading.

5. **Lack of qualitative analysis :** All monetary transactions are recorded in financial accounting. Ratios are calculated on the basis of financial information revealed in these financial statements. So, ratio analysis express quantitative aspects not qualitative aspects. In ratio analysis no attention is paid towards qualitative factors like-loyalty of managers, goodwill of business, & workers satisfaction etc.
6. **To Comparison other ratios required :** On the basis of a single ratio, neither any comparison can be made, nor any decision can be taken. Hence, it is essential to pay attention over all relating ratios while drawing conclusions, for a good analysis.
7. **Unable to future projections :** Ratio analysis is made on the basis of information obtained from historical accounts, which are based on transaction and events of past. Therefore, inferences drawn from ratio analysis cannot be used in estimate for future.
8. **Lack of knowledge about trend :** Analysis, based on financial statements of a specific year cannot be reliable. It cannot provide knowledge about progress or decline. To find out trend of profitability etc., it is essential that inference should be based on financial statements of many years.

Precautions in using ratios :

Today, ratio analysis is widely used in business world, with the help of it, conclusions about different aspects can be drawn. Deposit this, if ratios are used carelessly, there is a possibility of misleading conclusions and a danger of superfluous situation. Therefore, following precautions should be taken into consideration, while using ratios:-

1. The user must be capable to understand accounting data, then he can draw correct inference with the use of appropriate ratio.
2. To calculate ratios timely, it is essential to provide information timely to the users immediately after preparation of financial statements. The utility and importance of information ends if these are not provided timely to the users.
3. There is a cost, in the way of time and labour, of calculating ratios along with benefits derived from ratios. Ratios should be used until the benefits derived are more than the cost incurred.
4. Only those ratios should be presented before the users which are concerned, so that he can draw speedy correct conclusions.
5. Due to changing scenario, use and scope of ratios are also changed. Therefore, ratios should be properly revised as per changing business conditions.

Classification of Ratios :

(A) Structural Classification :

Basis of structural classification is financial statements-balance sheet and statement of profit and loss of the firm. So these ratios are calculates on the basis of information given in the financial statements. On this basis, ratios are grouped as follows:

1. **Balance Sheet Ratios :** These ratios are called financial ratios. These ratios are calculated between two items or group of items appearing in the balance sheet. Such ratios are- Current ratio, Liquid ratio, Debt-equity ratio, Proprietary ratio and Capital gearing ratio etc.
2. **Statement of Profit and Loss Ratios :** These ratios are called Income statement ratios or Operating ratios also. These ratios are calculated between two items or group of items appearing in the statement of Profit & Loss. Such important ratios are- Gross Profit Ratio, Net Profit Ratio, operating Ratio, ratio of each item of expenses with sales, and Inventory Turnover Ratio etc.
3. **Combined Ratio :** If one Item is drawn from balance sheet and other from statement of profit and loss the ratios calculate such are called combined ratios. Some important ratios are – Return on Capital employed, Return on total assets, Total assets turnover ratio, Average collection period and Earning per share etc.

(B) Functional Classification :

When ratios are grouped on the basis of the needs of the different parties having interest in the business concern such as- banks and financial institutions have interest in the short term liquidity, debenture holders in the

long term solvency, investors in profitability of the firm. Therefore, the ratios may be grouped as follows keeping in view, objectives of different parties.

1. **Liquidity Ratios :** Liquidity means, ability of a firm to meet out its current obligations. Liquidity ratios provide knowledge of short term solvency of a concern. These ratios express that the firm is in the position to repay its current obligations by its short term assets or not. Following ratios are calculated to know the liquidity.
   (i) Current Ratio
   (ii) Liquid or Quick Ratio
   (iii) Absolute Liquidity Ratio
2. **Solvency Ratios :** The Solvency ratios show long term solvency position of a concern. These ratios are called Capital structure or Leverage Ratios, also. These ratios enable to know how much money is invested by owners in the firm and how much money is taken from loan providers. Following ratios are calculated to get knowledge about solvency.
   (i) Debt – Equity Ratio
   (ii) Proprietary Ratio
   (iii)Solvency or Debt to total assets Ratio
   (iv) Interest Coverage Ratio
   (v) Capital gearing Ratio
3. **Activity Ratios :** These ratios give us knowledge that capital and assets are used efficiently or not. Higher turnover ratio is an indicator of efficiently utilization of resources, results consequently in an increase in profit. Following ratios are calculated to get knowledge about activity of business.
   (i) Stock Turnover Ratio
   (ii) Trade Receivables Turnover Ratio
   (iii) Average Collection Period
   (iv) Trade Payables Turnover Ratio
   (v) Average Payment Period
   (vi) Total Assets Turnover Ratio
4. **Profitability Ratios :** Profitability means profit earning capacity of the concern, which is measured in relation to sales or investments. The ratios, which help in measurement of the profitability of the organization, are called profitability ratios. These ratios are calculated to get information about profitability.
   (i) Gross Profit Ratio
   (ii) Operating Ratio
   (iii) Operating Profit Ratio
   (iv) Net Profit Ratio
   (v) Return on Investment or ROI
   (vi) Return on Proprietor's Fund
5. **Investment Analysis Ratios :** These ratios are helpful to the shareholders in analyzing the perspective investment in the company. Following ratios analyse the activity of investments.
   (i) Earning Per Share
   (ii) Dividend Per Share
   (iii) Dividend Payout Ratio

LIQUIDITY RATIOS

(i) Current Ratio : Current ratio defines the relationship between current assets and current liabilities of a concern. It is also called 'Working Capital Ratio'.

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

Main components of current ratio are current assets and current liabilities.

Current Assets are those assets which can be converted into cash in ordinary course of business, in normal operating cycle or within twelve months after the date of balance Sheet.

Current Liabilities are those liabilities which are to be paid in normal operating cycle or within twelve months from the date of balance sheet.

Following assets are included in current assets :

(i) Current Investments

(ii) Inventories/Stock [Raw material, Finished goods]

(iii) Trade Receivables [Sundry Debtors + B/R- Provision for doubtful debts]

(iv) Cash and Cash Equivalents [Cash, cheques, drafts in hand and cash at bank]

(v) Short Term Loans and Advances

(vi) Other Current Assets [Prepaid expenses, Accrued income. Advance payments & Advance Tax etc.]

Current Liabilities include the following liabilities :

(i) Short Term Borrowings [Loan payable on demand, Bank overdraft, Deposits and Loans and Advances]

(ii) Trade payables [Sundry creditors and Bills Payable]

(iii) Other Current Liabilities [Current maturity of long term debts, Interest accrued on borrowings, Income received in advance, unpaid dividend, outstanding expenses, calls in advance, unclaimed dividend etc.]

(iv) Short Term Provisions [Provision for employees benefits, provision for tax and proposed dividend etc.]

Importance : Current ratio reflects that for every ₹ 1 worth of current liabilities, how much current assets are there. As high the current ratio will be, the security of short term creditors will also be accordingly high. Generally, a current ratio of 2:1 is considered ideal. If, current ratio is higher than 2:1, it is not considered good from the management's point of view. In such a case (i) increase in the stock of the firm treated as unproductive use of money, (ii) Poor collection from debtors, (iii) Poor investment policy and funds are idle in banks. If current ratio is below 2: 1, it reveals the crunch for working Capital in the firm or say the firm has not sufficient resources to meet out current obligations.

Current ratio is quantitative indicator of liquidity position not qualitative. It is calculated on the basis of quantum of current assets. It is possible that a firm has more quantum of current assets than its current liabilities, but major of current assets are idle, in such a case there will not be sufficient funds to pay current liabilities of the firm. Therefore, to measure liquidity position of a business enterprise, this ratio cannot be believed alone.

Illustration 1 :

From the following calculate Current Ratio : Total Assets ₹ 2,00,000; Non-current Assets ₹ 110,000; Shareholders' funds ₹ 1,25, 000; Non-current liabilities ₹ 30,000

Solution :

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}} = \frac{90000}{45000} = 2:1$$

Current Assets = Total Assets – Non-current Assets

= ₹ 2,00,000 – ₹ 110,000 = ₹ 90,000

Current Liabilities = Total Assets – Shareholders' fund – Non-current liabilities

= ₹ 2,00,000 – ₹ 1,25, 000 – ₹ 30,000 = ₹ 45,000

(ii) Liquid or Quick Ratio : Liquid ratio is calculated to measure of instant paying capacity of the firm. It is also called Quick ratio or Acid test ratio. Liquid ratio reveals the relationship between liquid assets and current liabilities of the concern. Computation formula is :

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

Liquid Assets means those assets which can be converted into cash or cash equivalents promptly. Therefore, liquid assets include all current assets excluding stock and prepaid expenses. These items cannot be easily converted into cash, so these are excluded. Following assets are included in liquid assets:

(i) Current Investments

(ii) Trade Receivables [Debtors + B/R – Provision for Doubtful debts]

(iii) Cash and Cash Equivalents (iv) Short term loans and advances.

Importance : Liquid ratio is considered superior than current ratio in evaluating the liquidity position of the firm because to calculate this ratio, only those assets are included which are liquid. 1:1 is considered as an ideal ratio. The ratio more than 1:1 is considered good but on the other hand, if the ratio is less than 1:1 then it means the firm has to arranged additional funds to repay its current obligations.

Difference between Current Ratio and Quick Ratio

1. **Relationship :** Current ratio reveals the relationship between current assets and current liabilities, whereas quick ratio reveals the relationship between liquid assets and current liabilities.
2. **Objectives :** The purpose of current ratio is to check the ability of firm, whether it can pay its current obligations in a year or not, while the purpose of liquid ratio is to check, whether firm can pay its current obligation immediate or within one month or not.
3. **Ideal Ratio :** Ideal current ratios 2:1. Whereas ideal liquid ratio is 1:1
4. **Actual position :** Current ratio does not depict actual liquidity position of the firm because current assets include stock and prepaid expenses. Current ratio will be higher, if the amount of stock and prepaid expenses is too much whereas liquid ratio depicts actual liquidity position since it does not include stock and prepaid expenses in liquid assets for calculation.

Illustration 2 :

The Balance Sheet of Naresh Ltd. as at 31st March, 2017 is as follows :

Particulars	Note No.	Current Year ₹	Previous Year ₹
I. EQUITY AND LIABILITIES			
1. Shareholders' Funds		1,20,000	
2. Non-Current Liabilities			
(a) Long-term Borrowings (Debentures)		50,000	
3. Current Liabilities			
(a) Trade Payables		25,000	
(b) Short term provisions (Taxation)		5,000	
Total		**2,00,000**	
II. Assets			
1. Non current Assets			
(a) Fixed Assets		1,35,000	
2. Current Assets			
(a) Inventories		30,000	
(b) Trade Receivables		15,000	
(c) Cash and Cash Equivalents		17,500	
(d) Other current assets (Prepaid expenses)		2,500	
Total		**2,00,000**	

From the above information, calculate (a) Current Ratio (b) Liquid Ratio

Solution:

(a) Current Ratio = $\frac{\text{Current Assets}}{\text{Current Liabilities}}$ = $\frac{₹\,65,000}{₹\,30,000}$ = 2.17:1

Current Assets = Inventories + Trade Receivables + Cash & Cash equivalents + Other Current Assets (Prepaid expenses)

= ₹ 30,000 + ₹ 15,000 + ₹ 17,500 + ₹ 2500 = 65,000

Current Liabilities = Trade Payables + Short term Provisions = ₹ 25,000 + ₹ 5000 = ₹ 30,000

(b) Liquid Ratio = $\frac{\text{Liquid Assets}}{\text{Current Liabilities}}$ = $\frac{₹\ 32,500}{₹\ 30,000}$ = 1.08 : 1

Liquid Assets = Current Assets – Inventories – Prepaid Expenses

= ₹ 65,000 – ₹ 30,000 – ₹ 2,500 = ₹ 32,500

Illustration 3 :

From the following information of X Ltd. find out liquidity ratios :

	₹			₹
Long Term Debts	5,60,000	Goodwill		2,00,000
Short Term Debts (Bank Overdraft)	50,000	Tangible Fixed Assets		12,00,000
Short Term Provisions :		Trade Investments		5,00,000
Proposed Dividend	30,000	Marketable Securities		80,000
Provision for Tax	80,000	Inventories		7,80,000
Advance Income Tax	60,000	Debtors	4,00,000	
Trade Paybles	2,40,000	Less : Provision for D/D	40,000	3,60,000
Rent Payable	20,000	Cash and Cash Equivalents		1,60,000
Dividend Payable	60,000			

Solution:

Liquid Ratios are :

(a) Current Ratio = $\frac{\text{Current Assets}}{\text{Current Liabilities}}$ = $\frac{₹\,14,40,000}{₹\,4,80,000}$ = 3 : 1

Current Assets = Marketable securities + Inventories + Debtors – Provision for D/D + Cash and Cash Equivalents + Advance Income Tax

= ₹ 80,000 + ₹ 7,80,000 + ₹ 4,00,000 - ₹ 40,000 + ₹ 1,60,000 + ₹ 60,000 = ₹ 14,40,000

Current Liabilities = Bank overdraft + Proposed dividend + Provision for tax + Trade Payables + Rent Payable + Dividend payable =

₹ 50,000 + ₹ 30,000 + ₹ 80,000 + ₹ 240,000 + ₹ 20,000 + ₹ 60,000 = ₹ 4,80,000

(b) Quick/Liquid Ratio = $\frac{\text{Liquid Assets}}{\text{Current Liabilities}}$ = $\frac{₹\,6,00,000}{₹\,4,80,000}$ = 1.25 : 1

Quick Assets = Current Assets – Inventories – Advance Income tax

₹ 14,40,000 – ₹ 7,80,000 – ₹ 60,000 = ₹ 6,00,000

Working Notes :

(1) Trade Investment is non-current assets.

(2) Provision for doubtful debts has been deducted from debtors.

Illustration 4 :

Calculate Current Ratio and Quick Ratio in following conditions :

(A) Current Assets ₹2,00,000; Stock ₹ 1,00, 000; Working Capital ₹ 1,20,000.

(B) Liquid Assets ₹ 1,00,000; Stock ₹ 15,000; Prepaid expenses ₹ 5000; Working Capital ₹ 64,000.

(C) Current Liabilities ₹ 1,00,000; Creditors ₹ 10,000; Stock ₹ 1,00,000; Working Capital ₹ 3,00,000.

Solution :

It is necessary to know the relationship between current assets, current liabilities and working capital, before we solve these questions.

Working Capital = Current Assets – Current Liabilities

Current Assets = Working Capital + Current Liabilities

Current Liabilities = Current Assets – Working Capital

(A) (i) Current Ratio $= \frac{\text{Current Assets}}{\text{Current Liabilities}} = \frac{₹\ 2,00,000}{₹\ 80,000} = 2.5 : 1$

Current Liabilities = Current Assets – Working Capital = ₹ 2,00,000 – ₹ 1,20,000 = ₹ 80,000

(ii) Quick Ratio $= \frac{\text{Liquid Assets}}{\text{Current Liabilities}} = \frac{₹\ 2,00,000 - 1,00,000}{₹\ 80,000}$

$= \frac{1,00,000}{₹\ 80,000} = 1.25 : 1$

(B) (i) Current Ratio $= \frac{\text{Current Assets}}{\text{Current Liabilities}} = \frac{₹\ 1,20,000}{₹\ 56,000} = 2.14 : 1$

(ii) Quick Ratio $= \frac{\text{Liquid Assets}}{\text{Current Liabilities}} = \frac{₹\ 1,00,000}{₹\ 56,000} = 1.79 : 1$

Current Assets = Liquid Assets + Stock + Prepaid expenses

= ₹ 1,00,000 + ₹ 15,000 + ₹ 5000 = ₹ 1,20,000

Current liabilities = Current Assets – working Capital

= ₹ 1,20,000 - ₹ 64,000 = ₹ 56,000

(C) (i) Current Ratio $= \frac{\text{Current Assets}}{\text{Current Liabilities}} = \frac{₹\ 4,00,000}{₹\ 1,00,000} = 4 : 1$

(ii) Quick Ratio $= \frac{\text{Liquid Assets}}{\text{Current Liabilities}} = \frac{₹\ 3,00,000}{₹\ 1,00,000} = 3 : 1$

Current Assets = Working Capital + Current Liabilities

= ₹ 3,00,000 + ₹ 1,00,000 = ₹ 4,00,000

Liquid Assets = Current Assets – Stock

= ₹ 4,00,000 - ₹ 1,00,000 = ₹ 3,00,000

Illustration 5 :

(A) If current Ratio is 2 : 5 times and current liabilities are ₹ 80,000, find out current assets.

(B) Calculate current Liabilities, if current assets are ₹ 5,00,000 and current ratio is 2 times.

Solution :

As we know, current Ratio $= \frac{\text{Current Assets}}{\text{Current Liabilities}}$

(A) Current Assets = Current Liabilities x Current Ratio = ₹ 80,000 x 2.5 = ₹ 2,00,000.

(B) Current Liabilities $= \frac{\text{Current Assets}}{\text{Current Ratio}} = \frac{₹\ 5,00,000}{2} = ₹\ 2,50,000$

Solvency Ratios

(i) Debt-Equity Ratio : Debt-equity ratio indicates the relationship between external equity and internal equity. This ratio indicates how much more short term and long term loan funds have been received by the institution than it Shareholders funds. This ratio is found out to check soundness of long term financial policies of the institution.

$$\text{Debt - equity Ratio} = \frac{\text{External Equities}}{\text{Internal Equities}} \quad \text{or} \quad \frac{\text{Total Debt}}{\text{Shareholder's fund/Networth}}$$

External Equity means total of Long term borrowings, long term provisions and current liabilities.

External Equities = Debentures + Bonds + Mortgage Loan + Bank Loan + Loan from financial institutions + Public Deposits + Long term Provisions + ST Loan + Trade Payables + ST Provisions.

Shareholders' Funds include share Capital and Reserves & Surplus.

Shareholders' Funds = Equity Share Capital + Preference Share Capital + Capital Reserve + Securities Premium + General Reserve + Redemption Reserve + Other Reserve - (Accumulated Loss + Fictitious Assets)

Fictitious Assets : Expenses on issue of shares and debentures, Discount/Loss on issue of debentures etc.

When, accumulated loss and fictitious assets are subtracted from shareholders funds, the balance is called 'Net Worth'. It is also called Equity, Internal Equity or owner's Equity.

Importance : This ratio finds out to know repayment capacity of long term loans by the company. A law ratio provides sufficient safety to long term creditors and a high ratio indicates risky financial position of long term loans of the firm, but high debt equity ratio is favourable to equity shareholders, if earning rate is greater than the rate of interest.

Note : A few scholars are in favour to include only long term debt as debt. In that case debt equity ratio will be:

$$\text{Debt - Equity Ratio} = \frac{\text{Debt}}{\text{Shareholder funds}} = \frac{\text{Long Term Debt}}{\text{Shareholders funds}}$$

Illustration 6 :

Calculate 'Debt-Equity Ratio' from the following information :

	₹		₹
Equity Share Capital	2, 50, 000	8% Debentures	6,00,000
9% Preference Share Capital	1, 50, 000	Bank Loan	2,00,000
General Reserve	80, 000	Creditors	30,000
Securities Premium	70, 000	Bills Payable	20,000
Balance of Statement of P & L	1, 00, 000		

Solution :

$$\text{Debt - Equity Ratio} = \frac{\text{External Equities}}{\text{Internal Equities}} = \frac{₹\,8,50,000}{₹\,6,50,000} = 1.31 : 1$$

External Equities = 8% Debentures + Bank Loan + Creditors + B/P =

₹ 6,00,000 + 2,00,000 + 30,000 + 20,000 = 8,50,000

Internal Equities = Equity Share Capital + Preference Share Capital + General Reserve + Securities Premium + Balance of P & L

= ₹ 2,50,000 + 1,50,000 + 80,000 + 70,000 + 1,00,000 = 6,50,000.

If the debt equity ratio is calculated on the basis of long term loans then,

$$\text{Debt - equity ratio} = \frac{\text{Long Term Debt}}{\text{Shareholders funds}} = \frac{₹\,8,00,000}{₹\,6,50,000} = 1.23 : 1$$

Long Term Debt = ₹ 6, 00, 000 + 2,00,000 = 8,00,000.

Illustration 7 :

From the following information, Calculate 'Debt-Equity Ratio' (based on long term debt):

Total External Liabilities ₹ 3,00,000

Total of Balance Sheet ₹ 8,00,000

Current Liabilities ₹ 50,000

Solution :

$$\text{Debt-Equity Ratio} = \frac{\text{Long Term Debt}}{\text{Shareholders Funds}} = \frac{₹\,2,50,000}{₹\,5,00,000} = 0.5 : 1$$

Shareholders' Funds = Total of B/S – Total External Liabilities = ₹ 8,00,000 – ₹ 3,00, 000 = ₹ 5,00, 000

Long Term Debt = Total External Liabilities – Current Liabilities = ₹ 3,00,000 – ₹ 50,000 = ₹ 2,50,000

(ii) Proprietary Ratio : This ratio depicts the relationship between proprietor's fund and total assets. This ratio measures to what extent shareholders' funds are invested in financing the total assets of the firm.

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

Total Assets : Non-Current Assets (Tangible Assets + Intangible Assets + Non-Current Investments + Long Term Loans and Advances) + Current Assets.

Importance : The higher the ratio the better it will be. It indicates sound financial position or say more proprietors' funds are invested in the concern. The lower the ratio the greater is the risk to creditors.

(iii) Solvency Ratio : This ratio depicts the relationship between total external liabilities and total assets of the firm. This ratio shows long term solvency position of the firm. If, proprietary ratio is subtracted from 1 then we will get solvency ratio.

$$\text{Solvency Ratio} = \frac{\text{Total Debts}}{\text{Total Assets}}$$

Total Debt = Debentures + Bonds + Mortgage Loan + Bank Loan + Loan from financial institution + Public Deposits + Long Term Provisions + Short Term Loans + Trade Payables + Short term provisions.

Importance : This ratio exhibits to what extent total loans (Long term and short term) of the firm are secured by total assets, if total assets are more than external liabilities, then more securities will be available to loan providers/creditors. On contrary to this, total assets are less than external liabilities, it is risky financial position.

Illustration 8 :

From the following information, calculate

(i) Debt-Equity Ratio

(ii) Proprietary Ratio

(iii) Solvency Ratio

Long Term Borrowing ₹ 50,000; Long Term Provisions ₹ 75,000; Current Liabilities ₹ 37,500; Non-Current Assets ₹ 2,70,000; Current Assets ₹ 67,500

Solution :

(1) $\text{Debt-Equity Ratio} = \frac{\text{External equities}}{\text{Internal equities}}$ or $\frac{\text{Total Debt}}{\text{Shareholders' fund}} = \frac{₹\,1,62,500}{₹\,1,75,000} = 0.93 : 1$

Total Debt = Long Term borrowing + LT Provision + Current liabilities =

= ₹ 50,000 + ₹ 75,000 + ₹ 37,500 = ₹ 1,62,500

Shareholders' Funds = Non-Current assets+Current assets–Total debt = ₹ 270000 + 67500–162500 = 175000

(2) Proprietary Ratio = $\frac{\text{Proprietor's funds}}{\text{Total Assets}}$ or $\frac{\text{Shareholders' fund}}{\text{Total Assets}}$

$= \frac{₹\,1,75,000}{₹\,3,37,500} = 0.52 : 1$

Total Assets = Non-Current Assets + Current Assets = ₹ 270000 + ₹ 675000 = ₹ 3,37,500

(3) Solvency Ratio = $\frac{\text{Total Debt}}{\text{Total Assets}}$ = $\frac{₹\ 1,62,500}{₹\ 3,37,500}$ = 0.48 : 1

Or Solvency Ratio = 1 – Proprietary Ratio = 1 - 0.52 = 0.48

Illustration 9 :

From the following information of Rajani Ltd. calculate (a) Debt-Equity Ratio (b) Proprietary Ratio (c) Solvency Ratio

	₹		₹
Equity Share Capital	₹ 1800 000	Current Liabilities	4,00,000
General Reserve	10,50,000	Goodwill	5,00,000
Balance of Statements of P & L (Loss)	1,50,000	Other Non-Current Assets	25,00,000
8% Debentures	11,00,000	Current Assets	20,00,000
Loan from Bank of India	8,00,000		

Solution :

(a) Debt-Equity Ratio = $\frac{\text{Total Debt}}{\text{Shareholders' funds}}$ = $\frac{₹\ 23,00,000}{₹\ 27,00,000}$ = 0.85 : 1

Total Debt = [8% Debentures + Loan from BOI] + Current Liabilities

= [₹ 11,00,000 + ₹ 8,00,000] + ₹ 4,00,000 = ₹ 23,00,000

Shareholders' funds = Equity Share Capital + Gen. Reserve + Balance of P & L

= ₹ 18,00,000 + ₹ 10,50,000 + (-₹ 150,000) = ₹ 27,00,000

If Debt-equity ratio is calculated solely on the basis of long term loans then :

Debt-Equity Ratio = $\frac{\text{Long Term Debt}}{\text{Shareholders' funds}}$ = $\frac{₹\ 19,00,000}{₹\ 27,00,000}$ = 0.70 : 1

(b) Proprietary Ratio = $\frac{\text{Shareholders' Funds}}{\text{Total Assets}}$ = $\frac{₹\ 27,00,000}{₹\ 50,00,000}$ = 0.54 : 1

Total assets = Goodwill + Other Non-Current Assets + Current Assets =

₹ 5,00,000 + ₹ 25,00,000 + ₹ 20,00,000 = ₹ 50,00,000

(c) Solvency Ratio = $\frac{\text{Total Debt}}{\text{Total Assets}}$ = $\frac{₹\ 23,00,000}{₹\ 50,00,000}$ = 0.46 :1

(iv) Interest Coverage Ratio: This ratio is also called Debt-Service Ratio. This ratio indicates the relationship between 'Profit before interest and tax' and Interest on long term loans.

Interest Coverage Ratio = $\frac{\text{Profit before Charging Interest and tax}}{\text{Fixed Interest Charges}}$

Importance : This ratio is a measure of the firm's debt service capacity. This ratio indicates how many times the profit of the firm is of the fixed interest charge. The higher the ratio, the more is the interest paying capacity of the firm and safety available to loan creditors. The firm will be unable to cover its fixed interest charge, if the ratio is lower. The profit of a firm should be 6 or 7 times of its interest charge.

Illustration 10 :

Rohini Ltd. has 5% Debenture of ₹ 4,00,000. Its profit before interest and tax is ₹ 1,50,000. Calculate Interest coverage Ratio.

Solution :

Interest Coverage Ratio = $\frac{\text{Profit before charging Interest and tax}}{\text{Fixed Interest Charge}}$

= $\frac{₹\ 1,50,000}{₹\ 20,000}$ = 7.5 times

Interest on Debentures = 5% of ₹ 4,00,000 = ₹ 20,000

Illustration 11 :

From the following information, calculate 'Debt Service Ratio' and write your comment on it.

Profit After Interest and tax	₹ 1,08,000
Rate of Income Tax 40%; 8% Debentures	₹ 2,50,000

Solution :

'Debt Service Ratio' is another name of Interest Coverage Ratio.

$$\text{Interest Coverage Ratio} = \frac{\text{Profit before Interest and Tax}}{\text{Fixed Interest Charge}}$$

In the question profit is given after interest and tax, while to calculate this ratio, profit must be before interest & tax. So,

$$\text{Profit before Tax} = \frac{\text{Profit After Tax}}{1 - \text{Tax Rate}} = \frac{₹\ 1,08,000}{1-.4}$$

$$= \frac{₹\ 1,08,000}{.6} = ₹\ 1,80,000$$

The above profit of ₹ 1,80,000 is before tax but after interest because income tax is calculated on remaining profit after deducting all approved expenses. So, the amount of interest will be added to this amount to find out profit before interest and tax.

Profit before Interest and Tax = Profit After Tax + Interest Charged = ₹ 1,80,000 + ₹ 20,000 = ₹ 2,00,000

$$\text{Interest Coverage Ratio} = \frac{₹\ 2,00,000}{₹\ 20,000} = 10 \text{ Times}$$

Comment : The above ratio indicates that the firm has earned 10 times profit to interest charge, which is higher than the standard ratio of 6 or 7 times. So the firm can pay interest on its long term loans easily.

Activity Ratios

(i) Stock Turnover Ratio : Stock turnover ratio establishes a relationship between cost of goods sold or say cost of revenue from operations and average stock or inventory. This ratio provides how much sales are made from one rupee of investment in stock of the firm. The ratio considers justification and the adequacy of volume of funds invested in stock by the firm. This ratio is calculated with the help of the following formula :

$$\text{Stock/Inventory turnover ratio} = \frac{\text{Cost of goods sold i.e. cost of revenue from operations}}{\text{Average Stock/Inventory}}$$

Cost of revenue from operations = Cost of material consumed + Purchase of stock in trade + Changes in Inventories + Direct Expenses.

or

Cost of revenue from operations = Revenue from operations – Grass Profit

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

Sometimes, neither information about cost of goods sold or cost of revenue from operations is available nor this cost can be calculated, in that situation, Inventory turnover ratio will be calculated on the basis of sales or revenue from operations. Its formula will be:

$$\text{Inventory turnover ratio} = \frac{\text{Sales/Revenue from operations}}{\text{Average Inventory}}$$

Importance : It is known by this ratio that the rate at which stock of the firm converted into sales or say stock is properly used or not. The higher the ratio is considered the better it is because the firm earns more profit at the low

rate of profit. On the contrary, if the ratio is much lower it is an indicator of unnecessary block of Capital in stock. This situation is an indicator of obsolete stock, over stock or inefficient control on stock.

Illustration 12 :

From the following information, calculate Inventory turnover ratio :

Purchase during the year ₹ 5,00,000; Inventory at the beginning of the year ₹ 2,00,000; Inventory at the end ₹ 1,00,000; Carriage inward ₹ 50,000; Revenue from operations ₹ 10,00,000.

Solution :

$$\text{Inventory Turnover Ratio} = \frac{\text{Cost of Revenue from operations}}{\text{Average Inventory}}$$

$$= \frac{₹\ 6,50,000}{₹\ 1,50,000} = 4.33 \text{ times}$$

Cost of Revenue from operations = ₹ 2,00,000 + ₹ 5,00,000 + ₹ 50,000 – ₹ 1,00,000 = ₹ 6,50,000

$$\text{Average Inventory} = \frac{₹\ 2,00,000 + ₹\ 1,00,000}{2} = ₹\ 1,50,000$$

Illustration 13 :

From the following information calculate Inventory turnover ratio and Average age of Inventory :

Opening Inventory ₹ 58,000; Purchase ₹ 4,84,000; Revenue from operations ₹ 6,40,000; Rate of Gross Profit 25% of Revenue from operations.

Solution :

(i) $$\text{Inventory turnover Ratio} = \frac{\text{Cost of Revenue from operations}}{\text{Average Inventory}}$$

$$= \frac{₹\ 4,80,00}{₹\ 60,000} = 8 \text{ times}$$

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

= ₹ 6,40,000 – 25% of ₹ 640,000 = ₹ 4,80,000

Closing Inventory = Opening Inventory + Purchase - Cost of revenue from operations

= ₹ 5,8000 + ₹ 4,84,000 – ₹ 4,80,000 = ₹ 62,000

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

$$= \frac{₹\ 58,000 + ₹\ 62,000}{2} = \frac{₹\ 1,20,000}{2} = ₹\ 60,000$$

(ii) $$\text{Average age of Inventory} = \frac{\text{No. of days/Months in a Year}}{\text{Inventory Turnover Ratio}}$$

$$= \frac{365}{8} \text{ or } \frac{12}{8} = 45.63 \text{ days or } 1.5 \text{ months}$$

Illustration 14 :

From the following data of Minakshi Ltd. Calculate Inventory Turnover Ratio :

Particulars		Amount ₹
Revenue from operations	85,000	
Less : Return	5,000	80,000
Less: Purchase	39,000	
Change in Inventories		

(Opening Inventory – Closing Inventory)		
(15,920 – 14,400)	1,520	
Carriage inwards	1,000	
Wages	2,000	43,520
Gross Profit		36,480

Solution :

$$\text{Inventory Turnover Ratio} = \frac{\text{Cost of Revenue from Operations}}{\text{Average Inventory}}$$

$$= \frac{₹\,43,520}{₹\,15.160} = 2.87 \text{ times}$$

Cost of Revenue from operations = Opening Inventory + Purchase + Carriage inwards + Wages – Closing Inventory

= ₹ 15920 + ₹ 39000 + ₹ 1000 + ₹ 2000 – ₹ 14,400 = ₹ 43,520 (or)

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

= ₹ 80,000 – ₹ 36,480 = ₹ 43,520

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

$$= \frac{15920 + 14400}{2} = 15.160$$

(ii) Trade Receivables Turnover Ratio : This ratio establishes the relationship between net credit sales and average trade receivables. This ratio indicates how far the firm has been successful in credit recovery. If a firm does not recover cash in time from his receivables, its funds will be blocked in receivables unduly. This ratio is calculated by the following formula :

$$\text{Trade Receivables Turnover Ratio} = \frac{\text{Net Credit Revenue from Operations}}{\text{Average Trade Receivables}}$$

Note :

(1) Net Credit Revenue from operations = Credit sales – Sales Return

(2) If credit sales is not given in question then, credit sales = Total sales – Cash sales

(3) If information, about net credit revenue from operations is not available then trade receivable turnover ratio will be calculated with the use of amount of total revenue from operations instead of net credit revenue from operations.

(4) Trade receivables will include debtors and bills receivable but provision for bad and doubtful debts will not be substracted from trade receivables.

(5) Calculation of average trade receivables:

$$= \frac{\text{Opening (Debtors + B/R)} + \text{Closing (Debtors + B/R)}}{2}$$

Importance : This ratio indicates how quickly cash is recovered from trade receivables. The higher this ratio is the higher the efficiency in the recovery of trade receivables. On the contrary, the lower this ratio is the lower the efficiency in collection of credit sales or trade receivables of the firm or say sales made by the firm to such customers has been unable to recover the amount.

Illustration 15 :

From the following information, calculate trade receivables turnover ratio :

Total revenue from operations for the year	₹ 4,00,000
Cash revenue from operations	20% of total revenue

Trade receivables on 01.04.2016 ₹ 68,000

Trade receivables on 31.03.2017 ₹ 60,000

Solution :

$$\text{Trade Receivables Turnover Ratio} = \frac{\text{Net credit revenue from operations}}{\text{Average Trade Receivables}}$$

$$= \frac{₹\,3,20,000}{₹\,64,000} = 5 \text{ Times}$$

Credit revenue from operations = Total revenue from operations - Cash revenue from operations

₹ 4,00,000 – 20% of ₹ 4,00,000 = ₹ 3,20,000

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

$$= \frac{₹\,68000 + ₹\,60,000}{2} = ₹\ 64000$$

(iii) Average Collection Period : Average collection period means the number of days in which amount is recovered by the firm from its trade receivables. This ratio depends mainly on trade receivables turnover ratio.

$$\text{Average Collection period} = \frac{\text{No. of days in a year}}{\text{Trade receivables turnover ratio}}$$

Or

$$\text{Average collection period} = \frac{\text{Average Trade Receivables x No. of days in a year}}{\text{Net credit revenue from operations}}$$

Importance : Average collection period reflects the time period required for recovery of trade receivables. This period mainly depends upon trade receivable turnover ratio. The higher the trade receivables turnover ratio, the shorter the average collection period and quality of debtors would be good. Loss of bad debts would also be less. On the Contrary to this, the lower the trade receivables turnover ratio, the longer the average collection period would be, which reflects delay in collection from debtors.

Illustration 16 :

The following balances extracted from the books of Subham Ltd. on 31st March, 2017. Calculate Trade receivables turnover ratio and Average collection period. (Assume 360 days in a year)

Total Gross revenue from operations ₹ 3,00,000; Cash revenue from operation ₹ 60,000; Revenue from operations returns ₹ 21,000; Total Debtors on 31.03.2016 ₹ 8000; Total Debtors on 31.03.2017 ₹ 10,000; Bills Receivables on 31.03.2016 ₹ 4500; Bills Receivables on 31.03.2017 ₹ 6700; Provision for doubtful debts ₹ 2000; & Trade payables on 31.03.2017 ₹ 20,000

Solution :

(i) $$\text{Trade Receivables Turnover Ratio} = \frac{\text{Net credit Revenue from operations}}{\text{Average Trade Receivables}}$$

$$= \frac{₹\,2,19,000}{₹\ 14,600} = 15 \text{ times}$$

Net credit revenue from operations = Total Gross revenue from operations – Cash revenue from operations – Returns.

= ₹ 3,00,000 – ₹ 60,000 – ₹ 21000 = ₹ 219000

$$\text{Average trade receivables} = \frac{\text{Opening (Debtors + B/R)} + \text{Closing (Debtors + (B/R)}}{2}$$

$$= \frac{(₹\,8000 + ₹\,4500) + (₹\,10,000 + ₹\,6700)}{2} = ₹\,14,600$$

(ii) Average Collection Period $= \frac{\text{No. of days in a year}}{\text{Trade receivables turnover ratio}}$

$= \frac{360}{15} = 24 \text{ days}$

Illustration 17 :

From the following information, calculate opening and closing trade receivables :

Trade receivables turnover ratio = 7 times

Cost of Revenue from operations = ₹ 7,50,000

Gross Profit ratio = 1/3 on cost

Cash Revenue from operations = 30% of total Revenue

Closing trade receivables were ₹ 40,000 more than at the beginning.

Solution :

Total Revenue from operations = Cost of Revenue from operations + Gross Profit

= ₹ 750,000 + (1/3 of ₹ 750,000)

= ₹ 10,00,000

Credit Revenue from operations = Total Revenue from operations – Cash Revenue from operations

= ₹ 10,00,000 – (30% of ₹ 10,00,000)

= ₹ 7,00,000

Trade Receivables turnover Ratio $= \frac{\text{Credit revenue from operations}}{\text{Average trade receivables}}$

Average Trade Receivables $= \frac{₹\ 7,00,000}{7} = ₹\ 100,000$

Average Trade Receivables $= \frac{\text{Opening receivables} + \text{Closing receivables}}{2}$

Assume opening Trade receivables = x

Then, closing trade receivables will be = x + 40,000

$₹\ 1,00,000 = \frac{(x) + (x + 40,000)}{2} = 2,00,000 - 40,000 = 2x$

$X = 1,60,000/2 = ₹\ 80,000$

Opening Trade receivables = ₹ 80,000

Closing Trade receivables = ₹ 80,000 + ₹ 40,000 = ₹ 120,000

(iv) Trade Payables Turnover Ratio : This ratio establishes the relationship between net credit purchase and average trade payables. This ratio reveals the number of times the trade payables turnover in relation to purchase.

Trade Payables Turnover Ratio $= \frac{\text{Net Credit Purchase}}{\text{Average Trade Payables}}$

Note:

(1) This ratio is calculated on the basis of total purchase, if information about credit purchase is not available.

(2) 'Provision for discount on creditors' would not be substracted from creditors, to calculate this ratio.

(3) Average Trade Payables $= \frac{\text{Opening (Creditors + B/P)} + \text{Closing (creditors + B/P)}}{2}$

Importance : The ratio reveals the speed of firm to payment to its trade payables. The higher the ratio, the better it will be. It shows that the firm is paying its payables promptly and this increases the goodwill of the firm.

(v) Average Payment Period : Average payment period means the credit period enjoyed by the firm in paying

creditors. This ratio depends mainly upon trade payables turnover ratio. A high trade payables turnover ratio tends lower average payment period. On the contrary to this, lower the trade payables turnover ratio, average payment period would be higher.

$$\text{Average payment period} = \frac{\text{No. of days in a year}}{\text{Trade Payables Turnover Ratio}}$$

$$\text{(Or) Average payment period} = \frac{\text{No. of days in a year x Average trade payables}}{\text{Net credit purchase}}$$

Illustration 18 :

From the following information of Ramesh Ltd. Calculate 'Trade Payables Turnover Ratio' and 'Average Payment Period'. Total purchase during the year ₹ 15,00,000; Cash purchase ₹ 4,00,000; Purchase Returns (out of credit Purchase) ₹ 5000; Provision for discount on creditors ₹ 50,000; Opening creditors ₹ 35000; Opening B/P ₹ 15,000; Closing creditors₹ 50,000; & Closing B/P ₹ 20,000.

Solution :

(i) Trade Payables Turnover Ratio $= \frac{\text{Net Credit Purchases}}{\text{Average Trade Payables}}$

$$= \frac{₹\ 10,95,000}{₹\ 60,000} = 18.25 \text{ times}$$

Net credit Purchases = Total Purchase – Cash Purchase – Purchase Returns

= ₹ 15,00,000 – ₹ 4,00,000 – ₹ 5,000

= ₹ 10,95,000

$$\text{Average Trade Payables} = \frac{(₹\ 35000 + ₹\ 15000 + ₹\ 50,000 + ₹\ 20,000)}{2}$$

$$= \frac{₹\ 1,20,000}{2} = ₹\ 60,000$$

(ii) Average Payment Period $= \frac{\text{No. of days in a year}}{\text{Trade Payables Turnover Ratio}}$

or $= \frac{\text{No. of days in a year X Average Trade Paybles}}{\text{Net Credit Purchase}}$

Average Collection Period $= \frac{365}{18.25} = 20 \text{ days}$ or

$$= \frac{365 \times 60,000}{10,95,000} = 20 \text{ days}$$

(vi) Total Assets Turnover Ratio : This ratio indicates the relationship between revenue from operations or cost of revenue from operations and total assets of the firm. This ratio is also called Total investment turnover ratio.

$$\text{Total Assets Turnover Ratio} = \frac{\text{Revenue from operations or cost of Revenue from operations}}{\text{Total Assets}}$$

Total Assets = Noncurrent Assets (Tangible Assets + Intangible Assets + Non-current Investments + Long Term Loans and Advances) + Current Assets.

Importance : This ratio indicates the number of times the total assets turned into sales. The higher the ratio, the more effective is the management of the firm that they have utilized assets effectively. On contrary to it, if assets turnover ratio is low, it means the firm is not able to sale sufficiently in comparison to investment in assets and there is an over investment in assets.

Illustration 19 :

From the following information, Calculate 'Total Assets Turnover Ratio':-

Goodwill ₹ 8,000; Other Non-Current Assets ₹ 22,000; Current Assets ₹ 20,000; Cash Revenue from operations ₹ 1,30,000; Credit Revenue from operations ₹ 3,90,000; and Revenue from operations Return ₹ 20,000.

Solution :

Total Assets Turnover Ratio = $\frac{\text{Net Revenue from operations}}{\text{Total Assets}}$

= $\frac{₹\ 5,00,000}{₹\ 50,000}$ = 10 times

Net Revenue from operations = Cash Revenue from operations +Credit Revenue from operations – Revenue from operation Return

= ₹ 1,30,000 + ₹ 3,90,000 – ₹ 20,000 = ₹ 5,00,000.

Total Assets = Goodwill + Other non-current assets + Current assets

= ₹ 8000 + ₹ 22,000 + ₹ 20,000 = ₹ 50,000.

Profitability Ratios

(i) Gross Profit Ratio : This ratio reveals the relationship between gross profit and net revenue from operations. Generally this ratio is expressed in percentage. It is calculated with following formula :

Gross Profit Ratio = $\frac{\text{Gross Profit x 100}}{\text{Net Revenue from operations (Net Sales)}}$

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

Cost of revenue from operations = Cost of material consumed + Purchase of Stock-in-trade + Changes in inventories + Direct Expenses (Carriage, wages etc.)

Inventories = finished goods + Work-in-Progress (WIP) + Stock-in-Trade

Net Revenue from operations = Revenue from operations – Revenue from operations Return (i.e. sales Return)

Importance : This ratio is a good measure to determine the profit earning capacity of the firm. The higher the ratio the greater will be benefit for business. On the contrary the lower ratio is an indication of declining the profits in the firm, mainly reasons for this are – declining in selling price, increase in purchase price, carriage, wages and other direct expenses, under valuation of closing stock etc. There is not any ideal standard for this ratio but this ratio should be sufficient to cover all operating expenses, depreciation, Interest on debentures, dividend etc.

Illustration 20 :

From the following information calculate 'Gross Profit Ratio' :

Decrease in Inventory ₹ 160,000; Return out wards ₹ 50,000; Purchase: (Cash) ₹ 2,00,000; Purchase: (Credit) ₹ 6,00,000; Wages ₹ 80,000; Carriage in wards ₹ 15,000; salaries ₹ 1,00,000; Cash revenue from operations ₹ 2,50,000; Ratio of Cash Revenue from operations and credit revenue from operations = 1: 5

Solution :

Gross Profit Ratio = $\frac{\text{Gross Profit}}{\text{Revenue from operations}}$ x 100

= $\frac{₹\ 15,00,000 – ₹\ 10,05,000}{₹\ 15,00,000}$ x 100 = $\frac{₹\ 4,95,000}{₹\ 15,00,000}$ x 100 = 33%

Revenue from operations = Cash Revenue from operations + Credit Revenue from operations

= ₹ 2,50,000 + (250,000 x 5) = ₹ 15,00,000.

Net Purchase = Cash Purchase + Credit purchase – Return outwards

= ₹ 2,00,000 + ₹ 6,00,000 – ₹ 50,000 = ₹ 7,50,000.

Cost of Revenue from operations = Net Purchase + Changes in Inventory (i.e. opening Stock – Closing Stock) + Direct expenses = ₹ 7,50,000 + ₹ 160,000 + ₹ 15,000 + ₹ 80,000.

= ₹ 10,05,000.

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

= ₹ 15,00,000 – ₹ 10, 05,000 = ₹ 495,000.

Note : Decrease in Inventory means reduction in closing stock in comparison to opening stock.

(ii) Operations Ratio : Operating ratio expresses the relationship between total operating cost and net revenue from operations. To calculate total operating cost, all operating expenses relating to main business will be added to cost of revenue from operations and other operating income will be subtracted from it. Total of operating ratio and operating profit Ratio is 1.

$$\text{Operating Ratio} = \frac{\text{Operating Cost} \times 100}{\text{Net Revenue from operations}}$$

Operating cost = Cost of Revenue from operations + other operating expenses – Other operating Incomes.

Other Operating Expenses : Employee benefit expenses, Depreciation, office and **a**dministrative expenses, selling and distribution expenses, discount, Bad debts, Interest on short term loans.

Other Operating Incomes : Commission received and discount received.

Importance : Operating ratio is a measure of operational efficiency and profit earning capacity of the business. The lower the ratio, the firm will be more efficient from the point of view of profit earning capacity.

Notable : At the time of calculating operating ratio non-operating expenses like. Loss on sale of fixed assets, abnormal loss, interest on long term loans, donation, income tax etc. and non-operating incomes like income from investments etc. are not considered.

(iii) Operating Profit Ratio : This ratio establishes the relationship between operating profit and net revenue from operations (net sales). Operating profit mean the profit which is derived by substracting cost of revenue from operations and all operating expenses from revenue from operations and adding other operating income to it.

$$\text{Operating Profit Ratio} = \frac{\text{Operating Profit}}{\text{Net Revenue from operations (Net sales)}} \times 100$$

Operating Profit = Gross Profit – Other Operating Expenses + Other Operating Incomes

Note : If net profit is given, the operating profit will be calculated as follows:

Operating Profit = Net profit (before tax) + Non-operating expenses/Losses – None operating Incomes.

Other Operating Expenses : Employee benefit expenses, depreciation, office and administrative expenses, selling and distribution expenses, discount, Bad debts, Interest on short term loans etc.

Other Operating Incomes : Commission received and discount received.

Non-operating Expenses : Loss on sale of non-current (Fixed) assets, loss by fire, donation, income tax and interest on debentures/Long Term Loans.

Non-Operating Incomes : Profit on sale of non-current (fixed) assets & Income on Investments.

Importance : This ratio makes the operational efficiency of the firm clear. The higher this ratio, the firm would be better from the point of view of profit earning capacity. In some of the firms, profit from operations is low but non-operating profit is high, as a result net profit is enhanced. Thus, operating profit ratio is the basis for measuring the efficiency and profit earning capacity of the business.

Illustration 21 :

From the following information calculate operating Ratio and Operating Profit Ratio :

Revenue from operations ₹ 225,000; Revenue from operations Return ₹ 25,000; Cost of Revenue from operations ₹ 1,00,000; Administrative Expenses ₹ 17,000; Selling and Distribution Expenses ₹ 9,000; Depreciation ₹ 22,000.

Solution :

(i) Operating Ratio $= \frac{\text{Cost of Revenue from operations + Operating Expenses}}{\text{Net Revenue from operations}} \times 100$

$= \frac{₹\ 1,00,000 + (₹\ 17000 + ₹\ 9000 + ₹\ 22000)}{₹\ 2,00,000} \times 100$

$= \frac{₹\ 148000}{₹\ 2,00,000} \times 100 = 74\%$

(ii) Operating Profit Ratio $= \frac{\text{Operating Profit}}{\text{Net Revenue from operations}} \times 100$

$= \frac{₹\ 52000}{₹\ 2,00,000} \times 100 = 26\%$

Net Revenue from operations = Revenue from operations – Revenue from operations Return

= ₹ 225,000 – ₹ 25,000 = ₹ 2,00,000

Operating Profit = Net Revenue from operations – Cost of Revenue from operations – Other operating Expenses (Administrative expenses + Selling and distribution expenses + Depreciation)

= ₹ 2,00,000 – ₹ 1,00,000 – (₹ 17,000 + ₹ 9000 + ₹ 22000)

= ₹ 2,00,000 – ₹ 148,000

= ₹ 52,000.

Operating Profit Ratio = 100 – Operating Ratio = 100 – 74 = 26%.

(iv) Net Profit Ratio : This ratio expresses the relationship between net profit of the business and net revenue from operations (net sales). Net profit of a business firm is the total of profit from operating activities and non-operating activities.

Net Profit Ratio $= \frac{\text{Net Profit}}{\text{Net Revenue from operating (net sales)}} \times 100$

Net Profit = Gross Profit – Other operating expenses – other non-operating expenses + other operating incomes + other non-operating incomes.

Importance : This ratio is an indicator of overall profitability and efficiency of the business. If, this ratio reflects an increase compared to previous year then it means there is an improvement is profitability of the business. On the one hand this ratio reflects profitability on revenue from operations, while on the other hand it also provides information about appropriate reward for risk on owners Capital.

Illustration 22 :

From the following information of a company calculate Gross profit ratio, operating profit ratio and net profit ratio for the year ended 31st March, 2017.

Opening Inventory ₹ 1,20,000; Closing Inventory ₹ 2,00,000; Purchase ₹ 8,40,000; Wages ₹ 56,000; Carriage Inward ₹ 16,000; Administrative Expenses ₹ 96,000; Selling & Distribution expenses ₹ 1,12,000; Profit on sale of machine ₹ 112,000; Non-Operating expenses ₹ 30,000; Income Tax ₹ 50,000; Revenue from operations ₹ 16,40,000; Revenue from operations Return ₹ 40,000.

Solution :

(i) Gross Profit Ratio $= \frac{\text{Gross Profit}}{\text{Net Revenue from operations}} \times 100$

$= \frac{₹\ 768,000}{₹\ 16,00,000.} \times 100 = 48\%$

Gross Profit = Net Revenue from operations – Cost of Revenue from operations = Net Revenue

= Net Revenue from operations – (Opening Inventory + Purchase + wages + Carriage inwards – Closing Inventory)

= (₹ 16,40,000 – ₹ 40,000) – (₹ 120,000 + ₹ 840,000 + ₹ 56,000 + ₹ 16,000 – ₹ 2,00,000)

= ₹ 16,00,000 – ₹ 832,000 = ₹ 7,68,000.

(ii) Operating Profit Ratio $= \frac{\text{Operating Profit}}{\text{Net Revenue from operations}} \times 100$

$= \frac{₹\ 5,60,000 \times 100}{₹\ 16,00,000} = 35\%$

Operating Profit = Gross Profit – Other operating Exp. (administrative exp. + selling exp.)

= ₹ 768,000 – (₹ 96000 + ₹ 112,000)

₹ 7,68,000 – ₹ 208,000 = ₹ 5,60,000.

(iii) Net Profit Ratio $= \frac{\text{Net Profit}}{\text{Net Revenue from operations}} \times 100$

$= \frac{₹\ 5,92,000 \times 100}{₹\ 16,00,000} = 37\%$

Net Profit = Operating Profit – Non Operating Exp. + Non-operating Incomes

= ₹ 5,60,000 – (₹ 30,000 + ₹ 50,000) + ₹ 112,000 = ₹ 5,60,000 – ₹ 80,000 + ₹ 112,000

= ₹ 5,92,000.

(v) Return on Investment or ROI : This ratio is also called 'Return on Capital Employed'. The main objective of investment in a concern is to earn a return on capital. The overall profitability of a business is measured by this ratio. This ratio expresses the relationship between Profit before interest and tax (PBIT) and capital employed.

Capital employed means long term funds invested in a firm. Since, long term loans are also included in long term funds, therefore, interest paid on long term loans is not substracted from profits, while calculating this ratio.

Return on Investment $= \frac{\text{Net Profit before interest \& tax \& Dividends}}{\text{Capital Employed}} \times 100$

Capital Employed can be calculated either of methods from the followings :

(i) Liabilities side approach: Capital employed = Shareholders funds + Non-current liabilities (Long term loans + Long term provisions) – Non trade Investments.

(ii) Assets side approach : Capital Employed = Non-Current Assets + Working Capital

Non-Current Assets = Fixed Assets (Tangible Assets + Intangible assets) + Non-Current Investments + LT loans & advances

Working Capital = Current Assets – Current Liabilities.

Note : If it is not clear about investment, it will be treated Trade Investment.

Importance : This ratio is the best basis to measure the overall profitability and efficiency of the business. This ratio indicates how efficiently the Capital employed in the firm is being used. The Performance of two companies may be compared with the help of this ratio.

Illustration 23 :

From the following information calculate rate of Return on Investment :

Share Capital ₹ 1,00,000; Fixed Assets – Tangible (net) ₹ 4,50,000; Current Assets ₹ 2,20,000; Current Liabilities ₹ 1,70,000; Reserves & Surplus ₹ 50,000; Non-current trade Investment ₹ 50,000; 10% Long term loans ₹ 4,00,000; Net profit before tax ₹ 180,000.

Solution :

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

$$= \frac{₹\ 2,20,000}{₹\ 5,50,000} \times 100 \qquad = 40\%$$

Net profit before Interest and tax = Net profit before tax + 10% Int. + on loan

= ₹ 1,80,000 + ₹ 40,000 = ₹ 2,20,000.

Capital Employed = Share Capital + Reserves & Surplus + 10% LT loans

= ₹ 1,00,000 + ₹ 50,000 + ₹ 4,00,000 = ₹ 5,50,000.

Investment Anaylysis Ratios

(i) Earning per Share - (EPS) : Earning per share is calculated by dividins the profit available to equity shareholders by the number of equity shares. This is a financial ratio that indicates how much income is earned on each equity share. As per As-20, while calculating profit available to equity shareholders, dividend on preference share will be substracted and outstanding numbers of equity shares mean weighted average of outstanding number of equity shares during the period.

$$\text{Earning Per Share – (EPS)} = \frac{\text{Net Profit After tax – Preference share dividend}}{\text{Number of Equity Shares}}$$

Importance : This ratio is important from the equity shareholder's point of view. This ratio affects market price of equity shares also. Higher **e**arning per share ratio is, the greater the market price of shares of the company. As a result, it is easy for the company to make arrangements for additional funds and will increase the company's goodwill.

Illustration 24 :

From the following information. Calculate Earning Per Share :

Equity Share Capital of ₹ 10 each fully paid ₹ 5,00,000; 10% Preference Share Capital of 10 each fully paid ₹ 1,00,000; General Reserve ₹ 1,50,000; Net Profit before tax ₹ 3,00,000; Tax Rate Assume 30%.

Solution :

$$\text{Earning Per share} = \frac{\text{Net Profit After tax – Preference share dividend}}{\text{Number of Equity Shares}}$$

$$= \frac{₹\ 2,00,000}{₹\ 50,000} = ₹\ 4$$

Net Profit after tax and preference share dividend = Net Profit before tax – income tax – Preference share dividend

= ₹ 3,00,000 – (30% of ₹ 3,00,000) – (10% of ₹ 1,00,000)

= ₹ 3,00,000 – ₹ 90,000 – ₹ 10,000 = ₹ 2,00,000.

No. of Equity Shares = ₹ 5,00,000 ÷ ₹ 10 = 50,000 Shares.

(ii) Dividend Per Share – DPS : Dividend per share is a part of earning which is obtained by dividing the total amount distributed among equity shareholders by number of equity shares. Earning per share tell how much each equity shareholder is entitled to receive profit but he does not receive the entries amount. A portion of the profits of his share is retained by the company, remaining amount is received by him as dividend.

$$\text{Dividend Per Share} = \frac{\text{Dividend Paid to Equity Shareholders}}{\text{Number of Equity Shares}}$$

(iii) Dividend Payout Ratio : This ratio establishes the relationship between dividend per share and earning per share. This ratio tells what proportion of earnings related with equity shareholders has been distributed among them in the form of dividend.

$$\text{Dividend Payout Ratio} = \frac{\text{Dividend per Share}}{\text{Earning Per Share}} \times 100$$

If dividend pay out ratio is substracted from 100 the remaining will be the amount of profit retained by the firm, for example, Dividend pay out ratio of a company is 65%, then its retained earning ratio will be 100 – 65% = 35%.

Illustration 25 :

From the following information of Tanvi Ltd. Calculate (i) Earning per share (ii) Dividend per share and (iii) Dividend pay out ratio :

10% 2000 Preference Shares of ₹ 100 each ₹ 2,00,000

50,000 Equity Shares of ₹ 10 each ₹ 5,00,000

Profit After Tax ₹ 3,80,00; Equity Dividend Paid @ 40%

Solution :

(1) Earning Per Share $= \frac{\text{Net Profit after tax-Preference Share Dividend}}{\text{No. of Equity Shares}}$

$= \frac{₹\ 3,80,000 - (10\% \text{ of } ₹\ 2,00,000)}{₹\ 50,000} = \frac{3,60,000}{50,000} = ₹\ 7.20 \text{ per share}$

(2) Dividend Per Share $= \frac{\text{Dividend Paid to equity Shareholders}}{\text{No. of Equity shares}}$

$= \frac{₹\ 2,00,000}{₹\ 50,000} = ₹\ 4 \text{ per share}$

Dividend Paid to Equity shareholders = 40% of ₹ 5,00,000 = ₹ 2,00,000

(3) Dividend Payout Ratio $= \frac{\text{Dividend per Share}}{\text{Earning Per Share}} \times 100$

$= \frac{₹\ 4 \times 100}{₹\ 7.2} = 55.56\%$

Illustration 26 :

Following particulars are extracted from the books of Jony Ltd. :

Share Capital – 4,00,000, General Reserve – 2,04,000, Statement of Profit & Loss – 187,000, 11% Debentures – 2,00,000, Current Liabilities – 209,000, Non-current Assets – 560,000, Inventory – 198,000, Trade Receivables – 370,000, Cash and Cash Equivalents – 72,000.

Calculate following Ratios : (i) Current Ratio; (ii) Quick Ratio; (iii) Debt Equity Ratio; (iv) Proprietary Ratio; and (v) Solvency Ratio.

Solution :

(i) Current Ratio $= \frac{\text{Current Assets}}{\text{Current Liabilities}} = \frac{6,40,000}{2,09,000} = 3.06:1$

Current Assets = Inventory + Trade Receivables + Cash and Cash Equivalents

= 198,000 + 370,000 + 72000 = 6,40,000.

(ii) Quick Ratio $= \frac{\text{Quick Assets}}{\text{Current Liabilities}} = \frac{4,42,000}{2,09,000} = 2.11:1$

Liquid Assets = Current Assets – Inventory = 6,40,000 – 1,98,000 = ₹ 4,42,000

(iii) Debt – Equity Ratio $= \frac{\text{External Liabilities}}{\text{Internal Liabilities}} = \frac{4,09,000}{7,91,000} = 0.517:1$

External Liabilities = 11% Debentures + Current Liabilities = 2,00,000 + 2,09,000 = ₹ 4,09,000

Internal Liabilities = Share capital + General Reserve + Profit & Loss Balance

= 4,00,000 + 2,04,000 + 1,87,000 = ₹ 7,91,000

(iv) Proprietory Ratio = $\frac{\text{Shareholders Fund}}{\text{Total Assets}}$ = $\frac{7,91,000}{12,00,000}$ = 0.659 : 1

Shareholder's fund or Internal Equity or Internal Liabilities i.e. ₹ 7,91,000

Total assets = Non-current assets + Current Assets = 5,60,000 + (1,98,000 + 3,70,000 + 72,000) = ₹ 12,00,000.

(v) Solvency Ratio = $\frac{\text{Total Debt}}{\text{Total Assets}}$ = $\frac{4,09,000}{12,00,000}$ = 0.341:1

Total Debt = Non-current liabilities + current liabilities

= 2,00,000 + 2,09,000 = ₹ 4,09,000.

Illustration 27 :

Following information have been obtained from the books of Miraj Ltd. :

Particulars	2015-16 ₹	2016-17 ₹
Revenue from operations (at Gross Profit of 25%)	20,00,000	30,00,000
Trade Receivables on 1st April	3,00,000	
Trade Receivables on 31st March	3,50,000	5,00,000
Inventory on 1st April	3,20,000	
Inventory on 31st March	3,60,000	4,40,000

Calculate Trade Receivables Turnover Ratio and Inventory Turnover Ratio for both of the years and give necessary comments.

Solution :

Year 2015-16

Trade Receivable Turnover Ratio = $\frac{\text{Net Credit Revenue from operations}}{\text{Average Trade Receivables}}$ = $\frac{20,00,000}{3,25,000}$ = 6.15 times

Average Trade Receivables = $\frac{\text{Opening Trade Receivables + closing trade Receivables}}{2}$

= $\frac{300,000 + 350,000}{2}$ = 3,25,000

Inventory Turnover Ratio = $\frac{\text{Cost of Revenue form operation}}{\text{Average Inventory}}$ = $\frac{15,00,000}{3,40,000}$ = 4.41 times

Cost of Revenue from operations = 20,00,00 – 25% of 20,00,000 = 20,00,000 – 5,00,000 = ₹ 15,00,000

Average Inventory = $\frac{\text{Opening Inventory + closing Inventory}}{2}$ = $\frac{3,20,000 + 3,60,000}{2}$ = 3,40,000

Year 2016-17

Trade receivables Turnover Ratio = $\frac{\text{Net Credit Revenue from Operations}}{\text{Average Trade Receivables}}$ = $\frac{30,00,000}{4,25,000}$ = 7.06 times.

Closing trade receivables of the year 2015-16 will be the opening trade receivables for the year 2016-17.

So Average Trade Receivables = $\frac{3,50,000 + 5,00,000}{2}$ = ₹ 4,25,000

Inventory Turnover Ratio = $\frac{\text{Cost Revenue from operations}}{\text{Average Inventory}}$ = $\frac{22,50,000}{4,00,000}$ = 5,625 times

Cost Revenue from operations = 30,00,000 – 25% of 30,00,000 = 30,00,000 – 7,50,000 = ₹ 22,50,000.

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

2

Closing Inventory of the year 2015-16 will be the opening Inventory for the year 2016-17.

Average Inventory = $\frac{3,60,000 + 4,40,000}{2}$ = 4,00,000

Comments :

1. Trade Receivables Turnover Ratio has become 7.06 times in the year 2016-17 instead of 6.15 times in the year 2015-16. It means the firm is collecting money from debtors promptly.
2. Inventory Turnover Ratio has become 5.625 times in the year 2016-17 instead of 4.41 times. It also exhibits efficient inventory policy of the firm.

Note : There is no information about cash or credit sales. Hence, Trade Receivables turnover ratio is calculated on the given amount of revenue from operations.

Illustration 28 :

From the following figures available for the year ending 31st March 2017, calculate (i) Gross Profit Ratio (ii) Operating Ratio (iii) Operating Profit Ratio & (iv) Net Profit Ratio :

Cash Revenue from Operations ₹ 50,000, Credit Revenue from operations ₹ 1,00,000, Purchase (Cash ₹ 20,000, Credit ₹ 68,000), Return outwards ₹ 5,000, Opening Inventory ₹ 20,000, Closing Inventory ₹ 10,000, Carriage inwards ₹ 3,000, Salaries ₹ 3,500, Other Office expenses ₹ 5,000, Selling Expenses ₹ 6,500, Income from Investment ₹ 7,000, Interest on Loan ₹ 8,000, Loss by Fire ₹ 4,000, Wages ₹ 4,000.

Solution :

(i) Gross Profit Ratio = $\frac{\text{Gross Profit}}{\text{Revenue from operations}} \times 100 = \frac{50,000}{1,50,000} \times 100 = 33\frac{1}{3}\%$

Revenue from operations = Cash Revenue from Operations + Credit Revenue from operations

= 50,000 + 1,00,000 = ₹ 1,50,000

Net Purchases = Cash purchase + credit purchase – return outwards

= 20,000 + 68,000 – 5,000 = ₹ 83,000.

Cost Revenue from Operations = Net purchases + changes in inventory + Carriage inwards + Wages

= 83,000 + (20,000 – 10,000) + 3,000 + 4,000 = ₹ 1,00,000.

Gross Profit = Revenue from operations – cost of Revenue from operations

= 1,50,000 – 1,00,000 = ₹ 50,000.

(ii) Operating Ratio = $\frac{\text{Operating Cost} \times 100}{\text{Revenue from operations}} = \frac{1,15,000 \times 100}{1,50,000} = 76.67\%$

Operating Cost = Cost of Revenue from Operations + Salaries + Other Office Expenses + Selling Expenses

= 1,00,000 + 3,500, + 5,000 + 6,500 = ₹ 1,15,000.

(iii) Operating Profit Ratio = $\frac{\text{Operating Profit}}{\text{Revenue from operations}} \times 100 = \frac{35,000}{1,50,000} \times 100 = 23.33\%$

Operating Profit = Revenue from operations – operating cost = 1,50,000 – 1,15,000 = ₹ 35,000

(iv) Net Profit Ratio = $\frac{\text{Net Profit}}{\text{Revenue from operations}} \times 100 = \frac{30,000}{1,50,000} \times 100 = 20\%$

Net Profit = Gross Profit + other operating Income – Other Operating Expenses + Non-Operating Income – Non-operating Expenses or Net Profit = Operating Profit + Non-operating Income – Non Operating Expenses = 35000 + 7,000 – (4,000 + 8,000) = ₹ 30,000.

Illustration 29 :

Calculate the following ratios with the help of the information given below :

(i) Current Ratio (ii) Gross Profit Ratio (iii) Operating Ratio (iv) Net Profit Ratio on Return in Investment

Information : Plant & Machinery – 5,00,000, Non-current Investment (Trade) – 2,00,000; Current Assets 3,00,000, Current Liabilities 2,00,000, Revenue from Operations 10,00,000 Purchases 7,50,000, Opening Inventory 45,000, Closing Inventory 55,000, Wages 20,000, Office Expenses 40,000, Interest on Debentures 10,000, Income Tax 20,000.

Solution :

(i) Current Ratio = $\frac{\text{Current Assets}}{\text{Current Liabilities}} = \frac{3,00,000}{2,00,000} = 1.5:1$

(ii) Gross Profit Ratio = $\frac{\text{Revenue from operations - cost of revenue from operations}}{\text{Revenue from operations}} = \frac{2,40,000}{10,00,000} \times 100 = 24\%$

Cost of Revenue from operations = Purchases + changes in Inventory + wages

= 750,000 + (45,000 – 55,000) + 20,000 = ₹ 7,60,000.

Gross Profit = 10,00,000 – 7,60,000 = ₹ 2,40,000

(iii) Operating Ratio = $\frac{\text{Operating cost}}{\text{Revenue from operations}} \times 100 \quad \frac{8,00,000}{10,00,000} \times 100 = 80\%$

Operating cost = Cost of Revenue from Operations + office expenses

= 7,60,000 + 40,000 = ₹ 8,00,000

(iv) Net Profit Ratio = $\frac{\text{Net Profit}}{\text{Revenue from operations}} \times 100 = \frac{₹\ 1,70,000}{10,00,000} \times 100 = 17\%$

Net Profit = Gross Profit – office exp. – Interest on debentures – Tax

= 2,40,000 – 40,000 – 10,000 – 20,000 = 1,70,0000

(v) Return on Investment = $\frac{\text{Net Profit before Interest \& Tax and Dividend}}{\text{Capital employed}} \times 100 = \frac{2,00,000}{8,00,000} \times 100 = 25\%$

Net Profit before interest & tax = Net Profit + Interest on Debentures + Tax

= 1,70,000 + 10,000 + 20,000 = ₹ 2,00,000.

Capital Employed = Non-current Assets + Working Capital

= (5,00,000 + 2,00,000) + (3,00,000 – 2,00,000) = 7,00,000 + 1,00,000 = ₹ 8,00,000

	Particulars	Note No.	Amount ₹
I.	**Equitiy and Liabilities**		
	(i) Shareholder's Funds :		
	(a) Share Capital		15,00,000
	(b) Reserves and Surplus		10,00,000
	(ii) Non-Current Liabilities		
	Long Term Borrowings	1	15,00,000
	(iii) Current Liabilities		
	(a) Trade Payables		6,00,000
	(b) Other Current Liabilities	2	1,00,000
	(c) Short Term Provision	3	3,00,000
	Total		**50,00,000**
II.	**Assets**		
	(i) Non Current Assets		30,00,000

(ii)	Current Assets		
	(a) Inventory		10,00,000
	(b) Trade Receivables		6,00,000
	(c) Cash and Cash Equivalents		4,00,000
	Total		**50,00,000**

Illustration 30 :

The following is the balance sheet of Anuradha Ltd. as at 31st March 2017 :

Notes :

(i) Long Term Borrowings : 9% Loans – 10,00,000, 12% Debenture – 5,00,000, total = 15,00,000.

(ii) Other Current Liabilities : Outstanding Expenses- 1,00,000.

(iii) Short term Provision : Provision for tax- 3,00,000.

Other information are as follows : Net Revenue from operations- 75,00,000, Cost of Revenue from Operations- 60,00,000, Operating Expenses- 6,00,000

You are required to calculate following ratios:-

(i) Current Ratio (ii) Quick Ratio (iii) Debt- Equity Ratio (iv) Inventory Turnover Ratio (v) Proprietory Ratio (vi) Gross Profit Ratio (vii) Operating Ratio (viii) Operating Profit Ratio (ix) Net Profit Ratio

Solution :

(i) Current Ratio $= \frac{\text{Current Assets}}{\text{Current Liabilities}} \times 100 = \frac{20,00,000}{10,00,000} = 2:1$

Current Assets = Inventory + Trade Receivables + Cash & Cash Equivalents

= 10,00,000 + 6,00,000 + 4,00,000 = ₹ 20,00,000.

Current Liabilities = Trade Payables + Other Current liabilities + Short Term Provision

= 6,00,000 + 1,00,000 + 3,00,000 = ₹ 10,00,000.

(ii) Quick Ratio $= \frac{\text{Quick Assets}}{\text{Current Liabilities}} = \frac{10,00,000}{10,00,000} = 1:1$

Quick Assets = Current Assets - Inventory = 20,00,000 – 10,00,000 = ₹ 10,00,000.

(iii) Debt Equity Ratio $= \frac{\text{External Liabilities}}{\text{Internal Liabilities}} = \frac{25,00,000}{25,00,000} = 1:1$

External Liabilities = Non-current liabilities + Current Liabilities

= 15,00,000 + 10,00,000 = ₹ 25,00,000

Internal Liabilities = Share Capital + Reserves and Surplus = 15,00,000 + 10,00,000 = ₹ 25,00,000

(iv) Inventory Turnover Ratio $= \frac{\text{Cost of Revenue from operations}}{\text{Average Inventory}} = \frac{60,00,000}{10,00,000} = 6 \text{ times}$

Since, there is no information about opening and closing stock. Hence, Inventory ratio has been calculated on the basis of given amount of inventory.

(v) Proprietory Ratio $= \frac{\text{Shareholder's Funds}}{\text{Total Assets}} = \frac{25,00,000}{50,00,000} = 0.5:1$

Shareholders funds or Internal Liabilities = ₹ 15,00,000 + ₹ 10,00,000 = ₹ 25,00,000

(vi) Gross Profit Ratio $= \frac{\text{Gross Profit}}{\text{Revenue from operations}} \times 100 = \frac{15,00,000}{75,00,000} \times 100 = 20\%$

Gross Profit = Revenue from operations – Cost of revenue from operations

= 75,00,000 – 60,00,000 = ₹ 15,00,000

(vii) Operating Ratio $= \frac{\text{Operating Cost}}{} \times 100 = \frac{66,00,000}{} \times 100 = 88\%$

Revenue from Operations 75,00,000

Operating Cost = Cost of Revenue from operations + Operating Expenses = 60,00,000 + 6,00,000 = ₹ 66,00,000

(viii) Operating Profit Ratio = $\frac{\text{Operating Profit}}{\text{Revenue from operations}} \times 100 = \frac{9,00,000}{75,00,000} \times 100 = 12\%$

Operating Profit = Revenue from operations – operating cost = 75,00,000 – 66,00,000 = ₹ 9,00,000

(ix) Net Profit Ratio = $\frac{\text{Net Profit}}{\text{Revenue from operations}} \times 100 = \frac{750,000}{75,00,000} \times 100 = 10\%$

Net Profit = Operating Profit – Non Operating Expenses

= 9,00,000 – (9% of 10,00,000 + 12% of 5,00,000) = 9,00,000 – (90,000 + 60,000)

= ₹ 7,50,000

Net Profit has been calculated by substracting interest on long term loans and interest on Debentures as non-operating expenses.

Summary

Ratio : The arithmetical expression of relationship between two numbers is called ratio. It expresses meaningful relationship.

Ratio Analysis : Ratio analysis is a method of presenting items or group of items of financial statements establishing relationship in simple manner.

Expression of Ratios : Ratios can be expressed in three ways :

(i) As proportion (ii) As rate

(iii) As percentage

Objectives of Ratio Analysis : Various objectives of ratio analysis are as follows :

(i) Helpful in financial analysis (ii) Simplifies figures

(iii) Knowledge of liquidity (iv) Knowledge of long term solvency

(v) Knowledge of activity (vi) Knowledge of profitability

(vii) Facilitates comparison (viii) Facilitates trend analysis

Limitations of Ratio analysis:

(i) Inherent limitations (ii) Affected by window dressing.

(iii) Unbelievable comparison based different accounting policies.

(iv) Effect of personal ability and bias of the analyst.

(v) Lack of qualitative analysis (vi) To comparison other ratios required

(vii) Unable to future projections (viii) Lack of knowledge about trend.

Precautions in using ratios :

(i) The user must be capable to understand accounting data.

(ii) It is essential to provide information timely to the users immediately after preparation of financial statements.

(iii) It is essential to consider not only benefits derived from ratios but also cost incurred.

(iv) Only essential ratios should be presented before the user.

(v) It is essential to revise the ratios while there is a change in scenario.

Formula of Accounting Ratios

A. Liquidity Ratios :

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

2. Liquid Ratio = $\frac{\text{Liquid Assets}}{}$

B. Solvency Ratios :

3. Debt-Equity Ratio = $\frac{\text{External Liabilities}}{\text{Internal Liabilities}}$ or $\frac{\text{Total Debt}}{\text{Shareholder's Fund}}$

4. Proprietory Ratio = $\frac{\text{Proprietory's Fund}}{\text{Total Assets}}$

5. Solvency Ratio = $\frac{\text{Total Debt}}{\text{Total Assets}}$

6. Interest Coverage Ratio = $\frac{\text{Profit before Interest and Tax}}{\text{Fixed Interest Charges}}$

C. Activity Ratios :

7. Stock/Inventory Turnover Ratio = $\frac{\text{Cost of Revenue from operations}}{\text{Average Inventory}}$

8. Trade Receivables Turnover Ratio = $\frac{\text{Net Credit Revenue from operations}}{\text{Average Trade Receivables}}$

9. Average Collection Period = $\frac{\text{No. of days in a year}}{\text{Trade Receivables Turnover Ratio}}$

10. Trade Payables Turnover Ratio = $\frac{\text{Net Credit Purchase}}{\text{Average Trade Payables}}$

11. Average Payment Period = $\frac{\text{No. of days in a year}}{\text{Trade Payables Turnover Ratio}}$

12. Total Assets Turnover Ratio = $\frac{\text{Revenue from operations or Cost of Revenue from operations}}{\text{Total Assets}}$

D. Profitability Ratios :

13. Gross Profit Ratio = $\frac{\text{Gross Profit}}{\text{Net Revenue from operations}} \times 100$

14. Operating Ratio = $\frac{\text{Cost of Revenue from operations + operating expenses}}{\text{Net Revenue from operations}} \times 100$

15. Operating Profit Ratio = $\frac{\text{Operating Profit}}{\text{Net Revenue from operations}} \times 100$

16. Net Profit Ratio = $\frac{\text{Net Profit}}{\text{Net Revenue from operations}} \times 100$

17. Return on Investment or ROI = $\frac{\text{Net Profit before Interest \& Tax \& Dividend}}{\text{Net Revenue from operations}} \times 100$

E. Investment Analysis Ratios :

18. Earning Per Share or EPS = $\frac{\text{Net Profit After Tax – Preference Share Dividend}}{\text{No. of Equity Shares}}$

19. Dividend per Share or DPS = $\frac{\text{Dividend Paid to Equity Shareholders}}{\text{No. of equity shares}}$

20. Dividend Pay-out Ratio = $\frac{\text{Dividend per Share}}{\text{Earning Per Share}} \times 100$

GLOSSARY

Financial Ratios : The ratios which are calculated between two items or groups of items, given in the balance sheet. These are also called balance sheet ratios.

Operating Ratio : The ratios which are calculated between two items or groups of items, given in the statement of Profit & Loss.

Combined Ratios: The ratios, calculated by taking one item from balance sheet and other from statement of profit and loss are called combined ratios.

Liquidity : Liquidity means, ability of a firm to meet out its current obligations or short term loans and liabilities.

Solvency : Solvency means, ability of a firm to meet out its long term loans and liabilities.

Activity Ratios: The ratios which indicate efficient use of Capital and assets by the firm.

Profitability: Profit earning capacity of a firm which is measured in relation to sales or investment.

Current Assets: Those assets which can be converted into cash in ordinary course of business, in normal operating cycle or within twelve months after the date of balance sheet.

Current Liabilities: Those liabilities which are to be paid in normal operating cycle or within twelve months from the date of balance sheet.

Liquid Assets: Those assets which can be converted into cash or cash equivalents promptly. Therefore, liquid assets include all current assets excluding stock and prepaid expenses.

External Equity: External equity will be the total of long term loans, long term provisions and current liabilities of the firm.

Internal Equity / Shareholders' funds: Shareholders fund include share capital and reserves and surplus but exclude accumulated losses and fictitious assets.

Fictitious assets: Those expenses which can not be written off. Example, Expenses on issue of shares and debentures, Discount/Loss on issue of debentures, and underwriting commission etc.

Total Assets: Total assets include all non-current assets and current assets of the firm. It can also be known by adding non-current liabilities and current liabilities to share holders fund.

Fixed interest Charge: Interest to be paid on long term loans of the firm.

Trade Receivables: The amount to be realised from its debtors and receivables by the firm is called trade receivables.

Trade Payables: Total of the creditors and bills payable of the firm.

Cost of Revenue from operations: Cost of revenue from operations is calculated by adding cost of material consumed, Purchase of stock in trade, changes in inventory and direct expense (Carriage, wages) etc.

Operating Expenses: Total of all other expenses relating to main business other than cost of revenue from operations is called operating expenses.

Other Operating Incomes: Income earned during course of operations other than revenue from operations like commission and discount received.

Gross Profit: Excess of net revenue from operations over cost of revenue from operations is called gross profit.

Operating Profit: Excess of net revenue from operations over operating cost is called profit from operations.

Net Profit: Net Profit is the total of profit from operating activities and profit from non-operating activities of the firm.

Rate of Return on Investment : Rate of return earned on long term funds by a firm is called rate of return on investment.

Earning Per Share – (EPS): Income earned on each equity share by the firm is called EPS.

Dividend Per Share- (DPS): Amount of profit distributed to each equity shareholder by the firm is called DPS.

Dividend Payout Ratio: The ratio between dividend distributed per share and earnings per share is called dividend payout ratio.

Questions for Exercise

Multiple Choice Questions :

1. Stock Turnover Ratio of a concern is 6 times. This expression of the ratio is:
   (a) Pure Ratio (b) Rate Ratio
   (c) In the form of the percentage (d) None of these
2. The objective of Ratio analysis is:
   (a) Knowledge of liquidity position (b) Knowledge of Profitability
   (c) Knowledge of solvency position (d) All of the above
3. At the time of calculating ratio, one item is taken from balance sheet and other item is taken from statement of Profit and Loss, then the ratio is called :
   (a) Balance Sheet Ratio (b) Statement of Profit and Loss Ratio
   (c) Combined Ratio (d) None of these
4. Another name of working capital ratio is :
   (a) Liquid Ratio (b) Current Ratio
   (c) Absolute Liquid Ratio (d) Working Capital Turnover Ratio
5. Ideal Current Ratio is assumed:
   (a) 3:1 (b) 1:1 (c)2:1 (d)1:2
6. Which of the following assets is not taken into consideration to calculate liquidity ratio?
   (a) Inventory (b) Debtors (c) Cash (d) Bills Receivables
7. Credit period to customer of a company is 30 days. Its credit collection would be poor if its average collection period is:
   (a) 36 Days (b) 28 Days
   (c) 20 Days (d) 15 Days
8. If 365 days are divided by the trade payable turnover ratio, it becomes a ratio of:
   (a) Average age of Inventory (b) Average Collection Period
   (c) Average Payment Period (d)Cheque Collection Period
9. If operating ratio of a company is 78%, then operating profit ratio will be:
   (a) 100% (b) 22% (c) 28% (d) 24%
10. The inventory turnover ratio of a company is 4 and its cost of revenue from operations is 2,40,000, then average inventory will be :
    (a) 9,60,000 (b) 1,80,000
    (c) 1,20,000 (d) 60,000
11. The relationship between shareholder's funds and total assets of a concern is expressed by :
    (a) Debt-Equity Ratio (b) Solvency Ratio
    (c)Properietary Ratio (d) Return on Proprietor's
12. If earnings per share of a company is 6 and dividend per share is 4, then dividend payout ratio would be:
    (a) 50% (b) 25% (c) 150% (d) 66.67%

Very short Answer type Questions :

1. What is meant by ratio?
2. What is ratio analysis?

3. Give two limitations of ratio analysis?
4. Give two objectives of ratio analysis?
5. What do you mean by liquid ratio?
6. What is meant by solvency ratio?
7. What is financial ratio?
8. What is meant by inventory turnover ratio?
9. What is average collection period?
10. What do activity ratios indicate?
11. What is meant by average trade receivables?
12. What is meant by operating ratio?
13. Name any two profitability ratios based on sales?
14. What is difference between current ratio and liquid ratio?
15. Write formula of earning per share.
16. What is ideal liquid ratio?
17. The Debt-Equity Ratio of a company is 0.75:1. If company obtains long term loan, what effect will be on this ratio?
18. What does Interest Coverage Ratio indicate?

Short Answer Type Questions:

1. Write difference between current ratio and liquid ratio.
2. Explain importance of Ratio Analysis.
3. Write names of ratios depicting capacity of payment of Long Term Loans.
4. Write four limitations of Ratio Analysis.
5. Which items are included in the Shareholder's funds?
6. Explain Gross Profit Ratio and Net Profit Ratio?
7. What are the implications of high and low Trade Receivables Turnover Ratio?
8. How the cost of goods sold is calculated?
9. Explain meaning of capital employed, and how it is calculated?
10. Write meaning and importance of Operating Profit Ratio?
11. Inventory Turnover Ratio of a trading concern is 15times and value of average is 20,000. Goods are sold at 25% profit on sales. State the amount of profit.

Ans. Profit ₹ 1,00,000.

12. Working capital of a company is ₹ 90,000. If its current ratio is 2.5:1, then calculate current Assets

Ans. ₹ 1,50,000

13. Opening inventory of a concern is ₹ 20,000, closing inventory is 1.6 times of opening inventory. Inventory turnover ratio is 3.5 times and sales is ₹ 1,40,000. Calculate the Gross Profit.

Ans. GP ₹ 49,000.

14. Total Assets, Non-Current Liabilities and Current Liabilities of a company are ₹ 8,00,000, ₹ 2,00,000 and ₹ 1,00,000 respectively, then calculate (i) Debt-Equity Ratio, and (ii) Proprietary Ratio.

Ans. (i) 0.6:1 (ii) 0.625 : 1

Essay Type Questions :

1. What is Ratio Analysis? Explain its importance.
2. Write down limitations of Ratio Analysis.

3. What is meant by Activity Ratios? Explain in details three activity ratios.
4. What is meant by Return on Investment? Give its importance and explain procedure to calculate with the help of an illustration.
5. Explain (i) EPS (ii) DPS and (iii) Dividend Payout Ratios, reflecting investment analysis.

Answer of Multiple Choice Questions

Question No.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Answer	b	d	c	b	c	a	a	c	b	d	c	d

Numerical Questions :

1. Calculate Current Ratio and Liquid Ratio in following conditions :
   (a) Current Liabilities ₹ 48,000 ; Inventory ₹ 78,000; working capital ₹ 96,000
   (b) Working Capital ₹ 40,000 ; Liquid Assets ₹ 35,000; Stock ₹ 25,000; & Prepaid expenses ₹ 10,000
   (c) Current Assets ₹ 2,00,000 ; Creditors ₹ 10,000 ; Current Liabilities ₹ 80,000 & Inventory ₹ 60,000

Ans. (a) 3:1, 1.375 : 1 (b) 2.33:1, 1.17:1 (c) 2.5:1, 1.75:1

2. Solve the following:
   (a) Current Liabilities of a company are ₹ 4,00,000. Its current ratio is 2.5:1 and Liquid Ratio is 1.5:1. Calculate the value of current assets, liquid assets and inventories.
   (b) If the current ratio is 2.5, Liquidity ratio is 1.6 and working capital ₹ 90,000. Find the value of current assets, current liabilities and stock.

Ans. (a) ₹ 10,00,000, 6,00,000, 4,00,000 (b) ₹ 1,50,000, 60,000, 54,000

3. From the following information of Garg Ltd. Calculate (i) Debt-Equity Ratio (ii) Proprietory Ratio (iii) Solvency Ratio.

   Tangible Assets ₹ 3,00,000; Non-Current Investments ₹ 2,40,000; Trade Receivables ₹ 90,000; Other Current Assets ₹ 70,000; Long Term Borrowings ₹ 2,00,000; Long Term Provisions ₹ 1,00,000; Short Term Borrowings ₹ 20,000; Other Current Liabilities ₹ 60,000.

Ans. (i) 1.875:1 (ii) 0.457:1 (iii) 0.543:1

4. From the following details, calculate (i) Opening Inventory, (ii) Closing Inventory (iii) Trade Receivables Turnover Ratio.

   Cost of Revenue from operations ₹ 4,00,000; Gross Profit 20% on sales; Stock Turnover Ratio 5 times; Closing Inventory is ₹ 32,000 in excess of opening inventory; Opening Trade Receivables is ₹ 50,000; Closing Trade Receivables are 1.5 times of opening Trade Receivables.

Ans. (i) ₹ 64,000 (ii) ₹ 96,000 (iii) 8 times.

5. Calculate Trade Receivables Turnover Ratio and Average collection period from the following:-

   Total Revenue from operations for the year - ₹ 8,23,000; Cash Revenue from operations being 50% of Total Revenue; Opening Trade Receivables - ₹ 50,000; Cash received from Trade Receivables - ₹ 3,76,500; Discount Allowed to Debtors- ₹ 15,000; Revenue from operations return, out of credit revenue from operations- ₹ 10,000.

Ans. (i) 7.3 times (ii) 50 days, Hint : Prepare Receivables Account and find closing balance ₹ 60,000.

6. Calculate Gross Profit Ratio from the following informations :

   Cash Revenue from Operations 40% of Total Revenue; Total Purchases ₹ 13,50,000; Credit Revenue from Operations ₹ 9,00,000, Excess of closing stock over opening stock ₹ 75,000.

Ans. 15%

7. From the following informations of Tanvi Ltd., Calculate :

   (i) Working Capital Ratio, (ii) Quick Ratio; (iii) Inventory Turnover Ratio; (iv) Debt-Equity Ratio; (v) Solvency Ratio (vi)Gross Profit Ratio; (vii) Operating Ratio; (viii) Operating Profit Ratio (ix) Net Profit Ratio.

Informations : Revenue from operations ₹ 2,00,000; Purchases ₹ 1,20,000 ; Opening Inventory ₹ 12,000; Closing Inventory ₹ 18,000; Wages ₹ 8,000; Selling Expenses ₹ 2000; Tangible Fixed Assets ₹ 2,12,000; Other Current Assets ₹ 50,000; Current Liabilities ₹ 30,000 ; Equity Share Capital ₹ 1,00,000 ; 7% Preference Share Capital ₹ 80,000; Reserves ₹ 10,000 ; and 8% Debentures ₹ 60,000.

Ans. (i) 2.27:1 (ii) 1.67:1 (iii) 8.13 times (iv) 0.47:1 (v) 0.32:1 (vi) 39% (vii) 62% (viii) 38% (ix) 35.6%

8. From the following information of Rishabh Ltd. find out :

(i) Gross Profit Ratio, (ii) Operating Ratio, (iii) Operating Profit Ratio, (iv) Net Profit Ratio, (v) Return on Investment, (vi) Interest Coverage Ratio.

Informations : Revenue from operations ₹ 4,00,000, Cost of Revenue from operations ₹ 2,25,000, Interest on Short Term Loan ₹ 5,000, Office Expenses ₹ 25,000, Selling Expenses ₹ 50,000, Rent Received ₹ 4000, Loss by Fire ₹ 10,000, Interest on Long Term Loan ₹ 10,000, Commission Received ₹ 5,000, Capital Employed ₹ 6,00,000, Income Tax rate may assume 30%.

Ans. (i) 43.75% (ii) 75% (iii) 25% (iv) 14.7% (v) 15.67% (vi) 9.4 times

9. From the following information, calculate : (i) Earning Per Share-EPS, (ii) Dividend Per Share – DPS & (iii) Dividend Payout Ratio

Profit Before Interest & Tax-₹ 5,00,000, Interest on Long Term Loans-₹ 2,00,000, Provision for Tax-30%, Retained Earnings-₹ 60,000, Equity Share Capital-divided into shares of ₹10 each ₹ 3,00,000.

Ans. (i) 7 (ii) 5 (iii) 71.43%.

10. Following informations are given to you :

	₹	₹
Revenue from operations		6,00,000
Less : Purchases	3,00,000	
Changes in Inventories		
(Opening Inventory –Closing Inventory) (60,000 – 40,000)	20,000	
Direct Expenses	80,000	4,00,000
Gross Profit		2,00,000

	Particulars	Note No.	Amount ₹
I	**Equity and Liabilities :**		
	(1) Shareholder's Funds:		
	(a) Share Capital		4,00,000
	(b) Reserves and Surplus	1	2,00,000
	(2) Non Current Liabilities (10% Debentures)		1,00,000
	(3) Current Liabilities		
	(a) Trade Payables		2,00,000
	(b) Other Current Liabilities		1,00,000
	Total		**10,00,000**
II	**Assets :**		
	(1) Non Current Assets		5,00,000
	(2) Current Assets		
	(a) Inventory		40,000
	(b) Trade Receivables		2,60,000
	(c) Cash and Cash Equivalents		2,00,000
	Total		**10,00,000**

Note : 1	**Reserves and Surplus:**	₹
	General Reserve :	50,000
	Profit & Loss:	1,50,000
		2,00,000

On the basis of the informations given above, calculate :

(i) Current Ratio (ii) Liquid Ratio (iii) Proprietory Ratio (iv) Debt-Equity Ratio (v) Inventory Turnover Ratio (vi) Trade Receivables Turnover Ratio (vii) Trade Payables Turnover Ratio (viii) Gross Profit Ratio.

Ans. (i) 1.67 : 1 (ii) 1.53 : 1 (iii) 0.60 : 1 (iv) 0.67 : 1 (v) 8 times (vi) 2.3 times (vii) **1.5** times (viii) 33 1/3 %.

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