

THEORY

Meaning of Ratio	<ul style="list-style-type: none"> ❑ It is a mathematical expression or relationship between two or more things. ❑ Financial Ratio means mathematical expression or relationship between two or more financial values.
Meaning of Ratio Analysis	<p>It is the process of identifying the financial strengths and weaknesses of the enterprise by logically establishing relationship between the items of Balance Sheet or Income Statement or both and interpreting the results thereof in order to derive meaningful conclusions.</p> <p>In other words, it is the comparison of different numbers from balance sheet, income statement, cash flow statement against the figures of previous year, other companies, the industry, or even the economy in general for the purpose of financial analysis.</p>
Advantages of ratio analysis	<ul style="list-style-type: none"> ❑ Simplicity: Ratios are simple to calculate and understand. ❑ Forecasting: Trends can be established from ratios which help in forecasting. ❑ Liquidity position: It helps in drawing conclusions regarding the liquidity position of a firm. ❑ Clues to further investigation: It acts as a messenger which can indicate the areas to be invested further. ❑ Inter-firm comparison: It helps in finding variance by comparing either with industry average or those of competitors. The firm can seek to identify probable reasons and take remedial measures. ❑ Operating efficiency: It helps in computing the degree of efficiency in the management and utilization of its assets & capital employed.

Importance of ratio analysis	<ul style="list-style-type: none"> ❑ For Management: It helps management to determine the operating efficiency and for forecasting. Production manager uses input-output ratio, raw material consumption ratio etc. Sales manager uses turnover ratios, expenses ratio etc. Financial manager uses profitability ratios, turnover ratios etc. CEO, GM uses all ratios. ❑ For Investors: It helps investors to determine the magnitude and direction of movement in firm's earnings and thereon deciding whether to hold, sell or purchase the shares. They uses profitability ratios, capital structure ratios, solvency ratios and turnover ratios. ❑ For Short Term Creditors: It helps short term creditors like bankers and suppliers of material to determine the firm's ability to meet its current obligations. They uses liquidity ratios and short term solvency ratios. ❑ For Long Term Creditors: It helps long term creditors to determine the firm's long term financial strength and survival with help of leverage or capital structure ratios. They uses coverage ratios, solvency ratios, turnover ratios and profitability ratios. ❑ For employees: they will be interested to know the overall financial wealth of the organization. They uses liquidity ratios, profitability ratios, etc. ❑ For Regulator or Government: They will analyse the financial statements to determine taxations and other dues payable to the government. They uses profitability ratios. ❑ Facilitates Intra, Inter and Pattern Comparison: It helps in comparing data and if at variance either with the industry average or with those of the competitors, the firm can seek to identify the probable reasons and, in the light take remedial measures. ❑ Serve as barometer for future: It helps to indicate the direction in which adjustment should be made in budget or in performance to bring them closer to one another.
Limitations of ratio analysis	<ul style="list-style-type: none"> ❑ Only quantitative analysis and not qualitative analysis: It ignores the qualitative factors which in certain cases may overtake the quantitative factors. ❑ Price-level changes to be considered: Ratios can be accurately interpreted only if the effect of change in prices which may have take place, is adjusted in the figures. ❑ Historical analysis: Generally it is computed on the basis of historical financial statements and thus are historic in nature. ❑ Not free from bias: The financial statements are not free from bias and as a result, ratio analysis also cannot be said be free from bias. ❑ Only symptoms and not cure: Ratios are only symptoms and it becomes the duty of the management to unearth underlying causes. ❑ Reality behind the statements to be considered: The relationship between the two figures can be well interpreted only after studying the reality behind the statements on the basis of which the ratio has been established.

	<ul style="list-style-type: none"> ❑ Accuracy of the accounts to be considered: The quality of the ratios very much depends upon the quality of the accounts on the basis of which these are established. ❑ Difference in accounting policies: Differences in accounting policies and accounting period make the accounting data of the two firms or two periods non-comparable. ❑ Diversified product lines: In case of firms having diversified product lines, of different industries, the ratios calculated on the basis of aggregate data cannot be used for inter-firm comparison. ❑ Effect of season factors: Seasonal factors may also influence financial data. Year-end figure may not be the average picture of the business.
Ratios in different industries	<ul style="list-style-type: none"> ❑ Telecom Industry <ul style="list-style-type: none"> ➤ Ratio related to call ➤ Revenue and expenses per customer ❑ Banks <ul style="list-style-type: none"> ➤ Loan to deposit ratios ➤ Operating expenses and income ratios ❑ Hotel <ul style="list-style-type: none"> ➤ Room occupancy ratio ➤ Bed occupancy ratio ❑ Transport <ul style="list-style-type: none"> ➤ Passenger-kilometre ➤ Operating cost per passenger kilometre
Types of ratios	<ul style="list-style-type: none"> ❑ Liquidity ratios: These ratios measures the ability of the enterprise to meet short-term obligations as and when they become due. Short term creditors such as bankers and suppliers are particularly interested in assessing liquidity ❑ Solvency ratios: These ratios measure the ability of the company to survive over a long period of time. Long-term creditors like debenture-holders are particularly interested in long term solvency of the enterprise since their claims are to be met in the long run. ❑ Activity Ratio: These ratios measure the effectiveness with which a firm uses its available resources. It helps in commenting on the efficiency of the enterprise in managing its assets. ❑ Profitability Ratios: These ratios measures management's overall effectiveness as shown by the returns generated on sales and investment. The long term survival of a business enterprise depends on satisfactory income earned by it.

Liquidity Ratios

- **Current Ratio:** This ratio establishes a relationship between current assets and current liabilities. The objective of computing this ratio is to measure the ability of the firm to meet its short-term obligations and to reflect the short-term financial strengths/solvency of a firm. In other words, the objective is to measure the safety margin available for short-term creditors. This ratio is computed by dividing the current assets by the current liabilities. This ratio may be expressed as follows:

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

- **Quick Ratio/ Liquid Ratio/ Acid Test Ratio:** This ratio establishes a relationship between quick assets and current liabilities (or quick liabilities). The objective of computing this ratio is to measure the ability of the firm to meet its short-term obligations as and when due without relying upon the realization of stock. This ratio is computed by dividing the quick assets by the current liabilities. This ratio is usually expressed as a pure ratio e.g. 1:1. The ratio may be expressed as follows:

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

The term quick assets refer to those current assets which can be converted into cash immediately or at a short notice without loss of value.

Quick Assets = Current Assets – Inventory – Prepaid Expenses + Realizable value of inventory (if any)

- **Absolute Cash Ratio:** This ratio measures a relationship between cash & marketable securities and current liabilities. The objective of computing this ratio is to measure the ability of the enterprise to meet its short-term obligations as and when due without relying upon the realization of stock and debtors. This ratio is computed by dividing the cash and marketable securities by current liabilities. This ratio is usually expressed as a pure ratio e.g. 1:1. The ratio may be expressed as follows:

$$\text{Absolute Cash Ratio} = \frac{\text{Cash \& Marketable Securities}}{\text{Current Liabilities}}$$

- **Basic Defense interval / Interval Measure Ratio:** This ratio measures a relationship between quick assets and average daily operating expenses. The objective of computing this ratio is to measure the average period for which quick assets are available to meet average daily operating expenses. This ratio is computed by dividing the quick assets by average daily operating Expenses. This ratio is usually expressed in terms of days/weeks/months. This ratio may be expressed as follows:

$$\text{Basic defense interval} = \frac{\text{Quick assets}}{\text{Daily operating expenses}}$$

	$= \frac{\text{Current assets} - \text{Prepaid expenses} - \text{Inventories}}{\text{Daily operating expenses}}$ $= \frac{\text{Cash \& Bank} + \text{Net receivables} + \text{Marketable securities}}{\text{Operating expenses} \div \text{No. of days}}$ <p>❑ Net working capital – It is more a cash flow than ratio. Net working capital = Current assets – Current liabilities (excluding short term bank borrowing)</p>
Solvency Ratios	<p>(A) Capital Structure Ratios</p> <p>❑ Equity Ratio: It indicates the share of owner's fund to total fund invested in the business. Higher ratio indicate lower risk for lenders.</p> $\text{Equity Ratio} = \frac{\text{Shareholder's Equity}}{\text{Net Assets}}$ <p>❑ Debt Ratio: It indicates the proportion of total debt or outside liabilities used to fund total assets. A ratio greater than 1 indicates assets are funded more by debt and vice versa.</p> $\text{Debt Ratio} = \frac{\text{Total debt}}{\text{Net Assets}}$ <p>❑ Debt – Equity Ratio: This ratio establishes a relationship between long-term debts and shareholder's funds. The objective of computing this ratio is to measure the relative proportion of debt and equity in financing the assets of a firm. This ratio is computed by dividing the long-term debts by the shareholder's funds. This ratio is usually expressed as a pure ratio e.g. 2:1. This ratio may be expressed as follows:</p> $\text{Debt to Equity Ratio} = \frac{\text{Total outside liabilities}}{\text{Shareholders' equity}}$ $\text{Debt to Equity Ratio} = \frac{\text{Total Debt}}{\text{Shareholders' equity}} = \frac{\text{Long term debt}}{\text{Shareholders' equity}}$ $\text{Debt to Equity Ratio} = \frac{\text{Long term debt}}{\text{Shareholders' equity}}$ <p>Where,</p> <p>Total debt = Current liabilities + Non-current liabilities long term debts means long term loans (whether secured or unsecured and Shareholder's fund = Equity share capital + Preference share capital + Reserves & surplus – Fictitious assets</p>

- **Debt to Total Assets Ratio:** This ratio establishes a relationship between total assets and total long term debts. It measures the extent to which assets are being financed with debt. This ratio is computed by dividing the total debt by the total assets. This ratio is usually expressed as a pure ratio e.g. 2:1. This ratio may be expressed as follows:

$$\text{Debt to total assets Ratio} = \frac{\text{Total outside liabilities}}{\text{Total assets}} = \frac{\text{Total debt}}{\text{Total assets}}$$

- **Proprietary Ratio:** This ratio measures a relationship between equity and the total assets. The objective of computing this ratio is to measure the proportion of total assets financed by the Equity or Proprietor's fund. This ratio is computed by dividing the Proprietor's fund by total assets. It is expressed as a percentage. This ratio may be expressed as follows:

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

- **Capital Gearing Ratio:** This ratio establishes a relationship between funds bearing fixed financial payments and equity shareholder's funds. The objective of computing this ratio is to measure the relative proportion of funds bearing fixed financial payments to equity shareholder's funds. This ratio is computed by dividing the funds bearing fixed financial payments by equity shareholder's funds. This ratio is usually expressed as a pure ratio e.g. 3:1. This ratio may be expressed as follows:

$$\begin{aligned} \text{Capital Gearing Ratio} &= \frac{\text{Funds bearing fixed financial payments}}{\text{Equity Shareholder's Fund}} \\ &= \frac{\text{Preference share capital} + \text{Debentures} + \text{Other borrowed funds}}{\text{Equity share capital} + \text{Reserve \& Surplus} - \text{Losses}} \end{aligned}$$

(B) Coverage Ratios

- **Interest Coverage Ratio:** This ratio establishes a relationship between net profits before interest and taxes and interest on debt. The objective of computing this ratio is to measure the debt servicing capacity of a firm so far as fixed interest on debt is concerned. This ratio is computed by dividing the net profits before interest and taxes by interest on debt. This ratio is usually expressed as 'x' number of times. This ratio may be expressed as follows:

$$\text{Interest Coverage Ratio} = \frac{\text{Earning Before Interest \& Tax}}{\text{Interest}}$$

	<p>□ Preference Dividend Coverage Ratio: This ratio establishes a relationship between net profits after interest and taxes and Preference Dividend on Preference Shares. The objective of computing this ratio is to measure the Preference Shares servicing capacity of a firm so far as fixed dividend on preference shares is concerned. This ratio is computed by dividing net profits after interest and taxes by preference dividend on Preference Shares. This ratio is usually expressed as 'x' number of times. This ratio may be expressed as follows:</p> $\text{Preference Dividend Coverage Ratio} = \frac{\text{Net profit after interest and tax}}{\text{Preference dividend on preference shares}}$ $\text{Equity Dividend Coverage Ratio} = \frac{\text{Earnings after tax} - \text{Preference dividend}}{\text{Equity dividend}}$ <p>□ Debt Service Coverage Ratio: This ratio measures the relationship between net profits before interest and tax and interest plus principal portion of installment. The objective of computing this ratio is to determine the firm's capacity to pay off both the interest and principal portion of the installment. This ratio is computed by dividing the net profit before interest and tax by the aggregate of interest and principal portion of installment. It is usually expressed in number of times. This ratio may be expressed as follows:</p> $\text{Debt Service Coverage Ratio} = \frac{\text{Earnings available for debt service}}{\text{Interest} + \text{Installments}}$ <p>Where,</p> <p>Earnings available for debt service = Net profit after tax + non-cash expenses + Interest + Other adjustments like loss of assets etc.</p> $\text{Fixed charges coverage ratio} = \frac{\text{EBIT} + \text{Depreciation}}{\text{Interest} + \text{Repayment of loan}}$
Activity Ratios	<p>□ Capital turnover ratio: This ratio establishes a relationship between net sales and capital employed. The objective of computing this ratio is to determine the efficiency with which the capital employed is utilized. This ratio is computed by dividing the net sales by the capital employed. This ratio is usually expressed as 'x' number of times. This ratio may be expressed as follows:</p> $\text{Capital Turnover Ratio} = \frac{\text{Net Sales}}{\text{Capital Employed}}$ <p>□ Fixed assets turnover ratio: This ratio establishes a relationship between net sales and fixed assets. The objective of computing this ratio is to determine the efficiency with which the fixed assets are utilized. This ratio is computed by dividing the net sales by the net fixed (operating) assets. This ratio is usually expressed as 'x' number of times. This ratio may be expressed as follows:</p>

$$\text{Fixed Assets Turnover Ratio} = \frac{\text{Net Sales}}{\text{Net Fixed (Operating) Assets}}$$

- **Current Assets Turnover Ratio:** This ratio establishes a relationship between net sales and current assets. The objective of computing this ratio is to determine the efficiency with which the current assets are utilized. This ratio is computed by dividing the net sales by the current assets. This ratio is usually expressed as 'x' number of times. This ratio may be expressed as follows:

$$\text{Current Assets Turnover Ratio} = \frac{\text{Net Sales}}{\text{Current Assets}}$$

- **Total Assets Turnover Ratio:** This ratio establishes a relationship between net sales and total assets. The objective of computing this ratio is to determine the efficiency with which the total assets is utilized. This ratio is computed by dividing the net sales by the total assets. This ratio is usually expressed as 'x' number of times. This ratio may be expressed as follows:

$$\text{Total assets turnover ratio} = \frac{\text{Net Sales}}{\text{Total assets}}$$

- **Stock Turnover Ratio:** This ratio establishes a relationship between cost of goods sold and average inventory of finished goods. The objective of computing this ratio is to determine the efficiency with which the inventory is converted into sales. This ratio is computed by dividing the cost of goods sold by the average inventory. This ratio is usually expressed as 'x' number of times. This ratio may be expressed as follows:

$$\text{Stock Turnover Ratio} = \frac{\text{Cost of Goods Sold}}{\text{Average Inventory}}$$

- **Stock Velocity:** This velocity indicates the period for which sales can be generated with the help of an average stock maintained and is expressed in terms of period. This velocity may be calculated as follows:

$$\text{Stock Velocity} = \frac{\text{Average Stock}}{\text{Average Cost of Goods Sold per day}}$$

$$= \frac{12 \text{ months} / 52 \text{ weeks} / 365 \text{ days}}{\text{Stock Turnover Ratio}}$$

- **Debtors Turnover Ratio:** This ratio establishes a relationship between net credit sales and average trade debtors (or receivables). The objective of computing this ratio is to determine the efficiency with which the trade debtors are converted into cash. This ratio is computed by dividing the net credit sales by average trade debtors. This ratio is usually expressed as 'x' number of times. This ratio may be expressed as follows:

$$\text{Debtors Turnover Ratio} = \frac{\text{Net Credit Sales}}{\text{Average Debtors}}$$

	<p>❑ Average Debt Collection Period or Debtor's Velocity: This period shows an average period for which the credit sales remain outstanding or the average credit period actually enjoyed by the debtors. It measures the quality of debtors. It indicates the rapidity of slowness with which the money is collected from debtors. This period may be calculated as follows:</p> $\text{Debt Collection Period} = \frac{\text{Average Debtors}}{\text{Average Net Credit Sales per day}}$ $= \frac{12 \text{ months} / 52 \text{ weeks} / 365 \text{ days}}{\text{Debtors Turnover Ratio}}$ <p>❑ Creditors Turnover Ratio: This ratio establishes a relationship between net credit purchases and average creditors (or payables). The objective of computing this ratio is to determine the efficiency with which the creditors are managed and paid. This ratio is computed by dividing the net credit purchases by average trade creditors. This ratio is usually expressed as 'x' number of times. This ratio may be expressed as follows:</p> $\text{Creditors Turnover Ratio} = \frac{\text{Net Credit Purchases}}{\text{Average Creditors}}$ <p>❑ Debt Payment Period or Creditor's Velocity: This period shows an average period for which the credit purchases remain outstanding or the average credit period actually availed of. This period may be calculated as follows:</p> $\text{Debt Payment Period} = \frac{\text{Average Creditors}}{\text{Average Net Credit Purchases per day}}$ $= \frac{12 \text{ months} / 52 \text{ weeks} / 365 \text{ days}}{\text{Creditors Turnover Ratio}}$
Profitability Ratios in relation to sales	<p>❑ Gross Profit Ratio: This ratio measures the relationship between gross profit and net sales. The main objective of computing this ratio is to determine the efficiency with which production and/or purchase operations and selling operations are carried on. It is used to compare profitability department-wise or product-wise. This ratio is computed by dividing the gross profit by the net sales. It is expressed as percentage. This ratio may be expressed as follows:</p> $\text{Gross Profit Ratio} = \frac{\text{Gross Profit}}{\text{Net Sales}} \times 100$ <p>❑ Expenses Ratio: This ratio measure the relationship between various expenses and net sales. The main objective of computing this ratio is to determine the efficiency with which theses expenses are being incurred. This ratio is computed by dividing the various expenses by the net sales. It is expressed as percentage. This ratio may be expressed as follows:</p>

	$\text{Cost of Goods sold Ratio} = \frac{\text{Cost of Goods Sold}}{\text{Sales}} \times 100$ $\text{Operating Expenses Ratio} = \frac{\text{Adm. OHs} + \text{S \& D OHs}}{\text{Sales}} \times 100$ $\text{Operating Ratio} = \frac{\text{COGS} + \text{Operating expenses}}{\text{Sales}} \times 100$ $\text{Financial Expenses Ratio} = \frac{\text{Financial expenses}}{\text{Sales}} \times 100$ $\text{Administration expenses Ratio} = \frac{\text{Administration expenses}}{\text{Sales}} \times 100$ $\text{Selling \& Distribution expense Ratio} = \frac{\text{S \& D expenses}}{\text{Sales}} \times 100$ $\text{Fixed Expense Ratio} = \frac{\text{Fixed expenses}}{\text{Sales}} \times 100$ $\text{Variable Expense Ratio} = \frac{\text{Variable expenses}}{\text{Sales}} \times 100$ <p>□ Operating Profit Ratio: This ratio measures the relationship between operating profit and net sales. The main objective of computing this ratio is to determine the operational efficiency of the management. This ratio is computed by dividing the operating profit by the net sales. It is expressed as a percentage. This ratio may be expressed as:</p> $\text{Operating Profit Ratio} = \frac{\text{Operating Profit}}{\text{Net Sales}} \times 100$ <p>□ Net Profit Ratio: This ratio measures the relationship between net profit and net sales. The main objective of computing this ratio is to determine the overall profitability due to various factors such as operational efficiency, trading on equity etc. This ratio is computed by dividing the net profit by the net sales. The figure of net profit may be taken either before tax or after tax. It is expressed as a percentage. This ratio may be expressed as follows:</p> $\text{Net profit ratio} = \frac{\text{Net Profit after tax}}{\text{Net Sales}} \times 100$ $\text{Pre-tax profit ratio} = \frac{\text{Net Profit before tax}}{\text{Net Sales}} \times 100$
Profitability ratios in relation to investment	<p>□ Return on Investment (ROI): This ratio measures a relationship between the net profit and investment. The objective of computing this ratio is to find out how efficiently the long term funds supplied by the creditors and shareholders have been used. It is expressed as a percentage. In the form of formula, this ratio may be expressed as follows:</p> $\text{Return on Investment} = \frac{\text{Profit / Earnings}}{\text{Investment}} \times 100$

- **Return on Total Assets:** This ratio measures a relationship between net profit after interest and tax, and total assets. The objective of computing this ratio is to find out how efficiently the total assets have been used by the management. This ratio is computed by dividing the net profit after interest and tax by total assets. This ratio is expressed as a percentage. This ratio may be expressed as follows:

$$\text{Return on total assets (ROTA)} = \frac{\text{Net profit after tax}}{\text{Average total / tangible / fixed assets}}$$

Sometimes, this ratio is also computed before interest but after tax as assets are also financed by lenders.

$$\begin{aligned}\text{Return on total assets (ROTA)} &= \frac{\text{Net profit after tax} + \text{Interest}}{\text{Average total / tangible / fixed assets}} \\ &= \frac{\text{EBIT}(1-t)}{\text{Average total / tangible / fixed assets}}\end{aligned}$$

$$\text{Return on Net Assets (RONA)} = \frac{\text{EBIT}(1-t)}{\text{Average Net assets}}$$

- **Return on Capital Employed (ROCE):** This ratio measures a relationship between the net profit and capital employed. The objective of computing this ratio is to find out how efficiently the long term funds supplied by the creditors and shareholders have been used. It is expressed as a percentage. In the form of formula, this ratio may be expressed as follows:

$$\text{Return on Capital Employed} = \frac{\text{Earnings before interest \& tax (EBIT)}}{\text{Capital Employed}} \times 100$$

$$\text{Return on Capital Employed} = \frac{\text{EBIT}(1-t)}{\text{Capital Employed}} \times 100$$

$$\text{Return on Capital Employed} = \frac{\text{PAT} + \text{Interest}}{\text{Capital Employed}} \times 100$$

- **Return on Equity (ROE):** This ratio measures a relationship between net profit after interest and tax available for equity shareholders' and equity shareholder's fund. The objective of computing this ratio is to find out how efficiently the funds supplied by the equity shareholders have been used. This ratio is computed by dividing the earnings available for equity by equity shareholder's funds. It is expressed as a percentage. In the form of formula, this ratio may be expressed as follows:

$$\text{Return on Equity} = \frac{\text{PAT} + \text{Interest}}{\text{Capital Employed}} \times 100$$

Profitability ratios in relation to equity shareholder's fund

- **Earning Per Share (EPS):** This ratio measures the earnings available to an equity shareholder on a per share basis. The objective of computing this ratio is to measure the profitability of the firm on per equity share basis. This ratio is computed by dividing the net profit after interest, tax and preference dividend by the number of equity shares. It is expressed as an absolute figure. In the form of formula, this ratio may be expressed as follows:

$$\text{Earning Per Share} = \frac{\text{Net Profit After Interest, Tax and Preference Dividend}}{\text{No. of Equity Shares}}$$

- **Dividend Per Share:** This ratio measures the dividend distributed per equity share. The objective of computing this ratio is to measure the dividend distributed per equity share. This ratio is computed by dividing the profit distributed as equity dividend by the number of equity shares. It is expressed as an absolute figure. In the form of a formula, this ratio may be expressed as follows:

$$\text{Dividend Per Share} = \frac{\text{Profit Distributed as Equity Dividend}}{\text{No. of Equity Shares}}$$

- **Price Earning Ratio (P/E Ratio):** This ratio measures the relationship between the market price per share and earning per share. The objective of computing this ratio is to find out expectations of the shareholders about the earnings of the firm. This ratio is computed by dividing market price per share by the earning per share. It is usually expressed as a pure number. In the form of formula, this ratio may be expressed as follows:

$$\text{Price Earning Ratio} = \frac{\text{Market Price Per Share}}{\text{Earning Per Share}}$$

- **Dividend Payout Ratio:** This ratio measures the portion of earning per share distributed as dividend. The objective of computing this ratio is to measure the portion of EPS distributed as dividend. This ratio is computed by dividing the DPS by EPS. It is usually expressed as a percentage. In the form of formula, this ratio may be expressed as follows:

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

- **Earning Yield:** This ratio measures the relationship between Earning Per Share (EPS) and Market Price Per Share (MPS). The objective of computing this ratio is to measure the performance of earnings in relation to market price per share. This ratio is computed by dividing the EPS by market price per share. It is usually expressed as a percentage. In the form of a formula, this ratio may be expressed as follows:

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

	<p>❑ Dividend Yield: This ratio measures the relationship between Dividend Per Share (DPS) and Market Price Per Share (MPS). The objective of computing this ratio is to measure the performance of dividend in relation to market price per share. This ratio is computed by dividing the DPS by market price per share. It is usually expressed as a percentage. In the form of a formula, this ratio may be expressed as follows:</p> $\text{Dividend Yield} = \frac{\text{Dividend Per Share (DPS)}}{\text{Market Price Per Share (MPS)}} \times 100$ <p>❑ Market value/ book value per share: This ratio measures a relationship between Market Value per share and Book Value per share. The objective of computing this ratio is to measure market response to the book value of a share. This ratio is computed by dividing the Market Price per share by Book Value per share. This ratio may be expressed as follows:</p> $\begin{aligned} \text{Market value/Book Value per share (MV/BV)} &= (\text{Average share price}) / (\text{Net worth} \div \text{No. of equity shares}) \\ &= \frac{\text{Average share price}}{\text{Net worth} \div \text{No. of equity shares}} = \frac{\text{Average share price}}{\text{Book value per shares}} \\ &= \frac{\text{Closing share price}}{\text{Book value per shares}} \end{aligned}$ <p>❑ Q Ratio : This ratio measures a relationship between Market Valuation and intrinsic value. If Q ratio =1 then it is equilibrium. It is less than 1, it means stock is undervalued and if it is more than 1, it means stock is overvalued. This ratio may be expressed as follows:</p> $\begin{aligned} \text{Q Ratio} &= \frac{\text{Market value of equity and liabilities}}{\text{Estimated replacement cost of assets}} \\ &= \frac{\text{Market value of company}}{\text{assts' replacement cost}} \end{aligned}$
Du Pont Model	The DU Pont Company of USA pioneered a system of financial analysis which has received widespread recognition and acceptance. The analysis takes into account important inter-relationships on the basis of information available in the financial statements. The usefulness of DU Pont chart lies in the fact that it presents the overall picture of the performance of a firm and enables the management to identify the factors which have a bearing on its profitability.
Return on Investment (ROI) using the DU Pont Analysis	Return on Investment (ROI) represents the earning power of the company. ROI depends on two ratios: (a) Net Profit Ratio; and (b) Capital Turnover Ratio. A change in any of these ratios will change the firm's earning power. These two ratios are affected by many factors. A change in any of these factors will change these ratios also. The analysis has been presented by Du-Pont company of USA through a chart popularly known as Du-Pont Chart.

Return on Total Assets (ROTA) using the DU Pont Analysis	The purpose of Du-Pont Chart is to provide management with a measure of performance in the form of return on Total Assets. It brings together the activity ratios and net profit margins on sales and shows how these ratios interact to determine the profitability of assets. The Du-Pont chart can be used to find out ways and means of improving the return on total assets.
Return on Equity (ROE) using the DU Pont Analysis	There are three components in the calculation of return on equity using the traditional Du-Pont model; (a) the net profit margin; (b) assets turnover ratio; and (c) the equity multiplier. By examining each input individually, the sources of a company's return on equity can be discovered and compared to its competitors.

PRACTICAL QUESTIONS

1. Following information are available for SK Ltd. along with various ratio relevant to the particulars industry it belongs to. Appraise your comments on strength and weakness of SK Ltd. comparing its ratios with the given industry norms. **[SM]**

SK Ltd. Balance Sheet as at 31.3.2022

Liabilities	Amount (₹)	Assets	Amount (₹)
Equity Share Capital	48,00,000	Fixed Assets	24,20,000
10% Debentures	9,20,000	Cash	8,80,000
Sundry Creditors	6,60,000	Sundry Debtors	11,00,000
Bills Payable	8,80,000	Stock	33,00,000
Other Current Liabilities	4,40,000		
	77,00,000		77,00,000

Statement of Profitability for the year ending 31.3.2022

Particulars	Amount (₹)	Amount (₹)
Sales		1,10,00,000
Less: cost of goods sold	–	–
Material	41,80,000	–
Wages	26,40,000	0
Factory Overhead	12,98,000	81,18,000
Gross profit	–	28,82,000
Less: Selling & Distribution Cost	11,00,000	–
Administrative cost	12,28,000	23,28,000
Earnings before interest and taxes	–	5,54,000
Less: Interest charges	–	92,000
Earnings before tax	–	4,62,000
Less: Taxes @ 50%	–	2,31,000
Net Profit (PAT)	–	2,31,000

Industry Norms

Ratios	Norm
Current Ratio	2.5
Receivables turnover ratio	8.0
Inventory turnover Ratio (based on sales)	9.0
Total Assets Turnover ratio	2.0
Net Profit Ratio	3.5%
Return on Total Assets	7.0%
Return on Net Worth (Based on net profit)	10.5%
Total Debt/Total Assets	60.0%

[Sol.] Actual ratios = 2.67; 10; 3.33; 1.43; 2.10%; 3.60%; 4.81%; 37.66%

2. SK Ltd. has made plans for the next year. It is estimated that the company will employ total assets of ₹8,00,000, 50% of the assets being financed by borrowed capital at an interest rate of 16% per year. The direct costs for the year are estimated at ₹4,80,000 and all other operating expenses are estimated at ₹80,000. The goods will be sold to customers at 150% of the direct costs. Income tax rate is assumed to be 50%. You are required to calculate: **[Similar Nov 2020]**

- Net profit margin
- Return on capital employed
- Assets turnover
- Return on owner's equity

[Sol.] (a) 6.67%; (b) 20%; (c) 0.90 times; (d) 12%

3. The total sales (all credit) of a firm are ₹6,40,000. It has a gross profit margin of 15% and a current ratio of 2.5. The firm's current liabilities are ₹96,000; inventories ₹48,000 and cash ₹16,000. **[SM]**

- Determine the average inventory to be carried by the firm, if an inventory turnover of 5 times is expected? (Assume a 360 day year)
- Determine the average collection period if the opening balance of debtors is intended to be ₹80,000? (Assume a 360 day year)

[Sol.] (a) ₹1,08,800; (b) 72 days]

4. The following figures are related to the trading activities of M Ltd.: **[Nov 2022]** **[Nov 2022]**

- Total assets - ₹10,00,000
- Debt to total assets - 50%
- Interest cost - 10% per year
- Direct cost - 10 times of the interest cost
- Operating expenses - ₹1,00,000

The goods are sold to customers at a margin of 50% on the direct cost. Tax rate is 30%. You are required to calculate:

- Net profit margin
- Net operating profit margin
- Return on assets
- Return on owner's equity

[Sol.] (a) 10%; (b) 20%; (c) 15%; (d) 14%

5. The capital structure of SK Ltd. is as follows:

[SM]

Equity share capital of ₹10 each	8,00,000
9% Preference share capital of ₹10 each	<u>3,00,000</u>
	<u>11,00,000</u>

Additional information: Profit (after tax at 35 percent), ₹2,70,000; Depreciation ₹60,000; Equity dividend paid 20 percent; Market price of equity shares ₹40. You are required to compute the following, showing the necessary workings:

- | | |
|---|--|
| (a) Dividend yield on the equity shares | (b) Cover for the preference and equity dividend |
| (c) Earnings per share | (d) Price-earning ratio |

[Sol. (a) 5%; (b) 10 times; 1.52 times; (c) ₹3.0375; (d) 13.17 times]

6. SK Private. Ltd. gives you the following information relating to the year ending 31st March, 2022:
[SM]

(1) Current Ratio	2.5 : 1
(2) Debt-Equity Ratio	1 : 1.5
(3) Return on Total Assets (After Tax)	15%
(4) Total Assets Turnover Ratio	2
(5) Gross Profit Ratio	20%
(6) Stock Turnover Ratio	7
(7) Net Working Capital	₹13,50,000
(8) Fixed Assets	₹30,00,000
(9) 1,80,000 Equity shares of	₹10 each
(10) 60,000 9% Preference Shares of	₹10 each
(11) Opening stock	₹11,40,000

You are required to calculate:

- Quick ratio
- Fixed assets turnover ratio
- Proprietary ratio
- Earnings per share

[Sol. (a) 1.10 times; (b) 3.5 times; (c) 49.71%; (d) ₹4.075]

7. Following figures and ratios are related to a company of Q Ltd.:

[May 2019]

Sales for the year (all credit)	₹30,00,000
Gross profit ratio	25%
Fixed assets turnover ratio (based on cost of goods sold)	1.5
Stock turnover ratio (based on cost of goods sold)	6
Liquid ratio	1:1
Current Ratio	1.5
Receivables (Debtors) collection period	2 months
Reserves & surplus to share capital	0.60:1
Capital gearing ratio	0.5
Fixed assets to net worth	1.20:1

You are required to calculate:

Closing stock, Fixed Assets, Current Assets, Debtors and Net Worth.

[Sol. ₹3,75,000; ₹15,00,000; ₹11,25,000; ₹5,00,000; ₹12,50,000]

8. Following information has been provided from the books of SK Ltd. for the year ending on 31st March, 2022: [SM, MTP Nov 2018]

Net Working Capital	₹4,80,000
Bank Overdraft	₹80,000
Fixed Assets to Proprietary Ratio	0.75
Reserve and Surplus	₹3,20,000
Current Ratio	2.5
Liquid Ratio (Quick Ratio)	1.5

You are required to prepare a summarised balance sheet as at 31st March, 2022 assuming that there is no long term debt.

[Sol. BS total = ₹22,40,000]

9. Following is the abridged Balance Sheet of SK Ltd:

[SM]

Liabilities	Amount (₹)	Assets	Amount (₹)
Share Capital	1,00,000	Land & Buildings	80,000
Profit & Loss Account	17,000	Plant & Machinery	50,000
Current Liabilities	40,000	Less: Depreciation	15,000
			35,000
			1,15,000
		Stock	21,000
		Receivables	20,000
		Bank	1,000
			42,000
	1,57,000		1,57,000

With the help of the additional information furnished below, you are required to prepare trading and profit & loss account and a balance sheet as at 31st March, 2022.

- (a) The company went in for re-organisation of capital structure, with share capital remaining the same as follows:

Share Capital	50%
Other Shareholder's fund	15%
5% Debentures	10%
Creditors	25%

Debentures were issued on 1st April. Interest is to be paid annually on 31st March.

- (b) Land and buildings remained unchanged. Additional plant and machinery has been bought and a further ₹5,000 depreciation was written off.
(The total fixed assets then constituted 60% of total fixed and current assets)
- (c) Working capital ratio was 8 : 5.
- (d) Quick ratio was 1 : 1.
- (e) The receivables (four-fifth of the quick assets) to sales ratio revealed a credit period of 2 months. There were no cash sales.
- (f) Return on net worth was 10%
- (g) Gross profit was at the rate of 15% of selling price.
- (h) Stock turnover was eight times for the year.

Ignore taxation.

[Sol. GP = ₹36,000; NP = ₹13,000; BS Total = ₹2,00,000]

- 10.** The following accounting information and financial ratios of SK Ltd. relate to the year ended 31st December, 2022: **[SM, RTP Nov 2022]**

(I) Accounting Information:

Gross Profit	15% of sales
Net Profit	8% of sales
Raw material consumed	20% of works cost
Direct wages	10% of works cost
Stock of raw materials	3 month's usage
Stock of finished goods	6% of works cost
Debt collection period	60 days

(II) Financial Ratios:

Fixed assets to sales	1:3
Fixed assets to current assets	13:11
Current ratio	2:1
Long-term loans to current liabilities	2:1
Capital to Reserves and Surplus	1:4

If value of fixed assets as on 31st December, 2021 amounted to ₹26 lakhs, prepare a summarized Profit and Loss Account of the company for the year 31st December, 2022 and also the Balance Sheet as on 31st December, 2022.

[Sol. GP = ₹11,70,000; NP = ₹6,24,000; BS Total = ₹48,00,000]

- 11.** Based on the following particulars show various assets and liabilities of SK Ltd. **[RTP May 2018]**

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

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

[Sol. BS Total = ₹20,03,333]

- 12.** From the following ratios and information given below, prepare Trading Account, Profit & Loss Account and Balance sheet of SK Ltd.: **[SM]**

Fixed Assets	₹40,00,000
Closing stock	₹4,00,000
Stock turnover ratio	10
Gross profit ratio	25%
Net profit ratio	20%

Net profit to capital	1/5
Capital to total liabilities	$\frac{1}{2}$
Fixed assets to capital	5/4
Fixed assets to Total current assets	5/7

[Sol. GP = ₹8,00,000; NP = ₹6,40,000; BS Total = ₹96,00,000]

13. Using the following information, complete the Balance Sheet given below: [MTP May 2019]

- | | | |
|---|---|---------|
| (a) Total debt to net worth | : | 1:2 |
| (b) Total assets turnover | : | 2 |
| (c) Gross Profit on sales | : | 30% |
| (d) Average collection period (assume 360 days in a year) | : | 40 days |
| (e) Inventory turnover ratio based on cost of goods sold and year-end inventory | : | 3 |
| (f) Acid test ratio | : | 0.75 |

Balance Sheet as on March 31, 2022

Liabilities	₹	Assets	₹
Equity share capital	4,00,000	Plant & Machinery & other fixed assets	.....
Reserve & Surplus	6,00,000	Current Assets:	
Total Debt:		Inventory	.....
Current liabilities	.....	Debtors	.....
		Cash	.....

[Sol. BS Total = ₹15,00,000]

14. SK Ltd. has furnished the following ratios and information relating to the year ended 31st March, 2022. [SM, Similar July 2021]

Sales	₹60 lacs
Return on net worth	25%
Rate of income tax	50%
Share capital to reserves	7:3
Current ratio	2
Net-profit to Sales (after tax)	6.25%
Inventory turnover (based on cost of goods sold and closing stock)	12
Cost of goods sold	₹18 lacs
Interest on Debentures (@15%)	₹60,000
Sundry Debtors	₹2 lacs
Sundry Creditors	₹2 lacs

You are required to:

- Calculate the operating expenses for the year ended 31st March, 2022.
- Prepare a Balance Sheet as on 31st March, 2022.

Balance Sheet as on March 31, 2022

Liabilities	₹	Assets	₹
Equity share capital	.....	Fixed Assets	.....
Reserve & Surplus	.....	Current Assets:	.....
15% Debentures	.....	Stock	.....
Payables	.....	Receivables	.....
	.....	Cash	.....

[Sol. (a) ₹33,90,000; (b) BS Total = ₹21,00,000]

15. Using the information given below, complete the Balance Sheet of SK Private Limited:

(i)	Current ratio	1.6:1
(ii)	Cash and Bank balance	15% of total current assets
(iii)	Debtors turnover ratio	12 times
(iv)	Stock turnover (cost of goods sold) ratio	16 times
(v)	Creditors turnover (cost of goods sold) ratio	10 times
(vi)	Gross profit ratio	20%
(vii)	Capital gearing ratio	0.6
(viii)	Depreciation rate	15% on WDV
(ix)	Net Fixed Assets	20% of total assets

(Assume all purchase and sales are on credit)

Balance Sheet of SK Private Limited as at 31.03.2022

Liabilities	₹	Assets	₹
Share Capital	25,00,000	Fixed Assets	
Reserve & Surplus	?	Opening WDV	?
12% Long term debt	?	Less: Depreciation	?
Current Liabilities		Current Assets	
Creditors	?	Stock	?
Provision & outstanding expenses	68,50,000	Debtors	?
		Cash & Bank balance	?
Total	?	Total	?

[Sol. BS total = ₹1,37,00,000]

16. Assuming the current ratio of a company is 2, STATE in each of the following cases whether the ratio will improve or decline or will have no change: [RTP Nov 2018]

- (a) Payment of current liability (b) Purchase of fixed assets by cash
(c) Cash collected from customers (d) Bill receivable dishonoured
(e) Issue of new shares

[Sol. (a) Improve; (b) Decline; (c) No change; (d) No change; (e) Improve]

PRACTICE QUESTIONS

17. In a meeting held at Delhi towards the end of 2020, the Directors of M/s SK Ltd. have taken a decision to diversify. At present SK Ltd. sells all finished goods from its own warehouse. The company issued debentures on 01.01.2021 and purchased fixed assets on the same day. The purchase prices have remained stable during the concerned period. Following information is provided to you: [SM]

Income Statement

	2020		2021	
	₹	₹	₹	₹
Sales: Cash	30,000		32,000	
Credit	2,70,000	3,00,000	3,42,000	3,74,000
Cost of sales		(2,36,000)		(2,98,000)
Gross margin		64,000		76,000
Expenses:				
Warehousing	13,000		14,000	
Transport	6,000		10,000	
Administration	19,000		19,000	
Selling	11,000		14,000	
Debenture Interest	.....		2,000	
		(49,000)		(59,000)
Net Profit		15,000		17,000

Balance Sheet

	On 31 st December 2020		On 31 st December 2021	
	₹	₹	₹	₹
Fixed assets (Less Depreciation)		30,000		40,000
Current assets:				
Stock	60,000		94,000	
Debtors	50,000		82,000	
Cash	10,000		7,000	
	1,20,000		1,83,000	
Less: Current liabilities - Trade creditors	(50,000)		(76,000)	
Net current assets		70,000		1,07,000
		1,00,000		1,47,000
Share capital		75,000		75,000
Reserves and undistributed profit		25,000		42,000
Debentures				30,000
		1,00,000		1,47,000

You are required to calculate the following ratios for the year 2020 and 2021.

- Gross Profit Ratio
- Other Operating Expenses to Sales Ratio
- Operating Profit Ratio
- Capital Turnover Ratio
- Stock Turnover Ratio
- Net Profit to Net worth ratio
- Debtors collection period

Ratio relating to capital employed should be based on the capital at the end of the year. Give the reasons for change in the ratios for 2 years. Assume opening stock of ₹40,000 for the year 2020. Ignore Taxation.

[Sol.] (a) 21.3%; 20.3%; (b) 16.3%; 15.2%; (c) 5%; 5.08%; (d) 3; 2.54; (e) 4.72; 3.87; (f) 15%; 16.24%; (g) 67.6 days; 87.5 days]

18. ABC Company sells plumbing fixtures on terms of 2/10 net 30. Its financial statements over the 3 years are as follows: **[SM]**

Particulars	2020-21	2021-22	2022-23
	₹	₹	₹
Cash	30,000	20,000	5,000
Accounts receivables	2,00,000	2,60,000	2,90,000
Inventory	4,00,000	4,80,000	6,00,000
	6,30,000	7,60,000	8,95,000
Net fixed assets	8,00,000	8,00,000	8,00,000
	14,30,000	15,60,000	16,95,000
Accounts payable	2,30,000	3,00,000	3,80,000
Accruals	2,00,000	2,10,000	2,25,000
Bank loan (short term)	1,00,000	1,00,000	1,40,000
	5,30,000	6,10,000	7,45,000
Long-term debt	3,00,000	3,00,000	3,00,000
Common stock	1,00,000	1,00,000	1,00,000
Retained earnings	5,00,000	5,50,000	5,50,000
	14,30,000	15,60,000	16,95,000
Sales	40,00,000	43,00,000	38,00,000
Cost of goods sold	32,00,000	36,00,000	33,00,000
Net profit	3,00,000	2,00,000	1,00,000

Considering opening balance of accounts receivables and inventory as 2,00,000 and 4,00,000 respectively as on 1,04,202, analyse the company's financial condition and performance over the last 3 years. Are there any problems?

[Sol.]]

19. MT Limited has the following Balance Sheet as on March 31, 2019 and March 31, 2020:
[RTP May 2020]

	₹in lakhs	
	March 31, 2019	March 31, 2020
Sources of Funds:		
Shareholder's Funds	2,500	2,500
Loan Funds	3,500	3,000
	6,000	5,500
Application of Funds:		
Fixed Assets	3,500	3,000
Cash and Bank	450	400
Receivables	1,400	1,100
Inventories	2,500	2,000
Other Current Assets	1,500	1,000
Less: Current Liabilities	(1,850)	(2,000)
	6,000	5,500

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

	₹in lakhs	
	March 31, 2019	March 31, 2020
Sales	22,500	23,800
Less: Cost of goods sold	(20,860)	(21,100)
Gross Profit	1,640	2,700
Less: Selling, General & Administrative expenses	(1,100)	(1,750)
Earnings before Interest and Tax (EBIT)	540	950
Less: Interest Expenses	(350)	(300)
Earning before Tax (EBT)	190	650
Less: Tax	(57)	(195)
Profits after Tax (PAT)	133	455

Required: CALCULATE for the year 2019-20

- Inventory turnover ratio
 - Financial Leverage
 - Return on Capital Employed (ROCE)
 - Return on Equity (ROE)
 - Average collection period
- [Take 1 year = 365 days]

[Sol. (a) 9.4; (b) 1.46; (c) 11.56%; (d) 18.20%; (e) 19.17 days]

20. The following is the Profit and loss account and Balance Sheet of KLM LLP. [RTP Nov 2019]

Trading and Profit & loss Account

Particulars	Amount (₹)	Particulars	Amount (₹)
To Opening stock	12,46,000	By Sales	1,96,56,000
To Purchases	1,56,20,000	By Closing stock	14,28,000
To Gross Profit c/d	42,18,000		
	2,10,84,000		2,10,84,000
To Administrative expenses	18,40,000	By Gross profit b/d	42,18,000
To Selling & Dist. exp.	7,56,000	By Interest on investment	24,600
To Interest on loan	2,60,000	By Dividend received	22,000
To Net Profit	14,08,600		
	42,64,600		42,64,600

Balance Sheet as on.....

Capital & Liabilities	Amount (₹)	Assets	Amount (₹)
Capital	20,00,000	Plant & Machinery	24,00,000
Retained earnings	42,00,000	Building	42,00,000
General reserve	12,00,000	Furniture	12,00,000
Term loan from bank	26,00,000	Sundry receivables	13,50,000
Sundry payables	7,20,000	Inventory	14,28,000
Other liabilities	2,80,000	Cash & Bank balance	4,22,000
	1,10,00,000		1,10,00,000

You are required to COMPUTE:

- Gross profit ratio
- Net Profit ratio
- Operating cost ratio
- Operating profit ratio
- Inventory turnover ratio
- Current ratio
- Quick ratio
- Interest coverage ratio
- Return on capital employed
- Debt to assets ratio

[Sol. (a) 21.46%; (b) 7.17%; (c) 91.75%; (d) 8.25%; (e) 11.55 times; (f) 3.2 times; (g) 1.77 times; (h) 6.42 times; (i) ₹1,00,00,000; (j) 23.64%]

21. Following information relates to SK ltd:

[SM, RTP May 2022]

Debtors velocity	3 months
Creditors velocity	2 months
Stock turnover ratio	1.5
Gross profit ratio	25%
Bills receivables	₹25,000
Bills payable	₹10,000
Gross profit	₹4,00,000
Fixed assets turnover ratio	4

Closing stock of the period is ₹10,000 above the opening stock. Calculate:

- (i) Sales and cost of goods sold (ii) Sundry debtors
(iii) Sundry creditors (iv) Closing stock
(v) Fixed assets

[Sol. [(i) ₹16,00,000; ₹12,00,000; (ii) ₹3,75,000; (iii) ₹1,91,667; (iv) ₹8,05,000; (v) ₹4,00,000]

22. Following information has been gathered from the books of Tram Ltd. the equity share of which is trading in the stock market at ₹14. [Nov 2019, Similar RTP Dec 2021]

Particulars	Amount (₹)
Equity Share Capital (face value ₹10)	10,00,000
10% Preference Shares	2,00,000
Reserves	8,00,000
10% Debentures	6,00,000
Profit before Interest and Tax for the year	4,00,000
Interest	60,000
Profit after tax for the year	2,40,000

Calculate the following:

- (a) Return on Capital Employed (b) Earnings per share (c) PE Ratio

[Sol. (a) 15.38%; 9.23%; (b) ₹2.20; (c) 6.364]

23. X Co. has made plans for the next year. It is estimated that the company will employ total assets of ₹8,00,000; 50 per cent of the assets being financed by borrowed capital at an interest cost of 8 percent per year. The direct costs for the year are estimated at ₹4,80,000 and all other operating expenses are estimated at ₹80,000. The goods will be sold to customers at 150 per cent of the direct costs. Tax rate is assumed to be 50 per cent. [SM, Similar MTP Nov 2019]

You are required to calculate:

- (i) Operating profit margin (before tax)
(ii) Net profit margin (after tax)
(iii) Return on assets (on operating profit after tax)
(iv) Assets turnover
(v) Return on owner's equity

[Sol. (i) 22.22%; (ii) 8.9%; (iii) 10%; (iv) 0.9 times; (v) 16%]

24. The following is the information of XML Ltd. relate to the year ended 31-03-2018: **[Nov 2018]**

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

Assume that:

- (a) No change in Non-current assets during the year 2017-18
- (b) No depreciation charged on Non-Current Assets during the year
- (c) Ignoring tax

You are required to calculate cost of goods sold, net profit, inventory, receivables and cash for the year ended on 31st March, 2018.

[Sol. ₹1,60,00,000; ₹20,00,000; ₹40,00,000; ₹50,00,000; ₹10,00,000]

25. Following information and ratios are given for W Limited for the year ended 31st March, 2022: **[May 2022]**

Equity share capital of ₹10 each	₹10 lakhs
Reserve & Surplus to shareholder's fund	0.50
Sales / Shareholder's fund	1.50
Current ratio	2.50
Debtors Turnover Ratio	6.00
Stock Velocity	2 Months
Gross Profit Ratio	20%
Net Working Capital Turnover Ratio	2.50

You are required to calculate:

- (i) Shareholder's fund
- (ii) Stock
- (iii) Debtors
- (iv) Current liabilities
- (v) Cash Balance

[Sol. (i) ₹20,00,000; (ii) ₹4,00,000; (iii) ₹5,00,000; (iv) ₹8,00,000; (v) ₹11,00,000]

26. The following accounting information and financial ratios of A&R Limited relate to the year ended 31st March, 2020: **[MTP July 2020]**

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

Total sales ₹6,00,00,000; cash sales 25% of credit sales; cash purchases ₹46,00,000; working capital ₹56,00,000; closing inventory is ₹16,00,000 more than opening inventory.

You are required to calculate:

- (a) Average Inventory
- (b) Purchases
- (c) Average Debtors
- (d) Average Creditors
- (e) Average Payment Period
- (f) Average Collection Period
- (g) Current Assets
- (h) Current Liabilities

[Sol. (a) ₹75,00,000; (b) ₹4,66,00,000; (c) ₹60,00,000; (d) ₹42,00,000; (e) 36.5 days; (f) 45.625 days; (g) ₹96,00,000; (h) ₹40,00,000]

27. Using the following information, prepare the balance sheet:

[SM]

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

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

	₹		₹
Cash	?	Notes and payables	1,00,000
Accounts receivable	?	Long term debt	?
Inventory	?	Common stock	1,00,000
Plant & Equipment	?	Retained earnings	1,00,000
Total Assets	?	Total liabilities and equity	?

[Sol. BS Total = ₹4,00,000]

28. From the following information, complete the Balance sheet given below:

[Jan 2021]

(i) Equity	₹2,00,000
(ii) Total debt to owner's equity	0.75
(iii) Total assets turnover	2 times
(iv) Inventory turnover	8 times
(v) Fixed assets to owner's equity	0.60
(vi) Current debt to total debt	0.40

[Sol. BS total = ₹3,50,000]

29. Following information and ratios are given in respect of AQUA Ltd. for the year ended 31st March, 2023: [May 2023]

Current ratio	4.0
Acid test ratio	2.5
Inventory turnover ratio (based on sales)	6
Average collection period (days)	70
Earnings per share	3.5
Current liabilities	3,10,000
Total assets turnover ratio (based on sales)	0.96
Cash ratio	0.43
Proprietary ratio	0.48
Total equity dividend	1,75,000
Equity dividend coverage ratio	1.60

Assume 360 days in a year.

You are required to complete Balance Sheet as on 31st March, 2023.

Balance Sheet as on 31st March, 2023

Liabilities	₹	Assets	₹
Equity share capital (₹10 per share)	XXX	Fixed assets	XXX
Reserve & surplus	XXX	Inventory	XXX
Long-term debt	XXX	Debtors	XXX
Current liabilities	3,10,000	Loans & advances	XXX
		Cash & bank	XXX
Total	XXX	Total	XXX

[Sol. BS Total = ₹29,06,250]

30. From the following information and ratios, prepare the balance sheet as at 31st march, 2023 and Income statement for the year ended on that date for M/s SK Ltd. [SM]

Average stock	₹10 lakhs
Current ratio	3:1
Acid test ratio	1:1
PBIT to PBT	2.2:1
Average collection period (assume 360 days in a year)	30 days
Stock turnover ratio (use sales as turnover)	5 times
Fixed assets turnover ratio	0.8 times
Working capital	₹10 lakhs
Net profit ratio	10%
Gross profit ratio	40%
Operating expenses (excluding interest)	₹9 lakhs
Long term loan interest	12%
Tax	Nil

[Sol. Answer – GP = ₹20,00,000; NP = ₹5,00,000; BS Total = ₹77,50,000]

31. Following are the data in respect of ABC Industries for the year ended 31st March, 2021: [Dec 2021]

Debt to Total assets ratio	0.40
Long-term debts to equity ratio	30%
Gross profit margin on sales	20%
Accounts receivables period	36 days
Quick ratio	0.9
Inventory holding period	55 days
Cost of goods sold	₹64,00,000

Liabilities	₹	Assets	₹
Equity Share Capital	20,00,000	Fixed assets	
Reserve & surplus		Inventories	
Long-term debts		Accounts receivable	
Accounts payable		Cash	
Total	50,00,000	Total	

Required:

Complete the balance sheet of ABC Industries as on 31st March, 2021. All calculations should be in nearest rupee. Assume 360 days in a year.

[Sol. BS Total = ₹50,00,000]

32. The accountant of Moon Ltd. has reported the following data:

[May 2018]

Gross Profit	₹60,000
Gross profit Margin	20 per cent
Total Assets Turnover	0.30:1
Net Worth to Total Assets	0.90:1
Current Ratio	1.5:1
Liquid Assets to Current Liability	1:1
Credit sales to total sales	0.80:1
Average collection period	60 days

Assume 360 days in a year.

You are required to complete the following:

Balance Sheet of Moon Ltd.

Liabilities	₹	Assets	₹
Net Worth		Fixed Assets	?
Current Liabilities		Stock	?
		Debtors	?
		Cash	?
Total Liabilities		Total Assets	?

[Sol. BS total = ₹10,00,000]

33. SK Ltd. has furnished the following information relating to the year ended 31st March, 2021 and 31st March, 2022: [SM]

	31 st March, 2021	31 st March, 2022
Share Capital	40,00,000	40,00,000
Reserve & Surplus	20,00,000	25,00,000
Long term loan	30,00,000	30,00,000

- Net profit ratio: 8%
- Gross profit ratio: 20%
- Long-term loan has been used to finance 40% of the fixed assets
- Stock turnover with respect to cost of goods sold is 4
- Debtors represent 90 days sales
- The company holds cash equivalent to 1½ months cost of goods sold.
- Ignore taxation and assume 360 days in a year.

You are required to prepare balance sheet as on 31st March, 2022 in the following format:

Liabilities	₹	Assets	₹
Share capital	–	Fixed Assets	–
Reserve & Surplus	–	Sundry Debtors	–
Long term loan	–	Closing Stock	–
Sundry Creditors	–	Cash in hand	–

[Sol. BS total = ₹1,09,37,500]

34. From the following information, find out missing figures and rewrite the balance sheet of Mukesh Enterprise. [RTP May 2023]

Current ratio – 2:1

Acid test ratio = 3:2

Reserve and surplus – 20% of equity share capital

Long term debt = 45% of net worth

Stock turnover velocity = 1.5 months

Receivables turnover velocity = 2 months

You may assume closing receivables as average receivables.

Gross profit ratio = 20%

Sales is ₹21,00,000 (25% sales are on cash basis and balance on credit basis)

Closing stock is ₹40,000 more than opening stock

Accumulated depreciation is 1/6 of original cost of fixed assets.

Balance sheet of the company is as follows:

Liabilities	(₹)	Assets	(₹)
Equity share capital	?	Fixed assets (cost)	?
Reserve & Surplus	?	Less: Accumulated depreciation	?
Long term loans	6,75,000	Fixed assets (WDV)	?
Bank overdraft	60,000	Stock	?
Creditors	?	Debtors	?
		Cash	?
Total	?	Total	?

[Sol. BS total = 26,35,000]

35. From the following information, you are required to prepare a summarized balance sheet for Rudra Ltd. for the year 31st March, 2023: [SM]

Debt Equity Ratio	1:1
Current ratio	3:1
Acid test ratio	8:3
Fixed assets turnover (on the basis of sales)	4
Stock turnover (on the basis of sales)	6
Cash in hand	₹5,00,000
Stock to debtors	1:1
Sales to net worth	4
Capital to reserves	1:2
Gross profit	20% of cost
COGS to creditor	10:1

Interest for entire year is yet to be paid on long term loan @10%.

[Sol. BS Total = ₹75,00,000]

SOLUTIONS

17. Computation of Ratios

Ratio	2021-22 (₹)	2022-23 (₹)
1. Gross profit ratio (Gross profit/sales)	$\frac{64,000 \times 100}{3,00,000} = 21.3\%$	$\frac{76,000 \times 100}{3,74,000} = 20.3\%$
2. Operating expense to sales ratio (Operating exp/ Total sales)	$\frac{49,000 \times 100}{3,00,000} = 16.3\%$	$\frac{57,000 \times 100}{3,74,000} = 15.2\%$
3. Operating profit ratio (Operating profit/ Total sales)	$\frac{15,000 \times 100}{3,00,000} = 5\%$	$\frac{19,000 \times 100}{3,74,000} = 5.08\%$

Ratio	2021-22 (₹)	2022-23 (₹)
4. Capital turnover ratio (Sales/capital employed)	$\frac{3,00,000}{1,00,000} = 3$	$\frac{3,74,000}{1,47,000} = 2.54$
5. Stock turnover ratio (COGS/ Average stock) (Refer to W.N. 1)	$\frac{2,36,000}{50,000} = 4.72$	$\frac{2,98,000}{77,000} = 3.87$
6. Net Profit to Net worth ratio (Net profit / Net worth)	$\frac{15,000 \times 100}{1,00,000} = 15\%$	$\frac{19,000 \times 100}{1,17,000} = 16.24\%$
7. Receivables collection period (Average receivables/ Average daily credit sales) (Refer to W.N. 2)	$\frac{50,000}{739.73} = 67.6 \text{ days}$	$\frac{82,000}{936.99} = 87.5 \text{ days}$
Working Notes:		
1. Average Stock = (opening stock + closing stock) / 2	$(40,000 + 60,000) / 2 = 50,000$	$(60,000 + 94,000) / 2 = 77,000$
2. Average daily sales = Credit sales / 365	$\frac{2,70,000}{365} = 739.73$	$\frac{3,42,000}{365} = 936.99$

Analysis: The decline in the Gross profit ratio could be either due to a reduction in the selling price or increase in the direct expenses (since the purchase price has remained the same). In this case, cost of goods sold have increased more than proportion of increment in sales, hence impacting gross profit ratio.

Similarly, there is a decline in the ratio of operating expenses to sales. Further analysis reveals that in comparison to increase in sales, there has a lesser proportionate increase in operating expenses. As a result, even the operating profit ratio has remained the same approximately in spite of a decline in the Gross profit ratio.

The company has not been able to deploy its capital efficiently. This is indicated by a decline in the Capital turnover ratio from 3 to 2.54 times.

The decline in stock turnover ratio implies that the company has increased its investment in stock. Net Profit to Net worth ratio has increased indicating that the company's Net worth or Shareholders' capital is efficient in generating profits.

The increase in the Receivables collection period indicates that the company has become liberal in extending credit on sales. There is a corresponding increase in the receivables also due to such credit policy.

18.

Ratios	2020-21	2021-22	2022-23
Current ratio (Current Assets / Current Liabilities)	1.19 $\left(\frac{₹6,30,000}{₹5,30,000} \right)$	1.25 $\left(\frac{₹7,60,000}{₹6,10,000} \right)$	1.20 $\left(\frac{₹8,95,000}{₹7,45,000} \right)$
Acid-test ratio (Quick Assets / Current Liabilities)	0.43 $\left(\frac{₹2,30,000}{₹5,30,000} \right)$	0.46 $\left(\frac{₹2,80,000}{₹6,10,000} \right)$	0.40 $\left(\frac{₹2,95,000}{₹7,45,000} \right)$
Receivables turnover ratio (Sales/ Average Receivables) (Refer Working Notes)	20 $\left(\frac{₹40,00,000}{₹2,00,000} \right)$	18.70 $\left(\frac{₹43,00,000}{₹2,30,000} \right)$	13.82 $\left(\frac{₹38,00,000}{₹2,75,000} \right)$
Average collection period (365 / Receivables turnover ratio)	18.25 (365/20)	19.52 (365/18.70)	26.41 (365/13.82)
Inventory turnover ratio (COGS / Average Inventory) (Refer Working Notes)	8 $\left(\frac{₹32,00,000}{₹4,00,000} \right)$	8.18 $\left(\frac{₹36,00,000}{₹4,40,000} \right)$	6.11 $\left(\frac{₹33,00,000}{₹5,40,000} \right)$
Total debt to net worth (Short term + Long term Debt) / (Common stock + Retained earnings)	1.38 $\left(\frac{₹8,30,000}{₹6,00,000} \right)$	1.40 $\left(\frac{₹9,10,000}{₹6,50,000} \right)$	1.61 $\left(\frac{₹10,45,000}{₹6,50,000} \right)$
Long-term debt to total capitalization	0.33 $\left(\frac{₹3,00,000}{₹9,00,000} \right)$	0.32 $\left(\frac{₹3,00,000}{₹9,50,000} \right)$	0.32 $\left(\frac{₹3,00,000}{₹9,50,000} \right)$
Gross profit margin (Gross Profit / Sales) { Gross profit = Sales - Cost of Goods sold }	0.20 $\left(\frac{₹8,00,000}{₹40,00,000} \right)$	0.16 $\left(\frac{₹7,00,000}{₹43,00,000} \right)$	0.13 $\left(\frac{₹5,00,000}{₹38,00,000} \right)$
Net profit margin (Net Profit / Sales)	0.075 $\left(\frac{₹3,00,000}{₹40,00,000} \right)$	0.047 $\left(\frac{₹2,00,000}{₹43,00,000} \right)$	0.026 $\left(\frac{₹1,00,000}{₹38,00,000} \right)$
Total Asset turnover (Sales / Total Assets)	2.80 $\left(\frac{₹40,00,000}{₹14,30,000} \right)$	2.76 $\left(\frac{₹43,00,000}{₹15,60,000} \right)$	2.24 $\left(\frac{₹38,00,000}{₹16,95,000} \right)$

Ratios	2020-21	2021-22	2022-23
Return on assets (Net profit/ Total Assets)	0.21 $\left(\frac{₹3,00,000}{₹14,30,000} \right)$	0.13 $\left(\frac{₹2,00,000}{₹15,60,000} \right)$	0.06 $\left(\frac{₹1,00,000}{₹16,95,000} \right)$
Working Notes			
Average receivables {(Opening + closing)/2}	(₹2,00,000+ ₹2,00,000)/2 =₹2,00,000	(₹2,00,000+ ₹2,60,000)/2 =₹2,30,000	(₹2,60,000+ ₹2,90,000)/2 =₹2,75,000
Average Inventory {(Opening + closing)/2}	(₹4,00,000+ ₹4,00,000)/2 =₹4,00,000	(₹4,00,000+ ₹4,80,000)/2 =₹4,40,000	(₹4,80,000+ ₹6,00,000)/2 =₹5,40,000

Analysis: The current ratio and quick ratio are less than the ideal ratio (2:1 and 1:1 respectively) indicating that the company is not having enough resources to meet its current obligations.

Receivables are growing slower, although the average collection period is still very reasonable relative to the terms given. Inventory turnover is slowing as well, indicating a relative build-up in inventories. The increase in receivables and inventories, coupled with the fact that net worth has increased very little, has resulted in the total debt-to-net worth ratio increasing to what would have to be regarded on an absolute basis as a high level.

Long-term debt to total capitalization has not changed relatively coupled with the fact that retained earnings of only ₹ 50,000 is made in year 2019-20, and there is no issuance of new long-term debt in year 2019-20 and 2020-21.

Both the gross profit and net profit margins have declined substantially. The relationship between the two suggests that the company has incurred more relative expenses. The build-up in inventories and receivables has resulted in a decline in the asset turnover ratio, and this, coupled with the decline in profitability, has resulted in a sharp decrease in the return on assets ratio.

$$19. (a) \text{ Inventory turnover ratio} = \frac{\text{COGS}}{\text{Average Inventory}} = \frac{21,100}{(2,500 + 2,000) \div 2} = 9.4$$

$$(b) \text{ Financial Leverage} = \frac{\text{EBIT}}{\text{EBT}} = \frac{950}{650} = 1.46$$

$$(c) \text{ ROCE} = \frac{\text{EBIT}(1-t)}{\text{Average capital Employed}} \times 100 = \frac{950(1-0.30)}{(6,000 + 5,500) \div 2} \times 100 = \frac{665}{5,750} \times 100 = 11.56\%$$

$$(d) \text{ ROE} = \frac{\text{Profits after tax}}{\text{Average Shareholders' Funds}} \times 100 = \frac{455}{2,500} \times 100 = 18.20\%$$

$$(e) \text{ Average collection} = \frac{\text{Average Receivables} \times 365}{\text{Sales}} = \frac{(1,400 + 1,100) \div 2}{23,800} \times 365 = 19.17 \text{ days}$$

$$20. (a) \text{ Gross profit ratio} = \frac{\text{Gross Profit}}{\text{Sales}} \times 100 = \frac{42,18,000}{1,96,56,000} \times 100 = 21.46\%$$

$$(b) \text{ Net Profit ratio} = \frac{\text{Net Profit}}{\text{Sales}} \times 100 = \frac{14,08,600}{1,96,56,000} \times 100 = 7.17\%$$

$$(c) \text{ Operating ratio} = \frac{\text{Operating cost}}{\text{Sales}} \times 100 = \frac{1,54,38,000 + 25,96,000}{1,96,56,000} \times 100 = 91.75\%$$

$$\text{Cost of goods sold} = \text{Sales} - \text{Gross profit} = 1,96,56,000 - 42,18,000 = ₹1,54,38,000$$

$$\text{Operating expenses} = \text{Administrative exp.} + \text{Selling \& dist. Exp.}$$

$$= 18,40,000 + 7,56,000 = ₹25,96,000$$

$$(d) \text{ Operating profit ratio} = 100 - \text{operating cost ratio} = 100 - 91.75\% = 8.25\%$$

$$(e) \text{ Inventory turnover ratio} = \frac{\text{Cost of goods sold}}{\text{Average stock}} = \frac{1,54,38,000}{(14,28,000 + 12,46,000) \div 2} = 11.55 \text{ times}$$

$$(f) \text{ Current ratio}$$

$$= \frac{\text{Current assets}}{\text{Current liabilities}} = \frac{13,50,000 + 14,28,000 + 4,22,000}{7,20,000 + 2,80,000} = \frac{32,00,000}{10,00,000} = 3.2 \text{ times}$$

$$(g) \text{ Quick ratio} = \frac{\text{Quick assets}}{\text{Current liabilities}} = \frac{32,00,000 - 14,28,000}{10,00,000} = 1.77 \text{ times}$$

$$(h) \text{ Interest coverage ratio} = \frac{\text{EBDIT}}{\text{Interest}} = \frac{\text{Net Profit} + \text{Interest}}{\text{Interest}} = \frac{14,08,600 + 2,60,000}{2,60,000} = 6.42 \text{ times}$$

$$(i) \text{ Return on capital employed}$$

$$= \frac{\text{EBIT}}{\text{Capital employed}} \times 100 = \frac{14,08,600 + 2,60,000}{1,00,00,000} \times 100 = 16.69\%$$

$$\text{Capital employed} = \text{Capital} + \text{Retained earnings} + \text{General reserve} + \text{Term loan}$$

$$= 20,00,000 + 42,00,000 + 12,00,000 + 26,00,000 = ₹1,00,00,000$$

$$(j) \text{ Debt to assets ratio} = \text{Debt} / (\text{Total assets}) \times 100 = 26,00,000 / 1,10,00,000 \times 100 = 23.64\%$$

21. (i) Determination of Sales and Cost of goods sold:

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

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

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

$$\text{Cost of Goods Sold} = \text{Sales} - \text{Gross Profit} = ₹16,00,000 - ₹4,00,000 = ₹12,00,000$$

(ii) Determination of Sundry Debtors:

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

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

$$\begin{aligned} \text{Debtors' turnover ratio} &= \text{Debtors' turnover ratio} = \frac{\text{Credit Sales}}{\text{Average Accounts Receivable}} \\ &= \frac{₹16,00,000}{\text{Bills Receivable} + \text{Sundry Debtors}} = 4 \end{aligned}$$

$$\text{Or, Sundry Debtors} + \text{Bills receivable} = ₹4,00,000$$

$$\text{Sundry Debtors} = ₹4,00,000 - ₹25,000 = ₹3,75,000$$

(iii) Determination of Sundry Creditors:

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

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

$$\begin{aligned} \text{Creditors turnover ratio} &= \frac{\text{Credit Purchases}^*}{\text{Average Accounts Payables}} \\ &= \frac{₹12,10,000}{\text{Sundry Creditors} + \text{Bills Payables}} = 6 \end{aligned}$$

$$\text{So, Sundry Creditors} + \text{Bills Payable} = ₹2,01,667$$

$$\text{Or, Sundry Creditors} + ₹10,000 = ₹2,01,667$$

$$\text{Or, Sundry Creditors} = ₹2,01,667 - ₹10,000 = ₹1,91,667$$

(iv) Determination of Closing Stock

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

$$\text{So, Average Stock} = ₹8,00,000$$

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

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

$$\text{Or, Opening Stock} = ₹7,95,000$$

$$\text{So, Closing Stock} = ₹7,95,000 + ₹10,000 = ₹8,05,000$$

(v) Determination of Fixed Assets

$$\text{Fixed Assets Turnover Ratio} = \frac{\text{Sales}}{\text{Fixed Assets}} = 4$$

$$\text{Or, } \frac{₹16,00,000}{\text{Fixed Assets}} = 4$$

$$\text{Or, Fixed Asset} = ₹4,00,000$$

Workings:

* Calculation of Credit purchases:

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

$$₹12,00,000 = ₹7,95,000 + \text{Purchases} - ₹8,05,000$$

$$₹12,00,000 + ₹10,000 = \text{Purchases}$$

$$₹12,10,000 = \text{Purchases (credit)}$$

Assumption:

(i) All sales are credit sales

(ii) All purchases are credit purchase

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

$$\begin{aligned} 22. (a) \text{ Capital employed} &= \text{Equity shareholder's fund} + \text{Debenture} + \text{Pref. shares} \\ &= 10,00,000 + 8,00,000 + 6,00,000 + 2,00,000 = ₹26,00,000 \end{aligned}$$

$$\text{Return on capital employed (pre tax)} = \frac{\text{EBIT}}{\text{Capital Employed}} \times 100 = \frac{4,00,000}{26,00,000} \times 100 = 15.38\%$$

$$\text{Return on capital employed (post tax)} = \frac{\text{EAT}}{\text{Capital Employed}} \times 100 = \frac{2,40,000}{26,00,000} \times 100 = 9.23\%$$

$$(b) \text{ Earning per share} = \frac{\text{Earning available for equity holders}}{\text{No. of equity shares}} = \frac{2,40,000 - 20,000}{1,00,000} = ₹2.20$$

$$(c) \text{ PE Ratio} = \frac{\text{MPS}}{\text{EPS}} = \frac{14}{2.20} = 6.364$$

23. The net profit is calculated as follows:

Particulars	₹
Sales (150% of ₹ 4,80,000)	7,20,000
Direct costs	(4,80,000)
Gross profit	2,40,000
Operating expenses	(80,000)
Profit before Interest and Tax (EBIT)	1,60,000
Interest charges (8% of ₹ 4,00,000)	(32,000)
Profit before taxes	1,28,000
Taxes (@ 50%)	(64,000)
Net profit after taxes	64,000

$$(i) \text{ Operating profit margin} = \frac{\text{EBIT}}{\text{Sales}} = \frac{₹1,60,000}{₹7,20,000} = 0.2222 \text{ or } 22.22\%$$

$$(ii) \text{ Net profit margin} = \frac{\text{Net Profit after taxes}}{\text{Sales}} = \frac{₹64,000}{₹7,20,000} = 0.89 \text{ or } 8.9\%$$

$$(iii) \text{ Return on assets} = \frac{\text{EBIT}(1-T)}{\text{Assets}} = \frac{₹1,60,000(1-0.5)}{8,00,000} = 0.10 \text{ or } 10\%$$

$$(iv) \text{ Asset turnover} = \frac{\text{Sales}}{\text{Assets}} = \frac{₹7,20,000}{₹8,00,000} = 0.9 \text{ times}$$

$$(v) \text{ Return on equity} = \frac{\text{Net Profit after taxes}}{\text{Owners' equity}} = \frac{₹64,000}{50\% \text{ of } ₹8,00,000} = \frac{₹64,000}{₹4,00,000} = 16\%$$

24. Non-current assets to sale = 1:4
Sales = Non-current assets × 4
= 50,00,000 × 4 = ₹2,00,00,000
Net Profit = 10% × Sales = 10% × 2,00,00,000 = ₹20,00,000
Cost of Goods Sold = Sales – Gross Profit
= 2,00,00,000 – (20% × 2,00,00,000)
= ₹1,60,00,000
Inventory = COGS × (3/12)
= 1,60,00,000 × (3/12) = ₹40,00,000
Receivables = Sales × (3/12)
= 2,00,00,000 × (3/12) = ₹50,00,000
Non-Current Assets to current assets = 1:2
Current Assets = Non-current assets × 2
= 50,00,000 × 2 = ₹1,00,00,000
Cash = Current Assets – Inventory – Receivables
= 1,00,00,000 – 40,00,000 – 50,00,000
= ₹10,00,000

25. (i) $\frac{\text{Reserve \& Surplus}}{\text{Shareholder's fund}} = 0.5$

$$\frac{\text{Reserve \& Surplus}}{\text{Equity Share Capital + Reserve \& surplus}} = 0.5$$

$$\text{Reserve \& Surplus} = 0.5(10,00,000 + \text{Reserve \& Surplus})$$

$$\text{Reserve \& Surplus} = 5,00,000 + (0.5)\text{Reserve \& Surplus}$$

$$(0.5)\text{Reserve \& Surplus} = 5,00,000$$

$$\text{Reserve \& Surplus} = 10,00,000$$

$$\text{Shareholder's fund} = 10,00,000 + 10,00,000 = ₹20,00,000$$

(ii) Sales = 1.5 × Shareholder's fund = 1.5 × 20,00,000 = ₹30,00,000

$$\text{Gross profit} = \text{Sales} \times \text{GP Ratio} = 30,00,000 \times 20\% = ₹6,00,000$$

$$\text{Cost of goods sold (COGS)} = \text{Sales} - \text{Gross Profit} = 30,00,000 - 6,00,000 = ₹24,00,000$$

Stock velocity = 2 month

$$\frac{\text{Average stock}}{\text{COGS}} \times 12$$

$$\text{Average stock} = \frac{2 \times 24,00,000}{12} = ₹4,00,000$$

(iii) Debtors Turnover Ratio = 6

$$\frac{\text{Sales}}{\text{Average Debtors}} = 6$$

$$\frac{30,00,000}{\text{Average Debtors}} = 6$$

$$\text{Average Debtors} = ₹5,00,000$$

(iv) Net working capital turnover ratio = 2.5

$$\frac{\text{Average creditors}}{\text{Average Daily Credit Purc}}$$

$$\frac{30,00,000}{\text{Net working capital}} = 2.5$$

$$\text{Net working capital} = 12,00,000$$

$$\text{Current Assets} - \text{Current Liabilities} = 12,00,000$$

$$\text{Current Assets} = 12,00,000 + \text{Current Liabilities} \quad \dots(1)$$

$$\text{Current ratio} = 2.5$$

$$\frac{\text{Current Assets}}{\text{Current Liabilities}} = 2.5$$

$$\text{Current Assets} = (2.5)\text{Current liabilities} \quad \dots(2)$$

Put value of current assets from equation (1) in equation (2)

$$12,00,000 + \text{Current liabilities} = (2.5)\text{Current liabilities}$$

$$(1.5)\text{Current liabilities} = 12,00,000$$

$$\text{Current liabilities} = 8,00,000$$

$$\text{Thus, from equation (1), Current Assets} = 12,00,000 + 8,00,000 = ₹20,00,000$$

(v) Total current assets = Debtors + Stock + Cash balance

$$20,00,000 = 5,00,000 + 4,00,000 + \text{cash balance}$$

$$\text{Cash balance} = ₹11,00,000$$

26. (a) Computation of Average Inventory

$$\text{Gross Profit} = 25\% \text{ of } 6,00,00,000 = ₹1,50,00,000$$

$$\text{Cost of goods sold (COGS)} = 6,00,00,000 - 1,50,00,000 = ₹4,50,00,000$$

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

$$6 = \frac{4,50,00,000}{\text{Average Stock}}$$

Average stock = ₹75,00,000

(b) Computation of Purchases

Purchases = COGS + Increase in Stock = 4,50,00,000 + 16,00,000 = ₹4,66,00,000

(c) Computation of Average Debtors

Let Credit Sales be ₹100

Cash sales = 25% of 100 = ₹25

Total Sales = 100 + 25 = ₹125

If total sales is ₹6,00,00,000, then credit sales = $\frac{6,00,00,000}{125} \times 100 = ₹4,80,00,000$

Thus, Cash Sales = ₹6,00,00,000 - ₹4,80,00,000 = ₹1,20,00,000

Debtors Turnover Ratio = $\frac{\text{Net Credit Sales}}{\text{Average Debtors}}$

$$8 = \frac{4,80,00,000}{\text{Average Debtors}}$$

Average Debtors = ₹60,00,000

(d) Computation of Average Creditors

Credit Purchases = Purchases — Cash Purchases

= 4,66,00,000 — 46,00,000 = ₹4,20,00,000

Creditors Turnover Ratio = $\frac{\text{Net Credit Sales}}{\text{Average Debtors}}$

$$10 = \frac{4,20,00,000}{\text{Average Creditors}}$$

Average Creditors = ₹42,00,000

(e) Computation of Average Payment Period

Average Payment Period = $\frac{\text{Average creditors}}{\text{Average Daily Credit Purchases}} = \frac{42,00,000}{(4,20,00,000 \div 365)} = 36.5 \text{ days}$

OR

Average Payment Period = 365/Creditors Turnover Ratio = 365/10 = 36.5 days

(f) Computation of Average Collection Period

Average Collection Period = $\frac{\text{Average Debtors}}{\text{Average Daily Credit Sales}} = \frac{60,00,000}{(4,80,00,000 \div 365)} = 45.625 \text{ days}$

OR

Average collection period = 365/Debtors Turnover Ratio = 365/8 = 45.625 days

(g) Computation of Current Assets

Current Ratio = $\frac{\text{Current Assets (CA)}}{\text{Current Liabilities (CL)}}$

$$2.4 = \frac{CA}{CL}$$

$$CL = CA/2.4$$

Working capital = Current Assets — Current liabilities

$$56,00,000 = CA - (CA/2.4)$$

$$CA = 96,00,000$$

(h) Computation of Current Liabilities

$$\text{Current liabilities} = 96,00,000 \div 2.4 = ₹40,00,000$$

27. Working Notes:

(i) Long term Debt

$$0.5 = \frac{\text{Long-term debt}}{\text{Net worth}} = \frac{\text{Long-term debt}}{₹1,00,000 + ₹1,00,000}$$

$$\therefore \text{Long term debt} = ₹1,00,000$$

(ii) Total assets

Total liabilities and Equity = Notes and payables + Long-term debt + Common stock + Retained earnings

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

$$\therefore \text{Total assets} = \text{Total liabilities and Equity} = ₹4,00,000$$

(iii) Sales and Cost of Goods sold

$$\text{Total asset turnover} = 2.5 = \frac{\text{Sales}}{\text{Total assets}} = \frac{\text{Sales}}{₹4,00,000}$$

$$\therefore \text{Sales} = ₹10,00,000$$

Cost of goods sold = (100% – Gross Profit margin) × Sales

$$= (100\% - 10\%) \times ₹10,00,000 = ₹9,00,000.$$

(iv) Current Assets

$$\text{Inventory turnover} = 9 = \frac{\text{Cost of goods sold}}{\text{Inventory}} = \frac{₹9,00,000}{\text{Inventory}}$$

$$\therefore \text{Inventory} = ₹1,00,000$$

$$\text{Average collection period} = 18 = \frac{\text{Receivables} \times 360}{\text{Sales}} = \frac{\text{Receivables} \times 360}{₹10,00,000}$$

$$\therefore \text{Accounts receivables} = ₹50,000$$

$$\text{Acid-test ratio} = 1 = \frac{\text{Cash} + \text{Accounts Receivable}}{\text{Notes and Payables}} = \frac{\text{Cash} + ₹50,000}{₹1,00,000}$$

$$\therefore \text{Cash} = ₹50,000$$

(v) Plant and equipment

$$= \text{Total Assets} - \text{Current Assets}$$

$$= ₹4,00,000 - (₹1,00,000 + ₹50,000 + ₹50,000) = ₹2,00,000$$

Balance Sheet

	₹		₹
Cash	50,000	Notes and payables	1,00,000
Accounts receivable	50,000	Long-term debt	1,00,000
Inventory	1,00,000	Common stock	1,00,000
Plant and equipment	2,00,000	Retained earnings	1,00,000
Total assets	4,00,000	Total liabilities and equity	4,00,000

28. (a) Current ratio = 4

$$\frac{\text{Current assets}}{\text{Current liabilities}} = 4$$

$$\text{Current assets} = 4 \times 3,10,000 = ₹12,40,000$$

(b) Acid test ratio = 2.5

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

$$\frac{12,40,000 - \text{Inventory}}{3,10,000} = 2.5$$

$$12,40,000 - \text{Inventory} = 7,73,000$$

$$\text{Inventory} = ₹4,65,000$$

(c) Inventory turnover ratio (on sales) = 6

$$\frac{\text{Sales}}{\text{Inventory}} = 6$$

$$\text{Sales} = 6 \times 4,65,000 = ₹27,90,000$$

(d) Debtors Collection period = 70 days

$$\frac{\text{Debtors}}{\text{Sales}} \times 360 = 70$$

$$\text{Debtors} = \frac{70}{360} \times 27,90,000 = ₹5,42,500$$

(e) Total assets turnover ratio (on sales) = 0.96

$$\frac{\text{Sales}}{\text{Total assets}} = 0.96$$

$$\frac{27,90,000}{\text{Total assets}} = 0.96$$

$$\text{Total assets} = ₹29,06,250$$

(f) Fixed assets = Total assets – current assets = 29,06,250 – 12,40,000 = ₹16,66,250

(g) Cash ratio $\frac{\text{Cash}}{\text{Current liabilities}} = 0.43$

$$\text{Cash} = 0.43 \times 29,06,250 = ₹1,33,300$$

$$(h) \text{ Proprietary ratio} = \frac{\text{Proprietary fund}}{\text{Total assets}} = 0.48$$

$$\frac{\text{Proprietary fund}}{29,06,250} = 0.48$$

$$\text{Proprietary fund} = ₹13,95,000$$

$$(i) \text{ Equity dividend coverage ratio} = 1.6$$

$$\frac{\text{Earning for Equity}}{\text{Equity Dividend}} = 1.6$$

$$\text{Earning for Equity} = 1.6 (\text{Equity Dividend})$$

Divide both side by number of shares

$$\frac{\text{Earning for Equity}}{\text{No. of equity shares}} = 1.6 \times \frac{\text{Equity Dividend}}{\text{No. of equity shares}}$$

$$\text{EPS} = 1.6 (\text{DPS})$$

$$\text{DPS} = \frac{3.5}{1.6}$$

$$\text{DPS} = ₹2.1875$$

$$(j) \text{ DPS} = \frac{\text{Total Dividend}}{\text{No. of equity shares}}$$

$$2.1875 = \frac{1,75,000}{\text{No. of equity shares}}$$

$$\text{No. of equity shares} = 80,000$$

$$\text{Equity share capital} = 80,000 \times 10 = ₹8,00,000$$

$$\text{Reserve \& Surplus} = 13,95,000 - 8,00,000 = ₹5,95,000$$

$$(k) \text{ Loans and advances} = \text{Current assets} - \text{Inventory} - \text{Receivables} - \text{Cash \& Bank} \\ = 12,40,000 - 4,65,000 - 5,42,500 - 1,33,000 = ₹99,200$$

Balance Sheet as on 31st March, 2023

Liabilities	₹	Assets	₹
Equity share capital (₹10 per share)	8,00,000	Fixed assets	16,66,250
Reserve & surplus	5,95,000	Inventory	4,65,000
Long-term debt (Bal. fig.)	12,01,250	Debtors	5,42,500
Current liabilities	3,10,000	Loans & advances	99,200
		Cash & bank	1,33,300
Total	29,06,250	Total	29,06,250

$$29. \text{ Equity} = 2,00,000$$

$$\text{Total Debt} = \text{Equity} \times 0.75 = 2,00,000 \times 0.75 = ₹1,50,000$$

$$\text{Current Debt} = \text{total Debt} \times 0.40 = 1,50,000 \times 0.40 = ₹60,000$$

Long term debt = 1,50,000 – 60,000 = ₹90,000

Fixed Assets = Equity × 0.60 = 2,00,000 × 0.60 = ₹1,20,000

Total Assets = Total Liabilities = Equity + Total Debt = 2,00,000 + 1,50,000 = ₹3,50,000

Current Assets = Total Assets – Fixed Assets = 3,50,000 – 1,20,000 = ₹2,30,000

Sales = 2 × Total Assets = 2 × 3,50,000 = ₹7,00,000

Inventory = $\frac{\text{Sales}}{\text{ITR}} = \frac{7,00,000}{8} = ₹87,500$

Other CA = Current Assets – Inventory = 2,30,000 – 87,500 = ₹1,42,500

Equity	2,00,000	Fixed Assets	1,20,000
Long Term Debt	90,000	Inventory	87,500
Current Debts	60,000	Other CA	1,42,500
	3,50,000		3,50,000

30. 1. Current Ratio = 3:1

Current Assets (CA)/Current Liability (CL) = 3:1

CA = 3CL

WC = 10,00,000

CA – CL = 10,00,000

3CL – CL = 10,00,000

2CL = 10,00,000

CL = $\frac{10,00,000}{2}$

CL = ₹5,00,000

CA = 3 × 5,00,000

CA = ₹15,00,000

2. Acid Test Ratio = CA- Stock /CL = 1:1

$= \frac{15,00,000 - \text{Stock}}{5,00,000} = 1$

15,00,000 – stock = 5,00,000

Stock = ₹10,00,000

3. Stock Turnover ratio (on sales) = 5

$\frac{\text{Sales}}{\text{Avg stock}} = 5$

$\frac{\text{Sales}}{10,00,000} = 5$

Sales = ₹50,00,000

4. Gross Profit = 50,00,000 × 40% = ₹20,00,000

Net profit (PBT) = 50,00,000 × 10% = ₹5,00,000

5. $PBIT/PBT=2.2$
 $PBIT = 2.2 \times 5,00,000$
 $PBIT = 11,00,000$
 $Interest = 11,00,000 - 5,00,000 = ₹6,00,000$
 $Long\ term\ loan = \frac{6,00,000}{0.12} = ₹50,00,000$
6. Average collection period = 30 days
 $Receivables = \frac{30}{360} \times 50,00,000 = 4,16,667$
7. Fixed Assets Turnover Ratio = 0.8
 $50,00,000 / \text{Fixed Assets} = 0.8$
 $\text{Fixed Assets} = ₹62,50,000$

Income Statement

	(₹)
Sales	50,00,000
Less: Cost of Goods Sold	30,00,000
Gross Profit	20,00,000
Less: Operating Expenses	9,00,000
Less: Interest.	6,00,000
Net Profit	5,00,000

Balance sheet

Liabilities	(₹)	Assets	(₹)
Equity share capital	22,50,000	Fixed asset	62,50,000
Long term debt	50,00,000	Current assets:	
Current liability	5,00,000	Stock 10,00,000	
		Receivables 4,16,667	
		Other 83,333	15,00,000
	77,50,000		77,50,000

31. Balance Sheet of ABC Industries as on 31st March, 2021

Liabilities	₹	Assets	₹
Equity Share Capital	20,00,000	Fixed assets	30,32,222
Reserve & surplus	10,00,000	Inventories	9,77,7778
Long-term debts	9,00,000	Accounts receivable	8,00,000
Accounts payable	11,00,000	Cash	1,90,000
Total	50,00,000	Total	50,00,000

Note:

Working Notes:

(1) Total liabilities = Total assets = ₹50,00,000

$$\frac{\text{Debt}}{\text{Total Assets}} = 0.40 = \frac{\text{Debt}}{50,00,000} = 0.40$$

Debt = ₹20,00,000

(2) Reserve & Surplus = Total liabilities – Equity capital – Debt
= 50,00,000 – 20,00,000 – 20,00,000 = ₹10,00,000

(3) $\frac{\text{Long term debt}}{\text{Equity shareholder fund}} = 30\% = \frac{\text{Long term debt}}{(20,00,000 + 10,00,000)} = 30\%$

Long term debt = ₹9,00,000

(4) Accounts payable = total debt – long term debt = 20,00,000 – 9,00,000 = ₹11,00,000

(5) COGS ratio = 100 – GP Ratio = 100 – 20% = 80% of sales

(6) Sales = $\frac{\text{Cost of goods sold}}{\text{COGS Ratio}} = \frac{64,00,000}{80\%} = ₹80,00,000$

(7) Closing inventory = $\frac{\text{Cost of goods sold}}{\text{Inventory days}} \times 360 = \frac{64,00,000}{55} \times 360 = ₹9,77,778$

(8) Account receivables = $\frac{\text{Credit sales}}{\text{Account receivable period}} \times 360 = \frac{80,00,000}{36} \times 360 = ₹8,00,000$

(9) Quick ratio = $\frac{\text{Quick assets}}{\text{Current liabilities}}$

$$0.90 = \frac{\text{Cash + Debtors}}{11,00,000}$$

Cash + 8,00,000 = 9,90,000

Cash = ₹1,90,000

(10) Fixed assets = Total assets – current assets = 50,00,000 – (9,77,778 + 8,00,000 + 1,90,000)
= ₹30,32,222

32. Balance Sheet of Moon Ltd.

Liabilities	₹	Assets	₹
Net Worth	9,00,000	Fixed Assets	8,50,000
Current Liabilities	1,00,000	Stock	50,000
		Debtors	40,000
		Cash	60,000
Total Liabilities	10,00,000	Total Assets	10,00,000

Working Notes:

$$\begin{aligned}\text{Sales} &= \text{Gross profit} \div \text{Gross Profit Margin} \\ &= 60,000 \div 20\% = ₹3,00,000\end{aligned}$$

$$\begin{aligned}\text{Total Assets} &= \text{Sales} \div \text{Total Assets Turnover} \\ &= 3,00,000 \div 0.30 = ₹10,00,000\end{aligned}$$

$$\begin{aligned}\text{Net Worth} &= 0.90 \times \text{Total Assets} \\ &= 0.90 \times 10,00,000 = ₹9,00,000\end{aligned}$$

$$\begin{aligned}\text{Current Liability} &= \text{Total Assets} - \text{Net Worth} \\ &= 10,00,000 - 9,00,000 = ₹1,00,000\end{aligned}$$

$$\begin{aligned}\text{Current Assets} &= 1.5 \times \text{Current Liabilities} \\ &= 1.5 \times 1,00,000 = ₹1,50,000\end{aligned}$$

$$\begin{aligned}\text{Liquid Assets} &= \text{Current Liabilities} \times 1 \\ &= 1,00,000 \times 1 = ₹1,00,000\end{aligned}$$

$$\begin{aligned}\text{Stock} &= \text{Current Assets} - \text{Liquid Assets} \\ &= 1,50,000 - 1,00,000 = ₹50,000\end{aligned}$$

$$\begin{aligned}\text{Debtors} &= \text{Credit sales} \times (\text{Average collection period} \div 12) \\ &= 3,00,000 \times 0.80 \times (60/360) = ₹40,000\end{aligned}$$

$$\begin{aligned}\text{Cash} &= \text{Current Assets} - \text{Stock} - \text{Debtors} \\ &= 1,50,000 - 50,000 - 40,000 = ₹60,000\end{aligned}$$

$$\begin{aligned}\text{Fixed assets} &= \text{Total Assets} - \text{Current Assets} \\ &= 10,00,000 - 1,50,000 = ₹8,50,000\end{aligned}$$

$$33. (i) \text{ Change in Reserve \& Surplus} = ₹25,00,000 - ₹20,00,000 = ₹5,00,000$$

$$\text{So, Net profit} = ₹5,00,000$$

$$\text{Net Profit Ratio} = 8\%$$

$$\therefore \text{Sales} = \frac{5,00,000}{8\%} = ₹62,50,000$$

$$(ii) \text{ Cost of Goods sold}$$

$$= \text{Sales} - \text{Gross profit Margin} = ₹62,50,000 - 20\% \text{ of } ₹62,50,000 = ₹50,00,000$$

$$(iii) \text{ Fixed Assets} = \frac{₹30,00,000}{40\%} = ₹75,00,000$$

$$(iv) \text{ Stock} = \frac{\text{Cost of Goods Sold}}{\text{Stock Turnover ratio}} = \frac{50,00,000}{4} = ₹12,50,000$$

$$(v) \text{ Debtors} = \frac{62,50,000}{360} \times 90 = ₹15,62,500$$

$$(vi) \text{ Cash Equivalent} = \frac{50,00,000}{12} \times 1.5 = ₹6,25,000$$

Balance Sheet as on 31st March 2023

Liabilities	(₹)	Assets	(₹)
Share Capital	40,00,000	Fixed Assets	75,00,000
Reserve and Surplus	25,00,000	Sundry Debtors	15,62,500
Long-term loan	30,00,000	Closing Stock	12,50,000
Sundry Creditors	14,37,500	Cash in hand	6,25,000
(Balancing Figure)			
	1,09,37,500		1,09,37,500

34.

Liabilities	(₹)	Assets	(₹)
Equity share capital	12,50,000	Fixed assets (cost)	20,58,000
Reserve & Surplus	2,50,000	Less: Accumulated depreciation	(3,43,000)
Long term loans	6,75,000	Fixed assets (WDV)	17,15,000
Bank overdraft	60,000	Stock	2,30,000
Creditors	4,00,000	Debtors	2,62,500
		Cash	4,27,500
Total	26,35,000	Total	26,35,000

Working Notes:

(1) $\text{COGS} = \text{Sales} - \text{GP} = 21,00,000 - 20\% = ₹16,80,000$

(2) $\text{Receivable turnover velocity} = \frac{\text{Average receivables}}{\text{Credit sales}} \times 12$

$$2 = \frac{\text{Average receivables}}{21,00,000 \times 75\%} \times 12$$

Average receivables = ₹2,62,500

Closing receivables = ₹2,62,500

(3) $\text{Stock turnover velocity} = \frac{\text{Average stock}}{\text{COGS}} \times 12$

$$1.5 = \frac{\text{Average stock}}{16,80,000} \times 12$$

Average stock = ₹2,10,000

$$\frac{\text{Opening stock} + \text{closing stock}}{2} = 2,10,000$$

Opening stock + closing stock = 4,20,000

Given that, closing stock = opening stock + 40,000

Opening stock + opening stock + 40,000 = 4,20,000

Opening stock = ₹1,90,000

Closing stock = 1,90,000 + 40,000 = ₹2,30,000

$$(4) \text{ Current ratio} = \frac{\text{Current assets}}{\text{Current liabilities}} = \frac{\text{Stock} + \text{Receivables} + \text{cash}}{\text{Bank overdraft} + \text{creditors}}$$

$$2 = \frac{2,30,000 + 2,62,500 + \text{cash}}{60,000 + \text{creditors}}$$

$$1,20,000 + 2(\text{Creditors}) = 4,92,500 + \text{cash}$$

$$\text{Cash} = 2(\text{Creditors}) - 3,72,500$$

...(1)

$$\text{Acid test ratio} = \frac{\text{Current assets} - \text{stock}}{\text{Current liabilities}} = \frac{\text{Debtors} + \text{Cash}}{\text{Bank overdraft} + \text{creditors}}$$

$$\frac{3}{2} = \frac{2,62,500 + \text{Cash}}{60,000 + \text{creditors}}$$

$$1,80,000 + 3(\text{Creditors}) = 5,25,000 + 2(\text{Cash})$$

Putting value of cash from equation (1) in equation (2)

$$1,80,000 + 3(\text{Creditors}) = 5,25,000 + 2[2(\text{creditors}) - 3,72,500]$$

$$1,80,000 + 3(\text{Creditors}) = 5,25,000 + 4(\text{Creditors}) - 7,45,000$$

$$\text{Creditors} = ₹4,00,000$$

$$\text{Cash} = 2(4,00,000) - 3,73,500 = ₹4,27,500$$

$$(5) \text{ Long term debt} = 45\% \text{ of net worth}$$

$$\text{Net worth} = \frac{\text{Long term debt}}{45\%} = \frac{6,75,000}{45\%} = ₹15,00,000$$

$$(6) \text{ Equity share capital (ESC) + Reserves} = 15,00,000$$

$$\text{ESC} + (0.2)\text{ESC} = 15,00,000$$

$$\text{ESC} = ₹12,50,000$$

$$\text{Reserves} = 0.2 \cdot 12,50,000 = ₹2,50,000$$

$$(7) \text{ Total of liabilities} = 12,50,000 + 2,50,000 + 6,75,000 + 60,000 + 4,00,000 = 26,35,000$$

$$\text{Total of assets} = \text{Fixed assets (WDV)} + 2,30,000 + 2,62,500 + 4,27,500$$

$$= \text{FA(WDV)} + 9,20,000$$

$$\text{Total assets} = \text{Total liabilities}$$

$$\text{FA(WDV)} + 9,20,000 = 26,35,000$$

$$\text{Fixed assets (WDV)} = ₹17,15,000$$

$$\text{FA (Cost)} - \text{Depreciation} = \text{FA (WDV)}$$

$$\text{FA (Cost)} - \frac{\text{FA (Cost)}}{6} = 17,15,000$$

$$\left(\frac{5}{6}\right) \text{FA (Cost)} = 17,15,000$$

$$\text{FA (Cost)} = ₹20,58,000$$

$$\text{Depreciation} = 20,58,000 \cdot 1/6 = ₹3,43,000$$

35.

Balance Sheet of Rudra Ltd.

Liabilities	(₹)	Assets	(₹)
Capital	10,00,000	Fixed Assets	30,00,000
Reserves	20,00,000	Current Assets:	
Long Term Loan @ 10%	30,00,000	Stock in Trade	20,00,000
Current Liabilities:		Debtors	20,00,000
Creditors	10,00,000	Cash	5,00,000
Other Short-term	2,00,000		
Current Liability (Other STCL)			
Outstanding Interest	3,00,000		
	75,00,000		75,00,000

Working Notes:

Let sales be ₹ x

Balance Sheet of Rudra Ltd.

Liabilities	(₹)	Assets	(₹)
Capital		Fixed Assets	x/4
Reserves		Current Assets:	
Net Worth	x/4	Stock in Trade	x/6
Long Term Loan@10%	x/4	Debtors	x/6
		Cash	5,00,000
Current liabilities:			
Creditors	x/12		
Other Short-term Current Liability			
Outstanding Interest			
Total Current Liabilities	x/9+5,00,000/3		
Total		Total	

$$1. \text{ Fixed Asset Turnover} = 4 = \frac{x}{\text{Fixed Assets}}$$

$$\text{Fixed Assets} = \frac{x}{4}$$

$$2. \text{ Stock Turnover} = 6 = \frac{x}{\text{stock}}$$

$$\text{Stock} = \frac{x}{6}$$

$$3. \text{ Sales to net worth} = 4 = \frac{x}{\text{net worth}}$$

$$\text{Net worth} = \frac{x}{4}$$

$$4. \text{ Debt: Equity} = 1:1 \frac{\text{Long Term Loan}}{\text{Net worth}} = \frac{1}{1}$$

$$\text{Long term loan} = \text{Net worth} = \frac{x}{4}$$

$$5. \text{ Gross Profit to Cost} = 20\%$$

$$\frac{\text{GP}}{\text{Sales} - \text{GP}} = 20\%$$

$$\frac{\text{GP}}{x - \text{GP}} = 20\%$$

$$\text{GP} = 0.2x - 0.2\text{GP}$$

$$1.2\text{GP} = 0.2x$$

$$\text{GP} = \frac{0.2x}{1.2}$$

$$\text{GP} = x/6$$

$$\text{Cost of Goods Sold} = x - x/6 = 5/6x$$

$$6. \text{ COGS to creditors} = 10:1$$

$$\frac{\text{COGS}}{\text{Creditors}} = \frac{10}{1}$$

$$\frac{\frac{5}{6}x}{\text{Creditors}} = \frac{10}{1}$$

$$\text{Creditors} = \frac{5x}{60} = \frac{x}{12}$$

$$7. \frac{\text{Stock}}{\text{Debtor}} = 1$$

$$\text{Debtor} = \text{Stock} = \frac{x}{6}$$

$$8. \text{ Current Ratio} = 3:1$$

$$\frac{\text{Stock} + \text{Debtors} + \text{Cash}}{\text{Current Liabilities}} = \frac{3}{1}$$

$$\frac{\frac{x}{6} + \frac{x}{6} + 5,00,000}{\text{Current Liabilities}} = 3 = \frac{\frac{x}{3} + 5,00,000}{3} = \text{CL}$$

$$\text{CL} = \frac{x}{9} + \frac{5,00,000}{3}$$

9. $CA = 3CL$

$$= 3 \left(\frac{x}{9} + \frac{₹5,00,000}{3} \right)$$

$$CA = \frac{x}{3} + 5,00,000$$

10. Net worth + Long Term Loan + Current Liability = Fixed Asset + Current Assets

$$\frac{x}{4} + \frac{x}{4} + \frac{x}{9} + \frac{₹5,00,000}{3} = \frac{x}{4} + \frac{x}{3} + ₹5,00,000$$

$$\frac{x}{4} + \frac{x}{9} - \frac{x}{3} = ₹5,00,000 - \frac{₹5,00,000}{3}$$

$$\frac{9x + 4x - 12x}{36} = \frac{₹15,00,000 - ₹5,00,000}{3}$$

$$\frac{x}{36} = \frac{₹10,00,000}{3}$$

$$x = ₹1,20,00,000$$

11. Now, from above calculations, we get,

$$\text{Fixed Asset} = \frac{x}{4} = \frac{₹1,20,00,000}{4} = ₹30,00,000$$

$$\text{Stock} = \frac{x}{6} = \frac{₹1,20,00,000}{6} = ₹20,00,000$$

$$\text{Debtor} = \frac{x}{6} = \frac{₹1,20,00,000}{6} = ₹20,00,000$$

$$\text{Net Worth} = \frac{x}{4} = ₹30,00,000$$

Now, Capital to Reserve is 1:2

$$\text{Capital} = ₹10,00,000$$

$$\text{and, Reserve} = ₹20,00,000$$

$$\text{Long Term Loan} = \frac{x}{4} = 30,00,000$$

$$\text{Outstanding Interest} = 30,00,000 \times 10\% = 3,00,000$$

$$\text{Creditors} = \frac{x}{12} = \frac{₹1,20,00,000}{12} = ₹10,00,000$$

$$\text{Current Liabilities} = \text{Creditors} + \text{Other STCL} + \text{Outstanding Interest}$$

$$\frac{x}{9} + \frac{₹5,00,000}{3} = ₹10,00,000 + \text{Other STCL} + ₹3,00,000$$

$$\frac{₹1,20,00,000}{9} + \frac{₹5,00,000}{3} = ₹13,00,000 + \text{Other STCL}$$

$$₹15,00,000 = \text{Other STCL} + ₹13,00,000$$

$$\text{Other STCL} = ₹2,00,000$$