1. BALANCE SHEET RATIOS

Current Ratio :

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

a) **Current assets** includes I) Inventories of raw materials, finished goods, work-in-progress, stores & spare, loose tools, II) Sundry debtors, III) Short-term loan, deposits, advance, IV) Cash on hand and bank, V) Prepaid expenses, accrued income, VI) Bills receivables, VII) Marketable investments, short term securities.

b) **Current liabilities** includes sundry creditors, bills payables, outstanding expenses, unclaimed dividends, interest accrued but not due on secured and unsecured loans, advances received, income received in advance, provision for tax, purposed dividend loan installment of secured and unsecured loan payable within 12 months.

Liquid ratio :

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

a) **Liquid assets** = Current assets less (Stock, prepaid expenses and advance tax etc)

b) **Liquid liabilities** = Current liabilities less (Bank overdraft and cash credit etc)

Proprietary ratio :

a) **Formula :-**

$$\text{Proprietary Ratio} = \frac{\text{Proprietors' or Shareholders' Fund}}{\text{Total Assets}} \; 100$$

b) **Components :-**

1) Proprietors Funds = Paid up equity + Reserves and surplus less accumulated loss + paid up preference capital.
2) Total assets = Fixed assets + investment + current assets.

Stock-working capital ratio :

a) Formula :-

$$\text{Stock-Working Capital Ratio} = \frac{\text{Stock}}{\text{Working Capital}}$$

b) Components :-

1) Stock (closing stock)
2) Working capital i.e. current assets less current liabilities.

It can be expressed in percentage also by multiplying this ratio by 100.

Capital Gearing Ratio :

a) Formula :-

$$\text{Capital Gearing Ratio} = \frac{\text{Capital bearing Fixed Interest or dividend}}{\text{Capital not bearing Fixed Interest or dividend}}$$

Debt Equity Ratio :

a) Formula :-

$$\text{Debt equity ratio} = \frac{\text{Debt}}{\text{Equity}} \quad \text{OR} \quad \frac{\text{Long Term Debts}}{\text{Shareholders Fund}} \quad \text{OR}$$

$$\frac{\text{Long Term Debts}}{\text{Shareholders Funds + Long Term Debts}}$$

b) Components :-

1) Debts include all liabilities including short term & long term i.e. mortgage loan and debentures.
2) Shareholders' funds consist of Preference share capital, Equity share capital, Capital and Revenue Reserves, Surplus, etc.

2. REVENUE STATEMENT RATIOS: -

Gross profit ratio :

a) Formula :-

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

b) Components of this ratio are:-

1) Net sales = Total sales less sales return
2) Gross profit = Sales - Cost of sales
3) Cost of sales = (opening stock + purchases + direct labour + other direct charge) - closing stock

Operating Ratio :

a) Formula :-

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

b) Components :- Operating cost is equal to cost of goods sold and other operating expenses like administrative expenses, selling & distribution expenses etc. excluding finance expenses, income taxes, loss on sale of assets, etc.

Expenses Ratio :

a) Formula :-

$$\text{Expenses Ratio} = \frac{\text{Item or Group of Expenses}}{\text{Net sales}}\ 100$$

b) Various expenses ratios are as follows :-

1) Administrative expenses ratio=

$$\frac{\text{Administrative expenses}}{\text{Net sales}} \times 100$$

2) Selling & Dist. expenses ratio =

$$\frac{\text{Selling \& Dist. expenses}}{\text{Net sales}} \times 100$$

3) Cost of material consumed ratio=

$$\frac{\text{Cost of material consumed}}{\text{Net sales}} \times 100$$

4) Manufacturing expenses ratio =

$$\frac{\text{Manufacturing expenses}}{\text{Sales}} \times 100$$

5) Non-operating expenses ratio =

$$\frac{\text{Non operating expenses}}{\text{Net sales}} \times 100$$

Net profit ratio :-

a) **Formula :-**Net profit ratio $= \frac{\text{Net profit}}{\text{Net sales}}$ 100 OR $\frac{\text{NPAT}}{\text{Net sales}}$ 100

OR $\frac{\text{NPDT}}{\text{Net sales}} \text{x}100$ OR $\frac{\text{ONP}}{\text{Net Sale}} \text{x}100$

Net operating profit ratio :

a) **Formula :-**

$$\text{Net operating profit ratio} = \frac{\text{Net operating profit}}{\text{Net sales}} \text{x } 100$$

b) **Components :-**

1) Net operating profit is equal to gross profit minus all operating expenses or sales minus cost of goods sold and operating expenses.
2) Net sales are equal to sales minus sales returns.

Stock Turnover Ratio :

a) **Formula :-**

$$\text{Stock Turnover Ratio} = \frac{\text{Cost of goods sold}}{\text{Average stock}}$$

b) **Components :-**

1) Cost of goods sold = Sales – Gross Profit
2) $\text{Average Stock} = \frac{\text{Opening stock + closing stock}}{2}$

* If opening stock is not given, the closing stock is treated as average stock.

3. COMBINE RATIO / COMPOSITE RATIOS :-

Return on capital employed :

a) Formula :-

$$\text{Return on capital employed} = \frac{\text{Profit before tax Interest}}{\text{Capital Employed}} \quad 100$$

b) Components :-

1) Net profit before tax, interest & dividends (PBIT)

2) Capital employed

Capital employed = i) Equity share capital

ii) Add.Preference share capital reserve & surplus

iii) Add. Long term borrowings (Term loan + Debentures)

Return on Proprietors Funds :

This ratio measures the relationship between net profit after tax & interest and proprietors fund. This ratio is alternatively known as "Return on proprietors' equity" or "Return on shareholders' investment" or "Investors' ratio". This ratio is expressed in percentage.

a) Formula :-

$$\text{Return on Proprietor's Fund} = \frac{\text{Net profit after tax \& Interest (NPATI)}}{\text{Proprietors' Fund}} \times 100$$

b) Components :-

1) Net profit after tax and interest
2) Proprietors' funds

Return on equity share capital :

a) Formula :-

$$\text{Return on Equity Capital} = \frac{\text{Net profit after tax less preference dividend}}{\text{Equity share capital}} \times 100$$

Alternatively this ratio may be calculated by using following formula for calculating the return per equity shares.

$$\text{Return on Equity Shares} = \frac{\text{Net profit after tax less preference dividend}}{\text{Number of Equity share}}$$

b) Components :-

1) Net profit after tax & interest and preference dividend.
2) Equity share capital by adding reserves or deducting miscellaneous expenditures.

Earning per share :

a) Formula :-

$$\text{Earning per shares (EPS)} = \frac{\text{Net profit after tax - preference dividend}}{\text{Number of Equity share}}$$

b) Components :-

1) Net profit after tax & interest - less preference dividend.
2) No. of equity shares.

Dividend payout ratio :

This ratio shows relationship between dividends paid to equity shareholders out of profit available to the equity share holders.

a) Formula: -

This ratio is calculated as follows.

$$\text{Dividend payout ratio} = \frac{\text{Dividend per equity shares}}{\text{Earning per shares}}$$

b) Components: -

1) Dividend per equity shares means total dividend paid to equity shareholder dividend by number of equity shares.

2) Earning per shares as per Para 3.8.4.

Price earnings ratio (P/E Ratio) :

This ratio measures relationship between market price of equity shares and earnings per share. It is usually expressed as a fraction.

a) Formula: -

$$\text{Price Earning Ratio} = \frac{\text{Market price per Equity shares}}{\text{Earning per Equity shares}}$$

b) Components: -

1) Market price per equity share = quoted price of a listed equity share.
2) Earnings per equity share = as worked out in Para 3.8.4.

Debt service Ratio :

Debt service ratio shows relationship between net profit and interest payable on loans. This ratio is also called as interest coverage ratio. This ratio is expressed as a pure number.

a) Formula :-

$$\text{Debt service ratio} = \frac{\text{Net profit before interest \& tax}}{\text{Interest charges}}$$

b) Components :-

1) Profit before interest & tax means net profit before payment of interest on loan and tax.
2) Interest means interest on long term loans.

Debt service coverage ratio :

Debt service coverage ratio shows the relationship between net profit and interest plus loan installments payable. This ratio is expressed in pure number.

a) Formula :-

$$\text{Debt service coverage Ratio} = \frac{\text{Cash profit available for debt servicing}}{\text{Interest + Installment due on loan}}$$

b) Components :-

1) Net profit + non-cash debit to P & L A/c (depreciation + goodwill written off, deferred revenue expenditure written off, loss on sale of fired assets) = cash profit for debit servicing.
2) Interest means interest on long term loan.
3) Installments means installments due on long term loan during the year.

Creditors Turnover Ratio :

This ratio shows relationship between the net credit purchases and the average creditors. This ratio is express as a rate.

a) Formula :-

$$\text{Creditors' Turnover Ratio} = \frac{\text{Net credit purchases}}{\text{Average creditors}} \quad \text{OR} \quad \frac{\text{Credit purchases}}{\text{Creditors + Bills payable}}$$

$$\text{Credit payment period OR (Creditors velocity)} = \frac{\text{365 day or 12 months}}{\text{Creditors turnover ratio}} \quad \text{OR}$$

$$= \frac{\text{Creditors + Bills payable}}{\text{Daily credit purchases}}$$

b) Components: -

1) Credit purchases means gross credit purchases minus purchases returns.

2) Average creditors mean average of opening and closing amount of creditors. If details are not given then only closing creditors may be considered as average creditors.

3) Amount of bills payable.

Debtors' Turnover Ratio :

a) Formula :-

$$\text{Debtors turnover ratio} = \frac{\text{Credit sales}}{\text{Average debtors}} \quad \text{OR} \quad \frac{\text{Credit sales}}{\text{Accounts receivable}}$$

$$\text{OR} \quad \frac{\text{Credit sales}}{\text{Debtors + Bills receivable}}$$

$$\text{Average collections period} = \frac{\text{Debtors + Bills Receivable}}{\text{Daily credit sales}} \quad \text{OR}$$

$$\frac{\text{365 days or 12 months}}{\text{Debtors turnover ratio}} \quad \text{OR} \quad \frac{\text{365 days}}{\text{Credit sales}} \quad \text{Average debtors}$$

b) Components :-

1) Sundry debtors
2) Accounts receivables i.e. bills receivables.
3) Average daily sales.

Ex.1 Following is the trading and profit and loss account for the year ended 31st march 2014 and balance sheet as on that date of Sun. ltd.

Trading and profit and loss account for the year ended 31st march 2014.

Particulars	**Amt.**	**Particulars**	**Amt.**
To Opening Stock	2,50,000	By Sales (Credit)	37,00,000
To Purchases	26,00,000	By Closing Stock	5,00,000
To Gross Profit c/d	13,50,000		
Total	**42,00,000**	**Total**	**42,00,000**
To Administration Exps.	2,70,000	By Gross Profit	13,50,000
To Interest	72,000	By Profit on sale of Assets	50,000
To Rent	60,000		
To Selling Exps	1,00,000		
To Depreciation	1,20,000		
To Provision for I.Tax	2,78,000		
To Proposed Dividend	1,00,000		
To Net Profit	4,00,000		

Total	**14,00,000**		**14,00,000**

Balance sheet as on 31.3.2014

Liabilities	**Amt.**	**Assets**	**Amt.**
Equity Share Capital (Rs.10)	5,00,000	Fixed Assets (at cost)	12,40,000
11% Preference Sh. Capital	3,00,000	Short Term Capital	1,00,000
General Reserve	4,00,000	Trade Receivable	9,50,000
12% Debenture	6,00,000	(Last Year Rs. 9,00,000)	
Trade Payable	3,00,000	Inventories	5,00,000
Proposed Dividend	1,00,000	Cash and Bank	1,50,000
Bank Overdraft	2,00,000	Discount on Issue of Shares	60,000
Provision For Depreciation	4,00,000		
Provision for Tax	2,00,000		
	30,00,000		**30,00,000**

From the above information calculate following ratios and comment on current ratio.

1. Current ratio
2. Inventory Turnover Ratio

3. Return on Proprietors Fund
4. Operating Ratio
5. Debtors Turnover Ratio
6. Capital Gearing Ratio
7. Dividend Payout Ratio

Assume 360 days in a year.

Note. : Drafting of Vertical Financial Statement is not expected.

Ans.:

S. No.	Ratio	Formula	Calculation	Ans.
1.	Current Ratio	CA / CL	1,700 / 800	2.13:1
2.	Inventory Turnover Ratio	COGS / Avg. Stock	2,350 / 375	6.27 Times
3.	Return On Proprietors Fund	NPAT / Prop. Fund x 100	500 / 1140 X100	43.86%
4.	Operating Ratio	COGS + Op. Exps + Int. / Net Sales X100	2,350 +550+72 / 3,700 x100	80.32%
5.	Debtors Turnover Ratio Debtors Collection Period	Credit Sales / Avg. A/c Receivable No. Days / ------------	3,700 / 925 360 / -----	4 Times 90 Days

		DTR	4	
6.	Capital Gearing Ratio	Pref. Cap + LTC --------------------- Equity Sh. Holder Fund	300+600 ------------ 840	1.07
7.	Dividend Payout Ratio	Eq. Dividend ----------------- Profit Available for Eq. Sh. Ho.	1,00,000 ------------ 5,00,000-33000	21.41%

Current Ratio is more than standard Current Ratio is more than standard current Ratio 2:1 This shows favorable short term financial position.

Ex.2 Following is the balance sheet of Bliss Happiness Ltd. as at 31st March 2013

Balance sheet as at 31.3.2013

Liabilities	**Amt.**	**Assets**	**Amt.**
Equity Share Capital	1,00,000	Machinery	2,96,000
General Reserve	70,000	Investment	1,12,000
10% Preference Capital	1,80,000	Stock In Trade	1,01,000
15% Debenture	1,20,000	Bills Receivable	20,000
Trade Payable	1,22,000	Trade Receivable	49,000
Bank Overdraft	20,000	Cash and Bank	38,000
Provision for Tax	18,000	Profit and Loss A/c	14,000
	6,30,000		**6,30,000**

Sale for the year Rs.7,00,000; Gross profit Rate 25% and Opening Stock is Rs.1,09,000. Profit before Tax for the year ending 31.3.13 is Rs.2,10,000.

You are required to compute the following ratios and comment on current ratio.

1. Current Ratio

2. Acid Test Ratio
3. Stock turnover Ratio
4. Capital Gearing Ratio
5. Proprietory Ratio
6. Debt Equity Ratio (Debt / Net worth)
7. Return on Capital Employed

Redrafting the given Balance sheet in vertical format is not expected.

Ans.

Current Ratio	Current Assets ------------------- Current Liabilities	1,01,000+20,000+49,000+38,000 --- 1,22,000+20,000+18,000	1.3
Acid Test Ratio	Liquid Assets ------------------ Quick Liabilities	20,000+49,000+38,000 ------------------------------- 1,22,000+18,000	.76
Stock Turnover	Cost of goods sold ---------------------- Op.+Cl. Stock /2	7,00,000-175,000 ------------------------ (1,09,000+1,01,000) /2	5Time
Capital Gearing Ratio	Fixed Int. Bearing Securities ----------------------------------- Eq. Sh Cap.+ Res& Surplus - Loss	1,80,000+1,20,000 --------------------------- 1,00,000+70,000-14,000	1.92
Proprietory Ratio	Proprietor’s Fund ----------------------- x100 Total Assets	1,00,000+1,80,000+70,000-14,000 --- x 100 2,96,000+1,12,000+2,08,000	54.44%
Debt Equity Ratio	Debt ----- Net Worth	1,20,000 ------------------------ 1,00,0000+1,80,000+70,000-14,000	.36
Return on	NPBIT	2,10,000+18000	50%

capital employed	--------------------- x100 Capital Employed	----------------------- x100 1,20,000+3,36,000	

Current ratio is 1:3. It is lower than the standard of 2:1. The current assets for every rupee of current liabilities. Current assets are not sufficient to pay current liabilities short tern solvency position of the company is not satisfactory.

Ex. 3 M/s Sumit Ltd. Presents the following Trading and Profit & Loss A/c for the year ended 31.3.2014 and balance sheet as on that date.

Trading and profit and loss account for the year ended 31.3.2014.

Particulars	Amt.	Particulars	Amt.
To Opening Stock	2,00,000	By Sales	12,00,000
To Purchases	5,00,000	By Closing Stock	4,00,000
To Wages	3,00,000		
To Gross Profit c/d	6,00,000		
	16,00,000		**16,00,000**
To Salaries	1,50,000	By Gross Profit b/d	6,00,000
To Rent	60,000	By Profit on sale of Investment	5,000
To Commission	12,000	By Interest	15,000
To Advertising Expenses	20,000		
To Interest	83,000		
To Depreciation	30,000		
To Provision For tax	50,000		
To Net Profit c/d	2,15,000		
	6,20,000		**6,20,000**
To Proposed Dividend	80,000	By balance b/f	1,85,000

To Preference Dividend	16,000	By Net profit b/d	2,15,000
To Balance c/d	3,04,000		
	4,00,000		**4,00,000**

Balance sheet as on 31.3.2014

Liabilities	**Amt.**	**Assets**	**Amt.**
Equity share capital (Rs.100)	8,00,000	Land and Building	6,00,000
8% Pref. Sh. Capital	2,00,000	Plant and Machinery	5,50,000
Reserve and surplus	3,04,000	Furniture	4,00,000
7% Debentures	5,00,000	Investment	2,70,000
Loan from IDBI	6,00,000	Stock	4,00,000
Creditors	1,50,000	Debtors	2,00,000
Bills Payable	50,000	Bills Receivable	1,60,000
Provision for tax	50,000	Advance tax	30,000
Dividend Payable	96,000	Prepaid expenses	40,000
		Cash in Hand	20,000
		Bank Balance	60,000
		Dis. On Issue of Debentures	20,000
	27,50,000		**27,50,000**

Additional Information:

1. The Market Price of equity shares as on 31.3.2014 was Rs.90.
2. Out of total sales, 30% are cash sales and out of total Purchases, 50% are credit purchases. You are required to calculate the following Ratios.

a) Return on capital employed

b) Price Earning ratio

d) Creditors Turnover Ratio

e) Return on Equity capital

c) Debt Service Ratio

Ans: Ans.

Return on Capital Employed	NOPBIT ------------------- x 100 Capital Employed	2,15,000+50,000+83,000-5000 -- x 100 (8,00,000+2,00,000+304,000-20,000) +(5,00,000+6,00,000)	14.39%
Creditors Turnover Payment Period	Credit Purchases ------------------ Av. Creditors + Bills payable 365 -------- CTR	2,50,000 ------------------------------ 2,00,000 365 -------- 1.25	1.25 Time 292 days
Price Earning ratio EPS	MP ------- EPS Net Profit – Pref. Div. ------------------------- No. of Equity Shares	90 ------ 24.88 2,15,000-16,000 ------------------------- 8,000	3.62 24.88
Return on Equity Capital	NPAT – Pref. Div. ---------------------------------- Eq. Sh Cap.	2,15,000- 16,000 -------------------------- x 100 8,00,000	24.875 %
Debt Service Ratio	NPBIT -------------- Interest	2,15,000+50,000+83,000 --- 83,000	4.19 times