8. RATIO ANALYSIS

SOLUTIONS TO ASSIGNMENT PROBLEMS

Problem No. 1

Gross Profit Rs.54,000

Gross Profit Margin 20%

$\therefore$ Sales = $\frac{\text{Gross Profit}}{\text{Gross Profit Margin}}$

= Rs.54,000 / 0.20 = Rs.2,70,000

Credit Sales to Total Sales = 80%

$\therefore$ Credit Sales = Rs.2,70,000×0.80 = Rs.2,16,000

Total Assets Turnover = 0.3 times

$\therefore$ Total Assets = $\frac{\text{Sales}}{\text{Total Assets Turnover}} = \frac{\text{Rs. 2,70,000}}{0.3} = \text{Rs. 9,00,000}$

Sales – Gross Profit = COGS

$\therefore$ COGS = Rs.2, 70,000 – 54,000 = Rs.2, 16,000

Inventory turnover = 4 times

Inventory = $\frac{\text{COGS}}{\text{Inventory turnover}} = \frac{2,16,000}{4} = \text{Rs. 54,000}$

Average Collection Period = 20 days

$\therefore$ Debtors turnover = $\frac{360}{\text{Average Collection Period}} = \frac{360}{20} = 18$

$\therefore$ Debtors = $\frac{\text{Credit Sales}}{\text{Debtors turnover}} = \frac{\text{Rs. 2,16,000}}{18} = \text{Rs. 12,000}$

Current ratio = 1.8

1.8 = $\frac{\text{Debtors} + \text{Inventory} + \text{Cash}}{\text{Creditors}}$

1.8 Creditors = (Rs.12,000 + Rs.54,000 + Cash)

1.8 Creditors = Rs.66,000 + Cash

Long-term Debt to Equity = 40%

Shareholders' Funds = Rs.6, 00,000

$\therefore$ Long-term Debt= Rs.6, 00,000 × 40% = Rs.2, 40,000

Creditors (Balance figure) = 9, 00,000 – (6, 00,000 + 2, 40,000) = Rs.60,000

$\therefore$ Cash = (60,000×1.8) – 66,000 = Rs.42,000

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Balance Sheet (in Rs.)

	Rs.		**Rs.**
Creditors (Bal. Fig)	60,000	Cash	42,000
Long- term debt	2,40,000	Debtors	12,000
Shareholders' funds	6,00,000	Inventory	54,000
		Fixed Assets (Bal fig.)	7,92,000
	9,00,000		**9,00,000**

Problem No. 2

Evaluation of Proposal:

Particulars		Rs.
	Sales	1,20,000
	Contribution [@10%]	12,000
Less:	Bad Debts [1,20,000X5%]	6,000
	EBT	6,000
Less:	Tax @ 30%	1,800
	EAT	4,200

Dec: Since, the expected profit is more than required rate of return [Rs.3375], proposal should be accepted.

Problem No. 3

Particulars	Computation of ratios	
	2012	2013
1.Gross Profit ratio		
Gross Profit /Sales	64000x100 / 3,00,000	76000x100 / 3,74,000
	21.30%	20.30%
2.Operating expense to Sale ratio		
Operating expenses/Total sales	49000X100 / 3,00,000	57000X100 / 3,74,000
	16.3%	15.2%
3.Operating Ratio		
Operating Profit/Total sales	15000X100 / 3,00,000	19000X100 / 3,74,000
	5%	5.08%
4.Capital Turnover Ratio		
Sales/Capital Employed	3,00,000 / 1,00,000	3,74,000 / 1,47,000
	= 3	= 2.54
5.Stock Turnover Ratio		
COGS /Average Stock	2,36,000 / 50,000	2,98,000 / 77,000
	4.7	3.9
6.Net Proft to Net Worth		

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Net Profit /Networth	15,000X100	17,000X100
	1,00,000	1,17,000
	15%	14.50%
7.Debtors Collection Period		
Average debtors/Average sales$	50,000	82,000
	739.73	936.99
(Refer to Working Note)	67.6 days	87.50 days

Working Notes:

Average daily sales = credit sales/365	270000 / 365	342000 / 365
	Rs.739.73	Rs.936.99

Analysis: The decline in the Gross profit ratio could be either due to a reduction in the selling price or increase in the direct expenses (since the purchase price has remained the same).Similarly there is decline in the ratio of operating expenses to sales .However since operating expenses have little bearing with sales ,a decline in this ratio cannot be necessarily be interpreted as in increase in operational efficiency .An in depth analysis reveals that the decline in the warehousing and the administrative expenses has been partly set off by an increase in the transport and the selling expenses .The operating profit ratio has remained the same in spite of a decline In the GP margin ratio. In fact the company has not benefited at all items of operational performance because of increase sales.

The company has not been able to deploy its capital efficiency. This is indicated by a decline in the capital turnover from 3 to 2.5 times .In case the capital turnover would have been remained at the company would have increased sales and profit by Rs.67000 to Rs.3350 respectively.

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

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

Problem No. 4

a) Inventory turnover = $\frac{\text{Cost of goods sold}}{\text{Average Inventory}}$

Since gross profit margin is 15 per cent, the cost of goods sold should be 85 per cent of the sales.

Cost of goods sold = 0.85 × Rs. 6,40,000 = Rs. 5,44,000.

Thus, = $\frac{\text{Rs. } 5,44,000}{\text{Average Inventory}} = 5$

Average inventory = $\frac{\text{Rs. } 5,44,000}{5}$ = Rs.1,08,800

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b) Average collection period = $\frac{\text{Average debtors}}{\text{Credit Sales}}$ X360

Average debtors = $\frac{(\text{Opening debtors} + \text{Closing debtors})}{2}$

Closing balance of debtors is found as follows:

	Rs.	Rs.
Current assets (2.5 of current liabilities)		2,40,000
Less: Inventories	48,000	
Cash	16,000	64,000
∴ Debtors		1,76,000

Average debtors = $\frac{(\text{Rs.}1,76,000 + \text{Rs.}\ 80,000)}{2}$

Rs. 2,56,000 ÷2 = Rs. 1,28,000

Average collection period = $\frac{\text{Rs.}1,28,000}{\text{Rs.}\ 6,40,000} \text{X}360 = 72 \text{ days}$

Problem No. 5

a)

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

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

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b)

Balance Sheet as on 31st March, 2013

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

Working Notes:

i) Share Capital and Reserves

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

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$\text{Networth X} \frac{25}{100} = \text{Rs.}3,75,000$

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

The ratio of share capital to reserves is 7:3

Share Capital = $15,00,000 X \frac{7}{10} = Rs.10,50,000$

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

ii) Debentures

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

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

iii) Current Assets

Current Ratio = 2

Sundry Creditors =Rs. 2,00,000

$\therefore$ Current Assets = 2 Current Liabilities = 2× 2,00,000 = Rs. 4,00,000

iv) Fixed Assets

Liabilities:	**Rs.**
Share capital	10,50,000
Reserves	4,50,000
Debentures	4,00,000
Sundry Creditors	2,00,000
	21,00,000
Less: Current Assets	4,00,000
Fixed Assets	17,00,000

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v) Composition of Current Assets

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Inventory Turnover = 12

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

Closing stock = $\frac{Rs.18,00,000}{12} = \text{Closing Stock} = Rs.1,50,000$

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

Problem No. 6

Workings Notes:

1. Net Working Capital = Current Assets – Current Liabilities = 2.5 – 1 = 1.5

Thus, Current Assets = $\frac{\text{Net Working Capital} \times 2.5}{1.5}$

$= \frac{Rs.4,50,000 \times 2.5}{1.5} = Rs.7,50,000$

Current Liabilities = Rs. 7,50,000 – Rs. 4,50,000 = Rs. 3,00,000

2. Sales = Total Assets Turnover × Total Assets

= 2 × (Rs. 10,00,000 + Rs. 7,50,000) = Rs. 35,00,000

3. Cost of Goods Sold = 100 – 20 = 80% of Sales = 80% of Rs.35,00,000 = Rs.28,00,000

4. Average Stock = $\frac{\text{Cost of Good Sold}}{\text{Stock Turnover Ratio}} = \frac{\text{Rs. 28,00,000}}{7} = \text{Rs.4,00,000}$

Closing Stock = (Average Stock ×2) – Opening Stock

= (Rs.4,00,000 × 2) – Rs.3,80,000 = Rs.4,20,000

Quick Assets = Current Assets – Closing Stock

= Rs.7,50,000 – Rs.4,20,000 = Rs.3,30,000

Net Worth = $\frac{\text{Total Assets (Debt + Equity) X 1.5}}{(1+1.5)} = \frac{\text{Rs.17,50,000 X 1.5}}{2.5} = \text{Rs.10,50,000}$

5. Profit after tax (PAT) = Total Assets × Return on Total Assets

= Rs.17,50,000 × 15% = Rs.2,62,500

i) Calculation of Quick Ratio

Quick Ratio = $\frac{\text{Quick Assets}}{\text{Current Liabilities}} = \frac{\text{Rs.3,30,000}}{\text{Rs.3,00,000}} = 1.1:1$

ii) Calculation of Fixed Assets Turnover Ratio

Fixed Assets Turnover Ratio = $\frac{\text{Sales}}{\text{fixed Assets}} = \frac{\text{Rs.35,00,000}}{\text{Rs.10,00,000}} = 3.5$

iii) Calculation of Proprietary Ratio

Proprietary Ratio = $\frac{\text{Net Worth}}{\text{Total Assets}} = \frac{\text{Rs.10,50,000}}{\text{Rs.17,50,000}} = 0.6:1$

iv) Calculation of Earnings per Equity Share (EPS)

Earnings per Equity Share (EPS) = $\frac{\text{PAT . Preference Share Dividend}}{\text{Number of Equity Shares}}$

$= \frac{\text{Rs.2,62,500} - \text{Rs.18,000}}{60,000} = \text{Rs.4.075 per share}$

v) Calculation of Price-Earnings Ratio (P/E Ratio)

P/E Ratio = $\frac{\text{Market Price of Equity Share}}{\text{EPS}} = \frac{\text{Rs.16}}{\text{Rs.4.075}} = 3.926$

Problem No. 7

ROE = [ROI + {(ROI – r) × D/E}] (1 – t)

= [0.20 + {(0.20 – 0.10) × 0.60}] (1 – 0.40)

=[0.20 + 0.06] × 0.60 = 0.1560

ROE = 15.60%

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Problem No. 8

Calculation of Fixed Assets and Proprietor's Fund

Since Ratio of Fixed Assets to Proprietor's Fund = 0.75

Therefore, Fixed Assets = 0.75 Proprietor's Fund

Net Working Capital = 0.25 Proprietor's Fund

6,00,000 = 0.25 Proprietor's Fund

Therefore, Proprietor's Fund $= \frac{\text{Rs.6,00,000}}{0.25} = \text{Rs.24,00,000}$

Proprietor's Fund = Rs.24,00,000

Since, Fixed Assets = 0.75 Proprietor's Fund

Therefore, Fixed Assets = 0.75 × 24,00,000 = Rs.18,00,000

Fixed Assets = Rs.18,00,000

Problem No. 9

The net profit is calculated as follows:

	Rs.
Sales Revenue	22,50,000
Less: Direct Costs	15,00,000
Gross Profits	7,50,000
Less: Operating Expense	2,40,000
EBIT	5,10,000
Less: Interest (9% × 7,50,000)	67,500
EBT	4,42,500
Less: Taxes (@ 40%)	1,77,000
PAT	2,65,500

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i) Net Profit Margin

Net Profit Margin = $\frac{\text{EBIT}(1-t)}{\text{Sales}} \text{X}100 = \frac{5,10,000 \text{ X}(1-0.4)}{22,50,000} = 13.6\%$

ii) Return on Assets (ROA)

ROA = EBIT (1− t) ÷ Total Assets

= 5,10,000 (1− 0.4) ÷ 25,00,000 = 3,06,000 ÷ 25,00,000

= 0.1224 = 12.24%

iii) Asset Turnover

Asset Turnover = $\frac{\text{Sales}}{\text{Assets}} = \frac{22,50,000}{25,00,000} = 0.9$

Asset Turnover = 0.9

iv) Return on Equity (ROE)

ROE = $\frac{\text{PAT}}{\text{Equity}} = \frac{2,65,500}{17,50,000} = 15.17\%$

ROE = 15.17%

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Problem No. 10

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

Quick Assets = Current Assets – Stock – Prepaid Expenses

= 30,50,000 – 21,60,000 –10,000

Quick Assets = 8,80,000

Quick Ratio = 8,80,000/10,00,000 = 0.88 : 1

ii) Debt-Equity Ratio $= \frac{\text{Long term debt}}{\text{Shareholders Funds}} = \frac{16,00,000}{(20,00,000 + 8,00,000)} = 0.57 : 1$

iii) Return on Capital Employed (ROCE)

$$\text{ROCE} = \frac{\text{PBIT}}{\text{Capital Employed}} \text{X}100 = \frac{12,00,000}{44,00,000} \text{X}100 = 27.27\%$$

iv) Average Collection Period

$$= \frac{\text{Sundry Debtors}}{\text{Credit Sales}} \text{X}360 = \frac{4,00,000}{32,00,000} \text{X}360 = 45 \text{ days}$$

Problem No. 11

i) Computation of Average Inventory

Gross Profit = 25% of 30,00,000

Gross Profit = 7,50,000

Cost of goods sold (COGS) = 30,00,000 – 7,50,000

COGS = 22,50,000

Inventory Turnover Ratio $= \frac{\text{COGS}}{\text{Average Inventory}}$

$$6 = \frac{22,50,000}{\text{Average Inventory}}$$

Average inventory = 3,75,000

ii) Computation of Purchases

Purchases = COGS + Increase in Stock = 22,50,000 + 80,000

Purchases = 23,30,000

iii) Computation of Average Debtors

Let Credit Sales be Rs. 100

Cash sales $= \frac{25}{100} \text{X}100 = \text{Rs.}25$

Total Sales = 100 +25= 125

Total sales is Rs.125 credit sales is Rs. 100

If total sales is 30,00,000, then credit sales is $= \frac{30,00,000 \text{ X}100}{125}$

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Credit Sales = 24,00,000

Cash Sales = 6,00,000

Debtors Turnover Ratio = $\frac{\text{Net Credit Sales}}{\text{Average debtors}} = 8 = \frac{24,00,000}{\text{Average debtors}} = 8$

Average Debtors = $\frac{24,00,000}{8}$

Average Debtors = 3,00,000

iv) Computation of Average Creditors

Credit Purchases = Purchases – Cash Purchases

= 23,30,000 – 2,30,000 = 21,00,000

Creditors Turnover Ratio = $\frac{\text{Credit Purchases}}{\text{Average Creditors}}$

$$10 = \frac{21,00,000}{\text{Average Creditors}}$$

Average Creditors = 2,10,000

v) Computation of Average Payment Period

Average Payment Period = $\frac{\text{Average Creditors}}{\text{Average Daily Credit Purchases}}$

$$= \frac{2,10,000}{\left(\frac{\text{Credit Purchases}}{365}\right)} = \frac{2,10,000}{\left(\frac{21,00,000}{365}\right)}$$

$$= \frac{2,10,000}{21,00,000} X365 = 36.5 \text{days}$$

OR

Average Payment Period = 365/Creditors Turnover Ratio

$$= \frac{365}{10} = 36.5 \text{ days}$$

vi) Computation of Average Collection Period

Average Collection Period = $\frac{\text{Average Debtors}}{\text{Net Credit Sales}} X365$

$$= \frac{3,00,000}{24,00,000} X365 = 45.625 \text{ days}$$

OR

Average collection period = 365/ Debtors Turnover Ratio

$$= \frac{365}{8} = 45.625 \text{ days}$$

vii) Computation of Current Assets

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

2.4 Current Liabilities = Current Assets or CL = CA/2.4

Working capital = Current Assets – Current liabilities

2,80,000 = CA-CA/2.4

2,80,000 = 1.4 CA/2.4

CA = 4,80,000

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viii) Computation of Current Liabilities

Current liabilities = $\frac{4,80,000}{2.4} = 2,00,000$

Problem No. 12

Particulars	2002	2003
1. Fixed Assets turnover ratio = $\frac{\text{Turnover}}{\text{Fixed Assets}}$	$\frac{4,000}{2,450}$ = 1.63	$\frac{5,000}{2,450}$ = 2.04
2. Stock turnover ratio = $\frac{\text{Sales}}{\text{Average Stock}}$	$\frac{4,000}{1800+1900\ /\ 2}$ = 2.16	$\frac{5,000}{1900+2400\ /2}$ = 2.33
3. Debtors Turnover ratio = $\frac{\text{Sales (incl. excise \& sales tax)}}{\text{Avg. Debtors}}$	$\frac{4000\times120\%}{1750}$ = 2.74	$\frac{5000\times120\%}{1825}$ = 3.29
4. Debtors Velocity = $\frac{365\text{ days}}{\text{Deb. T/o ratio}}$	$\frac{365}{2.74}$ = 133.2 days	$\frac{365}{3.29}$ = 110.94 days
5. Earnings per share = $\frac{\text{EAESH}}{\text{No.of E.Shares}}$		
a. Earnings available to ES holders	(1700–1500) + (2000 X 10%) = 400	(1800–1700)+13k X 10% = 400
b. No. of Equity shares	200	300
Earnings per share ((a) /(b))	Rs. 2	Rs.1.33

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Comment: From the above turnover ratios it is clear that utilization of fixed assets and current assets is good when compared to the previous year. With respect to earnings per share, although there is decline when compared to that of previous year, one reason for such decrease is because of fresh issue of equity shares made during the year.

Problem No.13

Profit and Loss statement of sivaprakasam Co.

Particulars	Rs.
Sales (WN 4) **Less:** variable costs (60% on sales)	50,00,000 30,00,000
Contribution (sales less variable cost) **Less: Fixed costs (bal.fig) (**Contribution less profit)	20,00,000 9,00,000
EBIT (WN 7) **Less :** Interest **(bal.fig (**EBIT LESS EBT)	11,00,000 6,00,000
EBT **Given (10% of sales of Rs.50,00,000** **Less: Tax**	5,00,000 Nil
EAT (EBT less Tax)	5,00,000

Important Note:

- If opening stock (or) closing stock (or) GP Ratio (or) COGS-related information is given in the question, use Trading and p&l Account format.
- If Leverage (or) Interest Coverage (or) Interest coverage (or)EBIT/EBT/EAT related information is given ,use p&l statement format as given in this question,

Balance sheet of M/S SIVA PRAKASAM Co.

Liabilities	Rs.	Assets	Rs.
Share capital **(WN 11)**	5,00,000	Fixed Assets **(WN 5)**	41,66,667
Reserves & surplus **(WN 12)**	15,00,000	CURRENT Assets	
12% Term Loan **(WN 8)**	50,00,000	Stock (**WN 2)**	10,00,000
Current Liabilities **(WN 1)**	5,00,000	Debtors **(WN 6)**	4,16,667
		OTHER CURRENT Assets **(WN 13)**	83,333
		OTHER Non-current Assets **(bal.flg)**	18,33,333
Total:	**75,00,000**	**Total:**	**75,00,000**

Working Notes and Calculation

1. Current Ratio $=\frac{\text{CurrentAssets}}{\text{CurrentLiabilities}}$ =3 times. So, Current Assets = 3x Current Liabilities,

Net working capital = Current Assets – Current Liabilities = Rs. 10,00,000.
3x Current Liabilities –Current Liabilities Rs.10,00,000. So, 2x Current Liabilities = Rs.10,00,000

So, Current Liabilities $=\frac{`10,00,000}{2}$ Rs.**5,00,000** Hence, Current Assets = 3xRs.5,00,000 = **Rs.15,00,000**

2. $\frac{\text{Current Assets}}{\text{stock}}=\frac{`15,00,000}{\text{stock}}\ \frac{3}{2}$. So , Stock = Rs. 15,00,000x $\frac{2}{3}$ **=Rs. 10,00,000**

3. Quick Ratio $=\frac{\text{QuickAssets}}{\text{QuickLiabilities}}=1\text{time}$ So, $\frac{\text{CurrentAssets}-\text{stock}}{\text{CurrentLiabilities}-\text{Bankod}}=1$

On Substitution, $\frac{`15,00,000-`10,00,000}{`5,00,000-\text{BankOD}}=1$ On solving, we get, **Bank OD =Rs.Nil**

4. Stock Turnover Ratio **=** $\frac{\text{sales}}{\text{Inventory}}=\frac{\text{Sales}}{`10,00,000}=5$ So, **Sales** = Rs. 10,00,000 x5 = **Rs.50,00,000**

Note : In the absence of specific information about opening and closing Inventory, it is assumed that opening inventory = closing Inventory = Average Inventory.
In the absence of GP Ratio and cogs, stock Turnover Ratio is taken based on sales.

1. Fixed Assets T/O= $\frac{\text{Sales}}{\text{NetFixedAssets}}=\frac{`50,00,000}{\text{NetFixedAssets}}$ =1.2 so, Net Fixed Assets = $\frac{`50,00,000}{1.2}$ =Rs.41,66,667

2. Avg Colln period = 30days. Assuming 1 year = 360 days, Debtors= sales x $\frac{30}{360}$ =Rs.50,00,000x $\frac{30}{360}$ =Rs.4,16,667

3. Financial Leverage $=\frac{\text{EBIT}}{\text{EBT}}=\frac{\text{EBIT}}{`5,00,000}$ =2.20 So, EBT = Rs. 5,00,000X2.2 =Rs.11,00,000

4. Long Term Loan $=\frac{\text{Interest Amount}}{\text{Interest Rate}}$ =Rs. $\frac{`6,00,000}{12\%}$ =Rs.50,00,000. [Note: Interest Amt from p&l Stmt}

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5. Total External Liabilities = Long Term Liabilities + Current Liabilities = Rs.55,00,000 =Rs.20,00,000

6. $\frac{\text{Total Liabilities}}{\text{Net worth}} = 2.75$ So, $\frac{`55,00,000}{\text{Net worth}} = 2.75$. Hence, Net worth = $\frac{`55,00,000}{2.75} = `20,00,000$

7. Number of Equity shares= $\frac{\text{Net worth}}{\text{Book Value per share}} = \frac{`20,00,000}{`40}$ =50,000 **Shares.**

So, Equity share capital= 50,000 shares x Rs. 10 = Rs.5,00,000

8. **Retained Earnings =** Net worth- share capital = Rs.20,00,000-Rs.5,00,000**=Rs.15,00,000**

9. Total Current Assets = WN 1 **= Rs.15,00,000**

Inventory (given) =Rs. 10,00,000 | **Debtors (WN 6) = Rs.4,16,667** | **Cash and Bank (bal. flg) Rs.83,333**

Problem No. 14

Balance Sheet of XYZ

Liabilities	Rs. (in lakhs)	Assets	Rs. (in lakhs)
Capital	50	Plant & Machirous	125
Reserves & Surplus (bal fig.)	78	Other Fixed Assets	75
Bank Credit	144	Stock	75
Current Liabilities	72	Cash	5
		Debtors	64
	344		**344**

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Working Note-1: Closing Stock

Sales = 500L

Net Sales = Sales – Sales Returns

= 500L – 20%

= 400L

G.P% = 25%

COGS = (100-25)% = 75%

COGS = 400X75/100 = 300 Lakhs

Inventory T.O Ratio = 4

$$\frac{\text{COGS}}{\text{Closing Stock}} = 4$$

Closing Stock = $\frac{300L}{4} = 75L$

Working Note-2: Cash

Cash to Inventory = 1:15

$$\frac{\text{Cash}}{\text{Closing Stock}} = \frac{1}{15}$$

$$\text{Cash} = \frac{75L}{15} = 5L$$

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Working Note-3: F. Assets

$$\frac{\text{Sales}}{\text{Fixed Assets}} = 2$$

$$\text{Fixed Assets} = \frac{400L}{2} = 200L$$

Plant & Machinery = 125L

∴ Other Fixed Assets= 75L

Working Note-4: Debtors

Avg. Collection Period = 73

Annual Credit Sales = 80% of net sales

= 80% of 400L

= 320L

$$\text{Debtors} = \frac{\text{Avg. Collection Period X Annual Credit Sales}}{365}$$

$$= \frac{73 \text{ X } 320}{365} = 64L$$

Working Note-5: Current Liabilities

$$\frac{\text{Current Assets}}{\text{Current Liabilities}} = 2$$

Current Assets = Stock + Cash + Debtors

= 75L + 5L + 64L = 144L

$$\therefore \text{ Current Liabilities} = \frac{\text{Current Assets}}{2} = \frac{144}{2} = 72L$$

Trade Credit / Current Liabilities = 72L

Working Note-6: Bank Credit

$$\frac{\text{Bank Credit}}{\text{Trade Credit}} = 2$$

Bank Credit = 2 X 72L = 144L

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Problem No. 15

Working notes:

1. **Current assets and Current liabilities computation:**

$$\frac{\text{Current assets}}{\text{Current liabilities}} = \frac{2.5}{1} \text{ or } \frac{\text{Current assets}}{2.5} = \frac{\text{Current liabilities}}{1} = k\,(\text{say})$$

Or Current assets = 2.5 k and Current liabilities = k

Or Working capital = (Current assets − Current liabilities)

Or Rs.2,40,000 = k (2.5 − 1) = 1.5 k

Or k = Rs.1,60,000

∴Current liabilities = Rs.1,60,000

Current assets = Rs.1,60,000 × 2.5 = Rs.4,00,000

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2. Computation of stock:

Liquid ratio $= \frac{\text{Liquid assets}}{\text{Current liabilities}}$

Or 1.5 $= \frac{\text{Current assets} - \text{Stock}}{\text{Rs.1,60,000}}$

Or 1.5 × Rs.1,60,000 = Rs.4,00,000 − Stock

Or Stock = Rs.1,60,000

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3. Computation of Proprietary fund; Fixed assets; Capital and Sundry creditors:

$$\text{Properietary ratio} = \frac{\text{Fixed assets}}{\text{Proprietary fund}} = 0.75$$

∴Fixed assets = 0.75 Proprietary fund

and Net working capital = 0.25 Proprietary fund

Or Rs.2,40,000/0.25 = Proprietary fund

Or Proprietary fund = Rs.9,60,000

and Fixed assets = 0.75 proprietary fund

= 0.75 × Rs.9,60,000

= Rs.7,20,000

Capital = Proprietary fund − Reserves & Surplus

= Rs.9,60,000 − Rs.1,60,000

= Rs.8,00,000

Sundry creditors = (Current liabilities − Bank overdraft)

= (Rs.1,60,000 − Rs.40,000)

= Rs.1,20,000

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Construction of Balance sheet:
(Refer to working notes 1 to 3)

Balance Sheet

	Rs.		Rs.
Capital	8,00,000	Fixed assets	7,20,000
Reserves & Surplus	1,60,000	Stock	1,60,000
Bank overdraft	40,000	Current assets	2,40,000
Sundry creditors	1,20,000		
	11,20,000		**11,20,000**

Problem No. 16

i) Return of Capital Employed

$$= \frac{\text{Profit before interest \& Tax}}{\text{Avg. Capital Employed}} \text{X}100$$

$$= \frac{150}{403} \text{X}100 = 37.22\%$$

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ii) $\text{Stock T.O Ratio} = \frac{\text{Sales}}{\text{Avg.Stock}}$

$\text{Avg. Stock} = \frac{\text{Opening Stock} + \text{Closing Stock}}{2}$

$= = \frac{100+120}{2} = 110$

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Sales = 600

Stock T.O Ratio = $\frac{600}{110} = 5.45$

iii) $\text{Return on Net Worth} = \frac{\text{Profit after Interest \& Tax}}{\text{Avg. Net Worth}} X100$

$= \frac{66}{293} X100 = 22.53\%$

iv) $\text{current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}} = \frac{235}{129} = \frac{1.82}{1}$

v) Proprietary Ratio = $\frac{\text{Proprietors Funds}}{\text{Total Assets - Misc Exp.}} = \frac{306}{595 - 60} = 0.57 = 57\%$

Working Notes – 1

Calculation of Avg. Capital Employed & Avg. Net Worth

		2001	2000
	Net Fixed Assets	260	200
	Investments	40	30
	Current Assets	235	195
	Total Assets	535	425
(-)	Current Liabilities	(129)	(25)
	Capital employed	406	400
(-)	Long term debts	(100)	(120)
		306	280

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Avg. Capital Employed = $\frac{406+400}{2} = 403$

Avg. Net Worth = $\frac{306+280}{2} = 293$

Working Notes – 2

Profit after Interest & Tax

	PBIT	150
(-)	Interest	(24)
	Profit before Tax	126
(-)	Tax	(60)
	Profit after interest & Tax	66

Problem No. 17

i) Current Ratio:

Current Assets = Debtors + Stock + Cash + Prepaid Expenses

= 20,00,000 + 15,00,000 + 4,00, 000 + 1,00,000

= 40,00,000

Current Liabilities = Trade Creditors + O/s Expenses + Provision for tax + Proposed dividend

= 6,00,000 + 1,50,000 + 2,00,000 + 3,00,000

= 12,50,000

Current Ratio $= \frac{\text{Current Assets}}{\text{Current Liabilities}} = \frac{40,00,000}{12,50,000} = 3.2$

ii) Debt Equity Ratio $= \frac{\text{Long term debts}}{\text{Shareholders funds}}$

Long term debts = Debentures = 20,00,000

Share holder funds = Eq. Share Capital + Pref Share Capital + Reserves + P & L A/c

- Preliminary Expenses

= 30,00,000 + 40,00,000 + 5,00,000 + 5,00,000 – 3,50,000

= 76,50,000

Debt Equity Ratio $= \frac{20,00,000}{76,50,000} = 0.26 \text{ times}$

iii) Capital Gearing Ratio $= \frac{\text{Pref. share} + \text{Long term debt}}{\text{Eq. share holder funds} - \text{Preliminary Exp.}}$

$= \frac{40,00,000 + 20,00,000}{30,00,000 + 5,00,000 + 5,00,000 - 3,50,000}$

$= \frac{60,00,000}{36,50,000} = 1.64$

iv) Liquid Ratio $= \frac{\text{Current Assets} - \text{Stock}}{\text{Current Liabilities}}$

$= \frac{40,00,000 - 15,00,000}{12,50,000} = 2$

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PROBLEM NO:18

The efficient use of assets is indicated by the following key ratios: (a) Current assets turnover, (b) Debtors' turnover, (c) Inventory turnover, (d) Fixed assets turnover, and (e) Total assets turnover.

Computation of Ratios:

	Year 1	Year 2	Year 3
(a) Current assets turnover ratio (Cost of goods sold / Total current assets)	1.36	1.55	1.59
(b) Debtor's turnover (Credit sales / Average debtors)	2.8*	3.30	3.19
(c) Inventory turnover (Cost of goods sold/ Average inventory)	3.46*	4.10	3.91
(d) Fixed assets turnover (Cost of goods sold/ Fixed Assets)	3.75	2.38	2.58
(e) Total assets turnover (Cost of goods sold/ Total assets)	1.00	0.93	0.98

* Based on Debtors and Inventory at the end, as their opening balances are not available.

Comments: The first three ratios indicate the efficiency of Current Assets usage, and the latter two, namely, Fixed assets turnover and Total assets turnover ratio, show the efficiency of utilization of these. Current assets utilization appears to be very satisfactory as reflected in the first three types of ratios. No major change is noticeable in their values over a period of time, which is presumably indicative of consistency in Debtors collection period and inventory turnover. There does not seem to be any significant problem regarding utilization of Current assets.

However, it appears that fixed assets are not being fully utilized. Investments in fixed assets have more than doubled during years 2 and 3. The Fixed assets turnover ratio has sharply fallen to 2.58 in year 3 from 3.75 in year 1. Thus, investment in fixed assets are either excessive, or the capacity of the additional plant is under utilized. This is corroborated by the fact that sales in the latter 2-year have increased by around 15%. Therefore, the remedy lies in utilizing the plant capacity by increasing production and sales.

PROBLEM NO:19

a) The answer should be focused on using the current and quick ratios. While the current ratio has steadily increased, it is to be noted that the liquidity has not resulted from the most liquid assets as the CEO proposes. Instead, from the quick ratio, it is noted that the increase in liquidity is caused by an increase in inventories.

For a fresh cheese company, it can be argued that inventories are relatively liquid when compared to other industries. Also, given the information, the industry benchmark can be used to derive that the company's quick ratio is very similar to the industry level and that the current ratio is indeed slightly higher - again, this seems to come from inventories.

b) Inventory turnover, day's sales in receivables, and the total asset turnover ratio are to be mentioned here. Inventory turnover has increased over time and is now above the industry average. This is good - especially given the fresh cheese nature of the company's industry. In 2014, it means for example that every 365/62.65 = 5.9 days the company is able to sell its inventories as opposed to the industry average of 6.9 days. Days' sales in receivables have gone down over time, but are still better than the industry average. So, while they are able to turn inventories around quickly, they seem to have more trouble collecting on these sales, although they are doing better than the industry. Finally, total asset turnover is gone down over time, but it is still higher than the industry average. It does tell us something about a potential problem in the company's long term investments, but again, they are still doing better than the industry.

c) Solvency and leverage is captured by an analysis of the capital structure of the company and the company's ability to pay interest. Capital structure: Both the equity multiplier and the debt-to-equity ratio tell us that the company has become less levered. To get a better idea about the proportion of debt in the firm, we can turn the D/E ratio into the D/V ratio: 2014: 43%, 2013: 46%, 2012:47%, and the industry average is 47%. So based on this, we would like to know why this is happening and whether this is good or bad. From the numbers it is hard to give a qualitative judgment beyond observing the drop in leverage. In terms of the company's ability to pay interest, 2014 looks pretty bad. However, remember that times interest earned uses EBIT as a proxy for the ability to pay for interest, while we know that we should probably consider cash flow instead of earnings. Based on a relatively large amount of depreciation in 2014 (see info), it seems that the company is doing just fine.

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THE END

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