7. RATIO ANALYSIS

PROBLEM NO : 1

Important Ratios used in different situations

i) **Liquidity Ratios-** Here Liquidity or short-term solvency ratios would be used by the bank to check the ability of the company to pay its short-term liabilities. A bank may use Current ratio and Quick ratio to judge short terms solvency of the firm

ii) **Capital Structure/Leverage Ratios-**Here the long-term creditor would use the capital structure/leverage ratios to ensure the long term stability and structure of the firm. A long term creditors interested in the determining whether his claim is adequately secured may use Debt-service coverage and interest coverage ratio.

iii) **Profitability Ratios-**The shareholder would use the profitability ratios to measure the profitability or the operational efficiency of the firm to see the final results of business operations. A shareholder may use return on equity, earning per share and dividend per share.

iv) **Activity Ratios-**The finance manager would use these ratios to evaluate the efficiency with which the firm manages and utilises its assets. Some important ratios are (a) Capital turnover ratio (b) Current and fixed assets turnover ratio (c) Stock, Debtors and Creditors turnover ratio.

PROBLEM NO: 2

Gross Profit Rs. 54,000

Gross Profit Margin 20%

$$\therefore \text{Sales} = \frac{\text{Gross Profit}}{\text{Gross Profit Margin}} = \text{Rs. } 54{,}000/0.20 = \text{Rs. } 2{,}70{,}000$$

Credit Sales to Total Sales = 80%

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

Total Assets Turnover = 0.3 times

$$\therefore \text{Total Assets} = \frac{\text{Sales}}{\text{Total Assests Turnover}}$$

$$= \frac{\text{Rs. } 2{,}70{,}000}{0.3} = \text{Rs. } 9{,}00{,}000$$

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Sales – Gross Profit = COGS

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

Inventory turnover = 4 times

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

Average collection Period = 20 Days.

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

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

Current ratio = 1.8

1.8 = $\frac{\text{Debtors + Inventory + Cash (Current Assets)}}{\text{Creditors (Current Liabilities)}}$

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

1.8 Creditors = Rs. 66,000 + Cash ----------(i)

Long-term Debt to Equity = 40%

Shareholders' Funds (Equity) = Rs. 6,00,000

∴ Long-term Debt = Rs. 6,00,000 x 40% = Rs. 2,40,000

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

∴ Cash = (Rs. 60,000 x 1.8) – Rs. 66,000 = Rs. 42,000 [From equation (i)]

Balance Sheet

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

PROBLEM NO: 3

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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

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

PROBLEM NO: 4

Computation of Ratios		
1. Gross profit ratio	**2014**	**2015**
Gross profit/sales	$\frac{64,000 \times 100}{3,00,000}$	$\frac{76,000 \times 100}{3,74,000}$
	21.3%	20.3
2. Operating expense to sales ratio		
Operating exp / Total sales	$\frac{49,000 \times 100}{3,00,000}$	$\frac{57,000 \times 100}{3,74,000}$
	16.3%	15.2%
3. Operating profit ratio		
Operating profit/ Total sales	$\frac{15,000 \times 100}{3,00,000}$	$\frac{19,000 \times 100}{3,74,000}$
	5%	5.08%
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	$\frac{2,36,000}{50,000}$ = 4.7	$\frac{2,98,000}{77,000}$ = 3.9
6.	Net Profit to Networth Net Profit Networth	$\frac{15,000 \times 100}{1,00,000}$ = 15%	$\frac{17,000 \times 100}{1,17,000}$ =14.5%
7.	Receivables collection period Average receivables / Average daily sales (Refer to working note)	$\frac{50,000}{739.73}$ = 67.6 days	$\frac{82,000}{936.99}$ = 87.5 days

WORKING NOTE:

Average daily sales = Credit sales / 365 $\frac{2,70,000}{365}$ = Rs.739.73 $\frac{3,42,000}{365}$ = 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 a 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 an 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 Gross profit margin ratio. In fact the company has not benefited at all in terms of operational performance because of the increased sales.

The company has not been able to deploy its capital efficiently. This is indicated by a decline in the Capital turnover from 3 to 2.5 times. Incase the capital turnover would have remained at 3 the company would have increased sales and profits by Rs. 67,000 and Rs. 3,350 respectively.

The decline in the stock turnover ratio implies that the company has increased its investment in stock. Return on Networth has declined indicating 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.

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PROBLEM NO: 5

(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 x 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

(b) Average collection period = $\frac{\text{Average Receivables}}{\text{Credit Sales}} \times 360\text{days}$

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

Closing balance of receivables is found as follows.

	Rs.	Rs.
Current assets (205 of current liabilities)		2,40,000
Less: Inventories ----	48,000	---
Cash	16,000	64,000
∴ Receivables		1,76,000

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

Rs. 2,56,000 /2 = Rs. 1,28,000

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

PROBLEM NO: 6

(a) Calculation of Operating Expenses for the year ended 31st March, 2013

Particulars		**(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

(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
Payables	2,00,000	Receivables	2,00,000
		Cash	50,000
	21,00,000		21,00,000

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WORKING NOTES:

(i) 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.

Net worth x $\frac{25}{100} = Rs.3,75,000$

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

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.

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

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(iii) Current Assets;

Current Ratio = 2

Payables = Rs. 2,00,000.

Current Assets = 2 Current Liabilities = 2 x 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
Payables	2,00,000
	21,00,000
Less: Current Assets	(4,00,000)
Fixed Assets	17,00,000

(v) Composition of Current Assets

Inventory Turnover = 12

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

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

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

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PROBLEM NO: 7

(a) Workings Notes:

1. Net Working Capital = Current Assets – Current Liabilities

= 2.5 – 1= 1.5

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

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

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

2. Sales = Total Assets Turnover x Total Assets

= 2 x (Fixed Assets + Current Assets)

= 2 X (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 = $\frac{\text{Cost of Good Sold}}{\text{Stock Turnover Ratio}}$

$= \frac{Rs.28,00,000}{7} = Rs.4,00,000$

Closing Stock = (Average Stock x2) – Opening Stock

= (Rs. 4,00,000 x2) – Rs. 3,80,000= Rs. 4,20,000

Quick Assets = Current Assets – Closing Stock

= Rs. 7,50,000-Rs. 4,20,000= Rs. 3,30,0000

$\frac{Debt}{Equity\ (here\ Proprietary\ fund)} = \frac{1}{1.5}$, Or $Proprietary\ \ fund = 1.5\ Debt$

Total Asset = Proprietary Fund (Equity) + Debt

Or 17,50,000 = 1.5 Debt + Debt

$\frac{Debt}{Equity\ (here\ Proprietary\ fund)} = \frac{1}{1.5}$, Or $Proprietary\ \ fund = 1.5\ Debt$

Total Asset = Proprietary Fund (Equity) +Debt

Or 17,50,000 = 1.5 Debt + Debt

$Or\ Debt = \frac{Rs.17,50,000}{2.5}, = Rs.7,00,000$

Proprietary fund = 7,00,000 x 1.5 =Rs. 10,50,000

$= \frac{Rs.17,50,000\ x1.5}{2.5}, = Rs.10,50,000$

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

= Rs. 17,50,000 x 15% = Rs. 2,62,500

(i) Calculation of Quick Ratio

$Quick\ Ratio = \frac{Quick\ Assets}{Current\ Liabilities} = \frac{Rs.3,30,000}{Rs.3,00,000} = 1.11$

(ii) Calculation of Fixed Assets Turnover Ratio

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

(iii) Calculation of Proprietary Ratio

$Proprietary\ Ratio = \frac{Proprietary\ fund}{Total\ Assets}$

$= \frac{Rs.10,50,000}{Rs.17,50,000} = 0.6 : 1$

(iv) Calculation of Earnings per Equity Share (EPS)

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

$= \frac{Rs.2,62,500 - Rs.18,000(9\%\ of\ 2,00,000)}{60,000}$

= Rs.4.075 per share

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

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

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PROBLEM NO: 8

R.O.E = [R.O. I + (R.O.I – r) x D/E] x (1-t)

= [0.2 + (0.20 – 0.10) x 0.60] x (1-0.4)

= [0.2 +0.06] x 0.60

= 0.1560

R.O.E = 0.1560 x 100 = 15.60 %

PROBLEM NO: 9

Calculating fixed Assets & Proprietor's

Since Ratio of fixed Assets to P.F = 0.75

∴ Fixed Assets = 0.75 x P.F

Net working capital = 0.25 x P.F

600.000 = 0.25 x P.F

$$\therefore \text{ Proprietor's \& Fund} = \frac{600.000}{0.25} = 24,00,000$$

Since, Fixed Assets = 0.75 P.F

= 0.75 x 24,00,000

= 18,00,000

PROBLEM NO: 10

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The net profit is calculated as follows:

	Rs.	Rs.
Sales (150% of Rs. 4,80,000)		7,20,000
Direct costs		4,80,000
Gross profit		2,40,000
Operating expenses	80,000	
Interest changes (8% of Rs. 4,00,000)	32,000	1,12,000
Profit before taxes		1,28,000
Taxes (@ 50%)		64,000
Net profit after taxes		64,000

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

Net profit margin $= \frac{\text{EBIT}(1-\text{T})}{\text{Sales}} = \frac{\text{Rs. } 1,60,000\,(1-5)}{\text{Rs. } 7,20,000} = 0.111 \text{or } 11.1\%$

(ii) Return on assets $= \frac{\text{EBIT}(1-\text{T})}{\text{Assets}} = \frac{\text{Rs. } 1,60,000\,(1-5)}{\text{Rs. } 8,00,000} = 0.10 \text{ or } 10\%$

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

(iv) Return on equity $= \frac{\text{Net Profit after taxes}}{\text{Owner's equity}} = \frac{\text{Rs. } 64,000}{50\% \text{ of Rs. } 8,00,000}$

$= \frac{\text{Rs. } 64,000}{\text{Rs. } 4,00,000} = 0.16 \text{ or } 16\%$

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PROBLEM NO: 11

(i) Quick Ratio = $\frac{Q.A}{C.L}$

Quick Assets = C.A – Stock – Prepaid exp.

= 3050.000 – 21,60,000 – 10,000

= 8,80,000

Quick Ratio = $\frac{8,80,000}{10,00,000}$ = 0.88 : 1

(ii) Debt equity Ratio = $\frac{L.T.Debt}{S/L/F}$

$= \frac{16,00,000}{(20,00,000 + 800,000)}$ = 0.57 : 1

(iii) Return on Capital employed

(Rock) = $\frac{EBIT}{Capitle\ employed} \times 100$

$= \frac{12,00,000}{44,00,000} \times 100 = 27.27\%$

A.C.P = $\frac{Sunday\ Dr}{Credit\ sales} \times 360$

$= \frac{4,00,000}{32,00,000} \times 360 = 45$ Days

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WORKING NOTES:

1. Current Assets & Current Liabilities Computation

$\frac{C.A}{C.L} = \frac{2.5}{1}$

C.A = 2.5 C.L

Working Capital = C.A – C.L

2,40,000 = C.A – C.L

C.A = 2,40,000 + C.L

C.A = 2.5 C.L

2,40,000 + C.L = 2.5 C.L

C.L = $\frac{2,40,000}{1.5}$

Current Liabilities = 1,60,000

∴ Current Assets = 1,60,000 x 2.5

= Rs. 4,00,000

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2. Computation of Stock:

Liquid Ratio = $\frac{Liquid\ Assets}{C.L}$

1.5 = $\frac{C.A - Stock}{1,60,000}$

1.5 x 1,60,000 = 4,00,000 – Stock

Stock = Rs. 1,60,000

3. Computation of P.F, Fixed Assets, Capital & Sundry Creditors

$$\text{Proprietary Ratio} = \frac{\text{F.A}}{\text{P.F}}$$

Fixed Assets = 0.75 x P.F

New working capital = 0.25 X P.F

$$\frac{2,40,000}{0.25} = \text{P.F}$$

$\therefore$ Proprietary Ratios = 9,60,000

= 7,20,000

Capital = P.F – R & S

= 9,60,000 – 1,60,000 = Rs. 8,00,000

Sundry Creditors = C.L – B.O.D

= 1,60,000 – 40,000

= 1,20,000

Balance Sheet

Liabilities	Rs.	Assets	Rs.
Capital	8,00,000	F.A	7,20,000
R & S	1,60,000	Stock	1,60,000
B.O.D	40,000		2,40,000
S/Cr	1,20,000		
	11,20,000		**11,20,000**

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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
c. Earnings per share ((a) /(b))	Rs. 2	Rs.1.33

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**

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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 = $\frac{\text{sales}}{\text{Inventory}} = \frac{\text{Sales}}{\text{`10,00,000}} = 5$ 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.

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

6. 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

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

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

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

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

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

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

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

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

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

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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**

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

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

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

WORKING NOTE-2: CASH

Cash to Inventory = 1:15

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

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

WORKING NOTE-3: F. ASSETS

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

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

Plant & Machinery = 125L

∴ Other Fixed Assets = 75L

WORKING NOTE-4: DEBTORS

Avg. Collection Period = 73

Annual Credit Sales = 80% of net sales

= 80% of 400

= 320L

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

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

WORKING NOTE-5: CURRENT LIABILITIES

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

Current Assets = Stock + Cash + Debtors

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

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

Trade Credit / Current Liabilities = 72L

WORKING NOTE-6: BANK CREDIT

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

Bank Credit = 2 X 72L = 144L

PROBLEM NO: 15

WORKING NOTES:

1. Current assets and Current lilabilities computation:

$$\frac{\text{Current assets}}{\text{Current liabilities}} = \frac{2.5}{1}$$

Or Current assets = 2.5 Current liabilities

Now. Working capital = Current assets – Current liabilities

Or 1.5 Current liability = Rs. 2,40,000

∴ Current liability = Rs. 1,60,000

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

2. Computation of stock

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

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

Or Inventories = Rs. 4,00,000 – Rs, 2,40,000

Or Stock = Rs. 1,60,000

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

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

∴ Fixed assets = 0.75 Proprietary fund (PF) [FA + NWC = PF

or NWC = PF – FA (i.e. 75 PF)]

and Net working capital (NWC) = 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 X Rs. 9,60,000

= Rs. 7,20,000

Capital = Proprietary fund –Reserves & 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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Balance Sheet

Liabilities	Rs.	Assets	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

$$= \frac{\text{Profit before interest \& Tax}}{\text{Avg. Capital Employed}} X100$$

$$= \frac{150}{403} X100 = 37.22\%$$

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

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

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

Sales = 600

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

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

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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

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

Creditors A/c

Dr. **Cr.**

Particulars	(Rs.)	Particulars	(Rs.)
To Bank A/c	5,80,000	By Balance b/d	25,000
To Balance c/d	40,000	By Stores ledger control A/c (Materials purchased) (Bal. figure)	5,95,000
	6,20,000		**6,20,000**

Stores Ledger Control A/c

Dr. **Cr.**

Particulars	(Rs.)	Particulars	(Rs.)
To Balance b/d	40,000	By WIP control A/c (Balancing figure)	5,70,000
To Creditors A/c (Materials purchased)	5,95,000	By Balance c/d	65,000
	6,35,000		**6,35,000**

Work-in – Process Control A/c

Dr. **Cr.**

Particulars	(Rs.)	Particulars		(Rs.)
To Balance b/d	50,000	By Finished goods control A/c (Balancing figure)		10,05,000
To Stores ledger control A/c	5,70,000	By Balance c/d		
To Wages control A/c (80% of Rs. 4,00,000)	3,20,000	By Material	35.000	
To Factory Overhead control A/c	1,28,000	BY Labour (Rs. 50* x 400 hours)	20,000	
	10,68,000	By Factory Oh (Rs. 20**x 400 hours)	8,000	63,000
To Factory Overhead control A/c	1,28,000			
	10,68,000			**10,68,000**

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* Direct Labour Hour Rate = Rs.3,20,000 / 6,400 hours = Rs. 50

** Factory Overhead Rate = Rs. 20,80,000 / 1,04,000 = Rs. 20

Wages Control A/c

Dr. **Cr.**

Particulars	(Rs.)	Particulars	(Rs.)
To Bank A/c	4,00,000	By WIP control A/c (80% of Rs. 4,00,000)	3,20,000
		By Factory OH Control A/c (20% of Rs. 4,00,000)	80,000
	4,00,000		4,00,000

Factory Overhead Control A/c

Dr. **Cr.**

Particulars	(Rs.)	Particulars	(Rs.)
To Wages control A/c	80,000	By WIP control A/c (Rs. 20x 6,400 hours)	1,28,000
To Bank A/c (Indirect expenses)	60,000	By Balance c/d	12,000
	1,40,000		1,40,000

(b) WORKINGS:

(i) $\frac{\text{Fixed Assets}}{\text{Total Current Assets}} = \frac{5}{7}$

Or, Total Current Assets = $\frac{\text{Rs.}40{,}000 \times 7}{5}$ = Rs. 56,00,000

(ii) $\frac{\text{Fixed Assets}}{\text{Capital}} = \frac{5}{4}$ Or, Capital = $\frac{\text{Rs.}40{,}000 \times 4}{5}$ = Rs. 32,00,000

(iii) $\frac{\text{Capital}}{\text{Total Liabilities}^*} = \frac{1}{2}$ Or, Total = $\frac{\text{Rs.}40{,}000 \times 4}{5}$ = Rs. 32,00,000

(iv) $\frac{\text{Net Profit}}{\text{Capital}} = \frac{1}{5}$ Or, Net Profit = Rs. 32,00,000 x 1/5 = Rs. 6,40,000

(v) $\frac{\text{Net Profit}}{\text{Sales}} = \frac{1}{5}$ Or, Sales = Rs. 6,40,000 x 5 = Rs. 32,00,000

(vi) Gross Profit = 25% of Rs. 32,00,000 = Rs. 8,00,000

(vii) Stock Turnover = $\frac{\text{Cost of Goods Sold (i.e. Sales} - \text{Gross profit)}}{\text{Average Stock}} = 10$

$= \frac{\text{Rs.}32{,}00{,}000 - \text{Rs.}8{,}00{,}000}{\text{Average Stock}} = 10$

Or, Average Stock = Rs. 2,40,000 Or, $\frac{\text{Opening Stock} - \text{Rs.}4{,}00{,}000}{2}$

Or, Opening Stock = Rs. 80,000

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Trading Account

Particulars	(Rs.)	Particulars	(Rs.)
To Opening Stock	80,000	By Sales	32,00,000
To Manufacturing exp./ Purchase (Balancing figure)	27,20,000		
To Gross Profit b/d	8,00,000	By Closing Stock	4,00,000
	36,00,000		**36,00,000**

Profit and Loss Account

Particulars	(Rs.)	Particulars	(Rs.)
To Operating Expenses (Balancing figure)	1,60,000	By Gross Profit c/d	8,00,000
To Net Profit	6,40,000		
	8,00,000		**8,00,000**

Balance Sheet

Capital and Liabilities	(Rs.)	Assets	(Rs.)
Capital	32,00,000	Fixed Assets	40,00,000
Liabilities	64,00,000	Current Assets	
		Closing Stock	4,00,000
		Other Current Assets (Bal. figure)	52,00,000
	96,00,000		**96,00,000**

PROBLEM NO: 18

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

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

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

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

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

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

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

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

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

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

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PROBLEM NO: 19

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 utilisation of these. Current assets utilisation 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 utilisation of Current assets.

However, it appears that fixed assets are not being fully utilised. 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 utilised. This is corroborated by the fact that sales in the latter 2-year have increased by around 15%. Therefore, the remedy lies in utilising the plant capacity by increasing production and sales.

PROBLEM NO: 20

(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.

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(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