9. RATIO ANALYSIS

ASSIGNMENT PROBLEMS

PROBLEM NO: 1

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

Quick Assets = C.A - Stock - Prepaid exp. = 30,50,000 - 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 (ROE) = $\frac{EBIT}{Capitle\ employed} \times 100 = \frac{12,00,000}{44,00,000} \times 100 = 27.27\%$

iv) A.C.P = $\frac{Sunday\ Dr}{Credit\ sales} \times 360 = \frac{4,00,000}{32,00,000} \times 360 = 45$ Days

PROBLEM NO: 2

Workings Notes:

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

   Thus, Current Assets = $\frac{Net\ Working\ Capital \times 2.5}{1.5} = \frac{Rs.\ 4,50,000 \times 2.5}{1.5}$ = Rs. 7,50,000

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

2. Sales = Total Assets Turnover 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 = $\frac{Cost\ of\ Good\ Sold}{Stock Turnover\ Ratio} = \frac{Rs.\ 28,00,000}{7}$ = Rs. 4,00,000

   Closing Stock = (Average Stock x 2) - Opening Stock = (Rs. 4,00,000 x 2) - Rs. 3,80,000= Rs. 4,20,000
   Quick Assets = Current Assets - Closing Stock = Rs. 7,50,000-Rs. 4,20,000= Rs. 3,30,0000

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

   Total Asset = Proprietary Fund (Equity) + Debt + Current Liabilities
   Fixed Assets + Current Assets = Proprietary Fund (Equity) + Debt + Current Liabilities
   Or 17,50,000 = 1.5 Debt + Debt + 3,00,000

   $Or\ Debt = \frac{Rs.14,50,000}{2.5}, = Rs.5,80,000$

   Proprietary fund = 5,80,000 x 1.5 =Rs. 8,70,000

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

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

ii) Calculation of Fixed Assets Turnover Ratio

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

iii) Calculation of Proprietary Ratio

$$\text{Proprietary Ratio} = \frac{\text{Proprietary fund}}{\text{Total Assets}} = \frac{Rs.8,70,000}{Rs.17,50,000} = 0.5:1$$

iv) Calculation of Earnings per Equity Share (EPS)

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

$$= \frac{\text{Rs. 2,62,500} - \text{Rs. 18,000 (9\% of 2,00,000)}}{60,000} = \text{Rs.4.075 per share}$$

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

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

PROBLEM NO: 3

Step 1: Computation of stock turnover ratio and stock velocity:

$$\text{Stock turnover ratio} = \frac{\text{COGS}}{\text{Avg. Stock}} = \frac{\text{Sales - GP}}{\text{Avg. Stock}} = \frac{3,00,000}{60,000} = 5 \text{ times}$$

$$\text{Stock velocity} = \frac{360 \text{ days}}{5} = 72 \text{ days}$$

Step 2: Computation of debtors turnover ratio and debtors velocity:

$$\text{Debtors turnover ratio} = \frac{\text{Credit Sales}}{\text{Cl. A/c Receivables}} = \frac{2,10,000}{20,000 + 15,000} = 6 \text{ times}$$

$$\text{Debtors velocity} = \frac{360 \text{ days}}{6 \text{ times}} = 60 \text{ days}$$

Step 3: Calculation of operating cycle:

Operating cycle period = Inventory velocity + Debtors velocity

= 72 days + 60 days = 132 days

Significance:

a) The operating cycle may be defined as no. of days it is taking term procurement of goods to realization from debtors in case of credit sales.

b) The operating cycle of the given firm indicates that it is taking 132 days to convert the Finished Good into cash.

c) The operating cycle of the above firm should be compared either with the pre-determined standard or with the operating cycle of the similar firm / firms in the same industry and then it should be concluded that whether our operating cycle is good or bad.

PROBLEM NO: 4

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}} = 2, \text{ i.e } 2:1$$

S.No.	Situation	Improve/ Decline/ No Change	Reason
i)	Payment of Current liability	Current Ratio will improve	Let us assume CA is Rs. 2 lakhs & CL is1 lakh. If payment of Current Liability = Rs.10,000 then, CA = 1,90,000, CL= 90,000. Current Ratio = $\frac{1,90,000}{90,000} = 2.11:1$.

			When Current Ratio is 2:1, Payment of Current liability will reduce the same amount in the numerator and denominator. Hence, the ratio will improve.
ii)	Purchase of Fixed Assets by cash	Current Ratio will decline	Since the cash being a current asset converted into fixed asset, current assets reduced, thus current ratio will fall.
iii)	Cash collected from Customers	Current Ratio will not change	Cash will increase and Debtors will reduce. Hence No Change in Current Asset.
iv)	Bills Receivable dishonoured	Current Ratio will not change	Bills Receivable will come down and debtors will increase. Hence no change in Current Assets.
v)	Issue of New Shares	Current Ratio will improve	As Cash will increase, Current Assets will increase and current ratio will increase.

PROBLEM NO: 5

WORKING NOTES:

1. Current assets and Current liabilities 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 liabilities = Rs. 2,40,000

$\therefore$ Current liabilities = 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

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

$\therefore$ 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

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: 6

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 x 0.80= Rs. 2,16,000

Total Assets Turnover = 0.3 times

$\therefore$ Total Assets = $\frac{\text{Sales}}{\text{Total Assests Turnover}}$ = $\frac{\text{Rs. 2,70,000}}{0.3}$ = 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 = $\frac{\text{COGS}}{\text{Inventory turnover}} = \frac{2,16,000}{4}$ = Rs. 54,000

Average collection Period = 20 Days.

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

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

Current ratio = 1.8

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

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

$\therefore$ 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

$\therefore$ Cash = (Rs. 60,000 x 1.8) - Rs. 66,000 = Rs. 42,000 [From equation (i)]

Balance Sheet

Liabilities	Amount (Rs.)	Assets	Amount (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: 7

a) Preparation of Balance Sheet of a Company

Working Notes:

i) Cost of Goods Sold = Sales - Gross Profit (= 25% of Sales)
= Rs. 30,00,000 - Rs. 7,50,000 = Rs. 22,50,000

ii) Closing Stock = Cost of Goods Sold / Stock Turnover
= Rs. 22,50,000/6 = Rs. 3,75,000

iii) Fixed Assets = Cost of Goods Sold / Fixed Assets Turnover
= Rs. 22,50,000/1.5 = Rs. 15,00,000

iv) Current Assets = Current Ratio = 1.5 and Liquid Ratio = 1
Stock = 1.5 - 1 = 0.5
Current Assets = Amount of Stock x 1.5/0.5 = Rs. 3,75,000 x 1.5/0.5 = Rs. 11,25,000

v) Liquid Assets (Debtors and Cash) = Current Assets – Stock
= Rs. 11,25,000 - Rs. 3,75,000 = Rs. 7,50,000

vi) Debtors = Sales x Debtors Collection period /12 = Rs. 30,00,000 x 2 /12 = Rs. 5,00,000

vii) Cash = Liquid Assets - Debtors = Rs. 7,50,000 - Rs. 5,00,000 = Rs. 2,50,000

viii) Net worth = Fixed Assets /1.2 = Rs. 15,00,000/1.2 = Rs. 12,50,000

ix) Reserves and Surplus
Reserves and Share Capital = 0.6 + 1 = 1.6
Reserves and Surplus = Rs. 12,50,000 x 0.6/1.6 = Rs. 4,68,750

x) Share Capital = Net worth - Reserves and Surplus = Rs. 12,50,000 - Rs. 4,68,750 = Rs. 7,81,250

xi) Current Liabilities = Current Assets/ Current Ratio = Rs. 11,25,000/1.5 = Rs. 7,50,000

xii) Long-term Debts
Capital Gearing Ratio = Long-term Debts / Equity Shareholders' Fund
Long-term Debts = Rs. 12,50,000 x 0.5 = Rs. 6,25,000

Balance Sheet of a Company

Liabilities	Amount (Rs.)	Assets	Amount (Rs.)
Equity Share Capital	7,81,250	Fixed Assets	15,00,000
Reserves and Surplus	4,68,750	Current Assets	
Long-term debts	6,25,000	Stock	3,75,000
Current Liabilities	7,50,000	Debtors	5,00,000
		Cash	2,50,000
	26,25,000		**26,25,000**

b) Statement Showing Working Capital Requirement

A.	**Current Assets**		
	Stock	3,75,000	
	Debtors	5,00,000	
	Cash	2,50,000	11,25,000
B.	Current Liabilities		7,50,000
	Working Capital before Provision (A - B)		3,75,000
Add:	Provision for Contingencies @ 10% of Working Capital including Provision i.e. 1/9th of Working Capital before Provision: 3,75,000 x 1/9		41,667
	Working Capital Requirement including Provision		4,16,667

PROBLEM NO: 8

Balance Sheet of XYZ

Liabilities	Rs. (in lakhs)	Assets	Rs. (in lakhs)
Capital	50	Plant & Machinery	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 = 400 x 75/100 = 300 Lakhs

Inventory T.O Ratio = 4

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

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

WORKING NOTE-2: CASH:

Cash to Inventory = 1:15

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

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

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

$$\text{Debtors} = \frac{\text{Avg. Collection Period X Annual Credit Sales}}{365} = \frac{73 \times 320}{365} = 64L$$

WORKING NOTE-5: CURRENT LIABILITIES:

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

Current Assets = Stock + Cash + Debtors

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

$\therefore$ 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

PROBLEM NO: 9

a) G.P. ratio = $\frac{\text{Gross Profit}}{\text{Sales}}$ = 25%

Sales = $\frac{\text{Gross Profit}}{25} \times 100$ = $\frac{\text{Rs. 8,00,000}}{25} \times 100$ = Rs. 32,00,000

b) Cost of Sales = Sales - Gross profit = Rs. 32,00,000 - Rs. 8,00,000 = Rs. 24,00,000

c) Receivable Turnover = $\frac{\text{Sales}}{\text{Receivables}}$ = 4

= Receivables = $\frac{\text{Sales}}{4}$ = $\frac{\text{Rs. 32,00,000}}{4}$ = Rs. 8,00,000

d) Fixed Assets Turnover = $\frac{\text{Cost of Sales}}{\text{Fixed Assets}}$ = 8

Fixed Assets = $\frac{\text{Cost of Sales}}{8}$ = $\frac{\text{Rs. 24,00,000}}{8}$ = Rs. 3,00,000

e) Inventory Turnover = $\frac{\text{Cost of Sales}}{\text{Average Stock}}$ = 8

Average Stock = $\frac{\text{Cost of Sales}}{8}$ = $\frac{\text{Rs. 24,00,000}}{8}$ = Rs. 3,00,000

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

Average Stock = $\frac{\text{Opening Stock} + \text{Opening Stock} + \text{Rs. 20,000}}{2}$

Average Stock = Opening Stock + Rs. 10,000

Opening Stock = Average Stock - Rs. 10,000

= Rs. 3,00,000 - Rs.10,000 = Rs. 2,90,000

Closing Stock = Opening Stock + Rs. 20,000

= Rs. 2,90,000 + Rs. 20,000 = Rs. 3,10,000

f) Payable Turnover = $\frac{\text{Purchases}}{\text{Payables}}$ = 6

Purchases = Cost of Sales + Increase in Stock

= Rs. 24,00,000 + Rs. 20,000 = Rs. 24,20,000

Payables = $\frac{\text{Purchases}}{6}$ = $\frac{\text{Rs. 24,20,000}}{6}$ = Rs. 4,03,333

g) Capital Turnover = $\frac{\text{Cost of Sales}}{\text{Capital Employed}}$ = 2

Capital Employed = $\frac{\text{Cost of Sales}}{2}$ = $\frac{\text{Rs. 24,00,000}}{2}$ = Rs. 12,00,000

h) Share Capital = Capital Employed - Reserves & Surplus

= Rs. 12,00,000 - Rs. 2,00,000 = Rs. 10,00,000

Balance Sheet of Tirupati Ltd as on……

Liabilities	Amount (Rs.)	Assets	Amount (Rs.)
Share Capital (b/f)	10,00,000	Fixed Assets	3,00,000
Reserve & Surplus	2,00,000	Closing Inventories	3,10,000
Payables	4,03,333	Receivables	8,00,000
		Other Current Assets	1,93,333
	16,03,333		16,03,333

(Fixed Asset turnover, inventory turnover capital turnover is calculated on cost of sales)

PROBLEM NO: 10

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

Dr. **Trading Account** **Cr.**

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

Dr. **Profit and Loss Account** **Cr.**

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. fig)	52,00,000
	96,00,000		**96,00,000**

PROBLEM NO: 11

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: 12

The Net Profit is calculated as follows:

Particulars	Amount (Rs.)
Sales Revenue	22,50,000
Less: Direct Costs	15,00,000
Gross Profits	7,50,000
Less: Operating Expenses	2,40,000
Earnings Before Interest and Tax (EBIT)	5,10,000
Less: Interest on Debt [9% × 7,50,000 (i.e. 30 % of 25,00,000)]	67,500
Earnings Before Tax (EBT)	4,42,500
Less: Taxes (@ 40%)	1,77,000
Profit After Tax (PAT)	**2,65,500**

i) Net Profit Margin (After tax):

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

ii) Return On Assets (ROA) (After tax):

$$\text{ROA} = \frac{\text{EBIT}(1-t)}{\text{Total Assets}} \times 100 = \frac{\text{Rs. } 5,10,000 \times (1-0.4)}{\text{Rs. } 25,00,000}$$

$$= \frac{\text{Rs. } 3,06,000}{\text{Rs. } 25,00,000} = 0.1224 = 12.24\%$$

iii) Asset turnover $= \frac{\text{Sales}}{\text{Assets}} = \frac{\text{Rs. } 22,50,000}{\text{Rs. } 25,00,000} = 0.9$

Asset turnover = 0.9

iv) Return on equity (ROE) $= \frac{\text{PAT}}{\text{Equity}} = \frac{\text{Rs. } 2,65,000}{\text{Rs. } 17,50,000} = 15.17\%$

PROBLEM NO: 13

Ratios	2015	2016	2017
Current ratio	1.19	1.25	1.20
Acid-test ratio	0.43	0.46	0.40
Average collection period	18	22	27
Inventory turnover	NA*	8.2	6.1
Total debt to net worth	1.38	1.40	1.61
Long-term debt to total capitalization	0.33	0.32	0.32
Gross profit margin	0.200	0.163	0.132
Net profit margin	0.075	0.047	0.026
Asset turnover	2.80	2.76	2.24
Return on assets	0.21	0.13	0.06

Analysis: The company's profitability has declined steadily over the period. As only Rs. 50,000 is added to retained earnings, the company must be paying substantial dividends. 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 buildup 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-worth ratio increasing to what would have to be regarded on an absolute basis as a high level.

The current and acid-test ratios have fluctuated, but the current ratio is not particularly inspiring. The lack of deterioration in these ratios is clouded by the relative build up in both receivables and inventories, evidencing deterioration in the liquidity of these two assets. Both the gross profit and net profit margins have declined substantially. The relationship between the two suggests that the company has reduced relative expenses in 2016 in particular. The buildup 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

PROBLEM NO: 14

Ratios	Navya Ltd.	Industry Norms
1. Current Assets/ Current Liabilities	52, 80, 000 /19, 80, 000=2.67	2.50
2. Sales/ Debtors	1,10, 00, 000/ 11, 00, 000 = 10.0	8.00
3. Sales/ Stock	1,10, 00, 000 /33, 00, 000 = 3.33	9.00
4. Sales/ Total Assets	1,10, 00, 000/77, 00, 000 = 1.43	2.00
5. Net Profit/ Sales	2,31, 000/1,10, 00, 000 = 2.10%	3.50%
6. $\frac{\text{Net Profit}}{\text{Total Assets}}$	2,31,000 /77,00,000 = 3.00%	7%
7. $\frac{\text{Net Profit}}{\text{Net Worth}}$	2,31,000 /48,00,000 = 4.81%	10.5%
8. $\frac{\text{Total Debt}}{\text{Total Assets}}$	29,00,000/ 77,00,000 = 37.66%	60%

Comments:

1. The position of Navya Ltd. is better than the industry norm with respect to Current Ratios and the Sales to Debtors Ratio.
2. However, the position of sales to stock and sales to total assets is poor comparing to industry norm.
3. The firm also has its net profit ratios, net profit to total assets and net profit to total worth ratio much lower than the industry norm.
4. Total debt to total assets ratio suggest that, the firm is geared at lower level and debt are used to Asset.

PROBLEM NO: 15

Net Profit Margin = Net Income (Rs. 4,212) ÷ Revenue (Rs. 29,261) = 0.14439, or 14.39%

Asset Turnover = Revenue (Rs. 29,261) ÷ Assets (Rs. 27,987) = 1.0455

Equity Multiplier = Assets (Rs. 27,987) ÷ Shareholders' Equity (Rs. 13,572) = 2.0621

Finally, we multiply the three components together to calculate the return on equity: (Rs. 27,987)

Return on Equity = Net Profit Margin x Asset Turnover x Equity Multiplier

= (0.1439) x (1.0455) x (2.0621) = 0.3102, or 31.02%

Analysis: A 31.02% return on equity is good in any industry. Yet, if you were to leave out the equity multiplier to see how much company would earn if it were completely debt-free, you will see that the ROE drops to 15.04%. 15.04% of the return on equity was due to profit margins and sales, while 15.96% was due to returns earned on the debt at work in the business. If you found a company at a comparable valuation with the same return on equity yet a higher percentage arose from internally-generated sales, it would be more attractive.

ADDITIONAL PROBLEMS FOR SELF PRACTICE

PROBLEM NO: 1

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 = $\frac{\text{365 days}}{\text{Deb. T/o ratio}}$	$\frac{365}{2.74}$ = 133.2 days	$\frac{365}{3.29}$ = 110.94 days.
5. Earnings per share = $\frac{\text{EAESH}}{\text{No. of EShares}}$ a) Earnings available to ES holders b) No. of Equity shares c) Earnings per share ((a) /(b))	(1700-1500) + (2000 X 10%) = 400 = 400/200 = Rs. 2	(1800-1700)+13k X 10% = 400 = 400/300 = 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: 2

Profit and Loss statement of Stan Co.

Particulars	Amount (Rs.)
Sales (WN 4)	50,00,000
Less: variable costs (60% on sales)	30,00,000
Contribution (sales less variable cost)	20,00,000
Less: Fixed costs **(bal. fig)** (Contribution less profit)	9,00,000
EBIT (WN 7)	11,00,000
Less: Interest **(bal. fig)** (EBIT - EBT)	6,00,000
EBT Given **(10% of sales of Rs.50,00,000)**	5,00,000
Less: Tax	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 Stan 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. fig)**	18,33,333
Total:	**75,00,000**	**Total:**	**75,00,000**

Working Notes and Calculation:

1. Current Ratio = $\frac{\text{Current Assets}}{\text{Current Liabilities}}$ =3 times. So, Current Assets = 3 x 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 = $\frac{\text{Rs.10,00,000}}{2}$ **Rs.5,00,000**

   Hence, Current Assets = 3 x Rs.5,00,000 = **Rs.15,00,000**

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

3. Stock Turnover Ratio **=** $\frac{\text{sales}}{\text{Inventory}} = \frac{\text{Sales}}{\text{Rs.10,00,000}} = 5$ 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.

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

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

6. Financial Leverage = $\frac{\text{EBIT}}{\text{EBT}} = \frac{\text{EBIT}}{\text{Rs.5,00,000}}$ = 2.20 So, EBT = Rs. 5,00,000 x 2.2 =Rs.11,00,000

7. Long Term Loan = $\frac{\text{Interest Amount}}{\text{Interest Rate}} = \frac{\text{Rs.6,60,000}}{12\%}$ =Rs.50,00,000. [**Note:** Interest Amt. from P&L Stmt]

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

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

10. Number of Equity shares= $\frac{\text{Net worth}}{\text{BookValue per share}}$ = $\frac{\text{Rs. 20,00,000}}{\text{Rs. 40}}$ =50,000 Shares.

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

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

12. 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. fig) Rs.83,333**

The End