

## 8. RATIO ANALYSIS

## ASSIGNMENT PROBLEMS

## PROBLEM NO: 1

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

| 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 is 1 lakh. If payment of Current Liability = Rs.10,000 then, CA = 1,90,000, CL= 90,000.<br>Current Ratio = $\frac{1,90,000}{90,000} = 2.11 : 1$ .<br>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: 2

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:

$$\begin{aligned} \text{Operating cycle period} &= \text{Inventory velocity} + \text{Debtors velocity} \\ &= 72 \text{ days} + 60 \text{ days} = 132 \text{ days} \end{aligned}$$

Significance:

- 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.
- The operating cycle of the given firm indicates that it is taking 132 days to convert the Finished Good into cash.
- 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: 3****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

∴ 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

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

∴ Fixed assets = 0.75 Proprietary fund (PF) or 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 &amp; Reserves &amp; 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         |                |                  |
|                    | <b>11,20,000</b> |                | <b>11,20,000</b> |

**PROBLEM NO: 4**

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%

∴ Credit Sales = Rs. 2,70,000 x 0.80 = Rs. 2,16,000

Total Assets Turnover = 0.3 times

Copyrights Reserved  
To **MASTER MINDS**, Guntur

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

Sales - Gross Profit = COGS

$$\therefore \text{COGS} = \text{Rs. 2,70,000} - 54,000 = \text{Rs. 2,16,000}$$

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.

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

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

Current ratio = 1.8

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

$$1.8 \text{ Creditors} = (\text{Rs. 12,000} + \text{Rs. 54,000} + \text{Cash})$$

$$1.8 \text{ Creditors} = \text{Rs. 66,000} + \text{Cash} \text{ -----(i)}$$

$$\text{Long-term Debt to Equity} = 40\%$$

$$\text{Shareholders' Funds (Equity)} = \text{Rs. 6,00,000}$$

$$\therefore \text{Long-term Debt} = \text{Rs. 6,00,000} \times 40\% = \text{Rs. 2,40,000}$$

$$\text{Creditors} = \text{Rs. 9,00,000} - (\text{6,00,000} + \text{2,40,000}) = \text{Rs. 60,000}$$

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

#### 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        |
|                     | <u>9,00,000</u> |                                 | <u>9,00,000</u> |

#### PROBLEM NO: 5

##### 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         |
|                      |                  | Debtors        | 5,00,000         |
|                      |                  | Cash           | 2,50,000         |
|                      | <b>26,25,000</b> |                | <b>26,25,000</b> |

**b) Statement Showing Working Capital Requirement**

|             |  |          |           |
|-------------|--|----------|-----------|
| <b>A.</b>   | <b>Current Assets</b>  |          |           |
|             | Stock  | 3,75,000 |           |
|             | Debtors  | 5,00,000 |           |
|             | Cash   | 2,50,000 | 11,25,000 |
| <b>B.</b>   | <b>Current Liabilities</b>   |          | 7,50,000  |
|             | Working Capital before Provision (A - B)   |          | 3,75,000  |
| <b>Add:</b> | Provision for Contingencies @ 10% of Working Capital including Provision<br>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: 6****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             |
|                               | <b>344</b>     |                    | <b>344</b>     |

**WORKING NOTE-1: CLOSING STOCK:**

- Sales = 500L
- Net Sales = Sales - Sales Returns  
= 500L - 20%  
= 400L
- G.P% = 25%
- COGS = (100-25) % = 75%

$$\text{COGS} = 400 \times 75/100 = 300 \text{ Lakhs}$$

$$\text{Inventory T.O Ratio} = 4$$

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

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

**WORKING NOTE-2: CASH:**

$$\text{Cash to Inventory} = 1:15$$

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

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

Copyrights Reserved  
To **MASTER MINDS**, Guntur

**WORKING NOTE-3: F. ASSETS:**

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

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

$$\text{Plant \& Machinery} = 125\text{L}$$

$$\therefore \text{Other Fixed Assets} = 75\text{L}$$

**WORKING NOTE-4: DEBTORS:**

$$\text{Avg. Collection Period} = 73$$

$$\text{Annual Credit Sales} = 80\% \text{ of net sales} = 80\% \text{ of } 400\text{L} = 320\text{L}$$

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

**WORKING NOTE-5: CURRENT LIABILITIES:**

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

$$\begin{aligned} \text{Current Assets} &= \text{Stock} + \text{Cash} + \text{Debtors} \\ &= 75\text{L} + 5\text{L} + 64\text{L} = 144\text{L} \end{aligned}$$

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

$$\text{Trade Credit / Current Liabilities} = 72\text{L}$$

**WORKING NOTE-6: BANK CREDIT:**

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

$$\text{Bank Credit} = 2 \times 72\text{L} = 144\text{L}$$

**PROBLEM NO: 7**

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

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

$$\text{b) Cost of Sales} = \text{Sales} - \text{Gross profit} = \text{Rs. } 32,00,000 - \text{Rs. } 8,00,000 = \text{Rs. } 24,00,000$$

$$\begin{aligned} \text{c) Receivable Turnover} &= \frac{\text{Sales}}{\text{Receivables}} = 4 \\ &= \text{Receivables} = \frac{\text{Sales}}{4} = \frac{\text{Rs. } 32,00,000}{4} = \text{Rs. } 8,00,000 \end{aligned}$$

$$\begin{aligned} \text{d) Fixed Assets Turnover} &= \frac{\text{Cost of Sales}}{\text{Fixed Assets}} = 8 \\ \text{Fixed Assets} &= \frac{\text{Cost of Sales}}{8} = \frac{\text{Rs. } 24,00,000}{8} = \text{Rs. } 3,00,000 \end{aligned}$$

$$\begin{aligned} \text{e) Inventory Turnover} &= \frac{\text{Cost of Sales}}{\text{Average Stock}} = 8 \\ \text{Average Stock} &= \frac{\text{Cost of Sales}}{8} = \frac{\text{Rs. } 24,00,000}{8} = \text{Rs. } 3,00,000 \\ \text{Average Stock} &= \frac{\text{Opening Stock} + \text{Closing Stock}}{2} \\ \text{Average Stock} &= \frac{\text{Opening Stock} + \text{Opening Stock} + \text{Rs. } 20,000}{2} \\ \text{Average Stock} &= \text{Opening Stock} + \text{Rs. } 10,000 \\ \text{Opening Stock} &= \text{Average Stock} - \text{Rs. } 10,000 \\ &= \text{Rs. } 3,00,000 - \text{Rs. } 10,000 = \text{Rs. } 2,90,000 \\ \text{Closing Stock} &= \text{Opening Stock} + \text{Rs. } 20,000 \\ &= \text{Rs. } 2,90,000 + \text{Rs. } 20,000 = \text{Rs. } 3,10,000 \end{aligned}$$

$$\begin{aligned} \text{f) Payable Turnover} &= \frac{\text{Purchases}}{\text{Payables}} = 6 \\ \text{Purchases} &= \text{Cost of Sales} + \text{Increase in Stock} \\ &= \text{Rs. } 24,00,000 + \text{Rs. } 20,000 = \text{Rs. } 24,20,000 \\ \text{Payables} &= \frac{\text{Purchases}}{6} = \frac{\text{Rs. } 24,20,000}{6} = \text{Rs. } 4,03,333 \end{aligned}$$

$$\begin{aligned} \text{g) Capital Turnover} &= \frac{\text{Cost of Sales}}{\text{Capital Employed}} = 2 \\ \text{Capital Employed} &= \frac{\text{Cost of Sales}}{2} = \frac{\text{Rs. } 24,00,000}{2} = \text{Rs. } 12,00,000 \end{aligned}$$

$$\begin{aligned} \text{h) Share Capital} &= \text{Capital Employed} - \text{Reserves \& Surplus} \\ &= \text{Rs. } 12,00,000 - \text{Rs. } 2,00,000 = \text{Rs. } 10,00,000 \end{aligned}$$

**Balance Sheet of Tirupati Ltd as on.....**

| Liabilities       | Amount (Rs.) | Assets               | Amount (Rs.) |
|-------------------|--------------|----------------------|--------------|
| Share Capital     | 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: 8**

$$\begin{aligned} \text{R.O.E} &= [\text{R.O.I} + (\text{R.O.I} - r) \times \text{D/E}] \times (1-t) \\ &= [0.2 + (0.20 - 0.10) \times 0.60] \times (1-0.4) \\ &= [0.2 + 0.06] \times 0.60 = 0.1560 \end{aligned}$$

$$\text{R.O.E} = 0.1560 \times 100 = 15.60 \%$$

**PROBLEM NO: 9**

| 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 = $\frac{\text{Sales (incl. excise \& sales tax)}}{\text{Avg. Debtors}}$ | $\frac{4000 \times 120\%}{1750} = 2.74$  | $\frac{5000 \times 120\%}{1825} = 3.29$   |
| 4. Debtors Velocity = $\frac{365 \text{ days}}{\text{Deb. T/o ratio}}$                             | $\frac{365}{2.74} = 133.2 \text{ days}$  | $\frac{365}{3.29} = 110.94 \text{ days.}$ |
| 5. Earnings per share = $\frac{\text{EAESH}}{\text{No. of E. Shares}}$                             |  |   |
| a) Earnings available to ES holders  | $(1700-1500) + (2000 \times 10\%) = 400$ | $(1800-1700) + 13k \times 10\% = 400$     |
| b) No. of Equity shares  | 200                                      | 300                                       |
| c) Earnings per share ((a)/(b))  | Rs. 2.00                                 | 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: 10****WORKINGS:**

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

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

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

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

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

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

$$\text{vi) Gross Profit} = 25\% \text{ of Rs. } 32,00,000 = \text{Rs. } 8,00,000$$

$$\text{vii) Stock Turnover} = \frac{\text{Cost of Goods Sold (i.e. Sales - Gross profit)}}{\text{Average Stock}} = 10 = \frac{\text{Rs. } 32,00,000 - \text{Rs. } 8,00,000}{\text{Average Stock}} = 10$$

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

$$\text{Or, Opening Stock} = \text{Rs. } 80,000$$

| 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  |     |                  |
|  | <b>36,00,000</b> |                  |           |     | <b>36,00,000</b> |

| 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        |                         |          |     |                 |
|  | <b>8,00,000</b> |                         |          |     | <b>8,00,000</b> |

#### Balance Sheet

| Capital and Liabilities |                  | Assets                          |                  |
|-------------------------|------------------|---------------------------------|------------------|
|                         | (Rs.)            |                                 | (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        |
|                         | <b>96,00,000</b> |                                 | <b>96,00,000</b> |

#### PROBLEM NO: 11

The Net Profit is calculated as follows:

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

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):

$$\begin{aligned} \text{ROA} &= \frac{\text{EBIT} (1-t)}{\text{Total Sales}} \times 100 = \frac{\text{Rs. } 5,10,000 \times (1-0.4)}{\text{Rs. } 22,50,000} \\ &= \frac{\text{Rs. } 3,06,000}{\text{Rs. } 25,00,000} = 0.1224 = 12.24\% \end{aligned}$$

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:12**

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

$$\text{Quick Assets} = \text{C.A} - \text{Stock} - \text{Prepaid exp.} = 30,50,000 - 21,60,000 - 10,000 = 8,80,000$$

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

$$\text{ii) Debt equity Ratio} = \frac{\text{L.T.Debt}}{\text{S/L/F}} = \frac{16,00,000}{(20,00,000+800,000)} = 0.57 : 1$$

$$\text{iii) Return on Capital Employed (ROE)} = \frac{\text{EBIT}}{\text{Capitalemployed}} \times 100 = \frac{12,00,000}{44,00,000} \times 100 = 27.27\%$$

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

**WORKING NOTES:****1. Current Assets & Current Liabilities Computation**

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

$$\text{C.A} = 2.5 \text{ C.L}$$

$$\text{Working Capital} = \text{C.A} - \text{C.L}$$

$$2,40,000 = \text{C.A} - \text{C.L}$$

$$\text{C.A} = 2,40,000 + \text{C.L}$$

$$\text{C.A} = 2.5 \text{ C.L}$$

$$2,40,000 + \text{C.L} = 2.5 \text{ C.L}$$

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

$$\text{Current Liabilities} = 1,60,000$$

$$\therefore \text{Current Assets} = 1,60,000 \times 2.5 = \text{Rs. } 4,00,000$$

**2. Computation of Stock:**

$$\text{Liquid Ratio} = \frac{\text{LiquidAssets}}{\text{C.L}}$$

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

$$1.5 \times 1,60,000 = 4,00,000 - \text{Stock}$$

$$\text{Stock} = \text{Rs. } 1,60,000$$

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

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

$$\text{Fixed Assets} = 0.75 \times \text{P.F}$$

$$\text{New working capital} = 0.25 \times \text{P.F}$$

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

$$\therefore \text{Proprietary Funds} = 9,60,000$$

Fixed Assets = 9,60,000 x 75% = 7,20,000

Capital = Proprietary Funds - Reserves and Surplus = 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           | C.A    | 2,40,000         |
| S/Cr        | 1,20,000         |        |                  |
|             | <b>11,20,000</b> |        | <b>11,20,000</b> |

### PROBLEM NO: 13

#### Workings Notes:

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

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

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

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. 3,30,000

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

Total Asset = Proprietary Fund (Equity) + Debt

Or 17,50,000 = 1.5 Debt + Debt

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

Total Asset = Proprietary Fund (Equity) + Debt

Or 17,50,000 = 1.5 Debt + Debt

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

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

=  $\frac{\text{Rs. } 17,50,000 \times 1.5}{2.5} = \text{Rs. } 10,50,000$

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

#### ii) Calculation of Fixed Assets Turnover Ratio

$$\text{FixedAssets TurnoverRatio} = \frac{\text{Sales}}{\text{FixedAssets}} = \frac{\text{Rs. 35,00,000}}{\text{Rs. 10,00,000}} = 3.5$$

iii) Calculation of Proprietary Ratio

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

iv) Calculation of Earnings per Equity Share (EPS)

$$\begin{aligned} \text{Earnings per Equity Share (EPS)} &= \frac{\text{PAT} - \text{Preference Share Dividend}}{\text{Number of Equity Shares}} \\ &= \frac{\text{Rs. 2,62,500} - \text{Rs. 18,000 (9\% of 2,00,000)}}{60,000} = \text{Rs. 4.075 per share} \end{aligned}$$

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

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

### PROBLEM NO: 14

#### 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        |
| <b>Total:</b>              | <b>75,00,000</b> | <b>Total:</b>                       | <b>75,00,000</b> |

#### Working Notes and Calculation:

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

$$\text{Net working capital} = \text{Current Assets} - \text{Current Liabilities} = \text{Rs. 10,00,000.}$$

$$3 \times \text{Current Liabilities} - \text{Current Liabilities} = \text{Rs. 10,00,000.} \quad \text{So, } 2 \times \text{Current Liabilities} = \text{Rs. 10,00,000}$$

$$\text{So, Current Liabilities} = \frac{\text{Rs. 10,00,000}}{2} = \text{Rs. 5,00,000}$$

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

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

$$3. \text{ Quick Ratio} = \frac{\text{Quick Assets}}{\text{Quick Liabilities}} = 1 \text{ time} \quad \text{So, } \frac{\text{Current Assets} - \text{stock}}{\text{Current Liabilities} - \text{Bank OD}} = 1$$

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

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

**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.

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

$$6. \text{ Avg. Collection period} = 30 \text{ days. Assuming 1 year} = 360 \text{ days, Debtors} = \text{Sales} \times \frac{30}{360} = \text{Rs.50,00,000} \times \frac{30}{360} = \text{Rs.4,16,667}$$

$$7. \text{ Financial Leverage} = \frac{\text{EBIT}}{\text{EBT}} = \frac{\text{EBIT}}{\text{Rs.5,00,000}} = 2.2 \quad \text{So, EBT} = \text{Rs. } 5,00,000 \times 2.2 = \text{Rs.11,00,000}$$

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

$$9. \text{ Total External Liabilities} = \text{Long Term Liabilities} + \text{Current Liabilities} = \text{Rs.55,00,000} = \text{Rs.20,00,000}$$

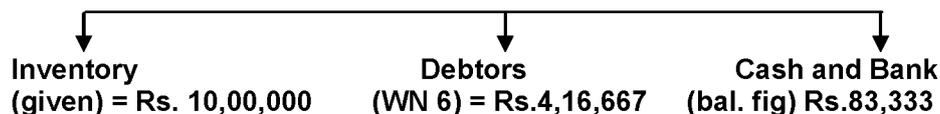
$$10. \frac{\text{Total Liabilities}}{\text{Net worth}} = 2.75 \quad \text{So, } \frac{\text{Rs.55,00,000}}{\text{Net worth}} = 2.75. \text{ Hence, Net worth} = \frac{\text{Rs. } 55,00,000}{2.75} = \text{Rs.20,00,000}$$

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

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

$$12. \text{ Retained Earnings} = \text{Net worth} - \text{share capital} = \text{Rs.20,00,000} - \text{Rs.5,00,000} = \text{Rs.15,00,000}$$

$$13. \text{ Total Current Assets} = \text{WN 1} = \text{Rs.15,00,000}$$



### **PROBLEM NO: 15**

**i) Liquidity ratios:**

a) Current ratio = CA/CL = Rs. 25,88,000 / Rs. 6,40,000 = 4.04 : 1 (previous year); Rs. 30,52,000 / Rs. 8,00,000 = 3.82 : 1 (current year)

b) Acid test ratio = (Rs. 25,88,000 - Rs.18,68,000) / Rs. 6,40,000 = 1.125 : 1 (previous year); (Rs. 30,52,000 - Rs. 21,72,000) / Rs. 8,00,000 = 1.1 : 1 (current year)

ii) Solvency ratios:a) Debt-equity ratios:

1. Total outside debts/Equity funds = Rs. 22,40,000/Rs. 24,68,000 = 0.91 (previous year) ; Rs. 24,00,000/Rs. 28,12,000 = 0.85 (current year)
2. Long-term debts/Equity funds = Rs. 16,00,000/Rs. 24,68,000 = 0.65 (previous year); Rs. 16,00,000/Rs. 28,12,000 = 0.57 (current year)

b) Interest coverage ratio:

$$= \text{EBIT/Interest charges} = \text{Rs. } 12,00,000/\text{Rs. } 1,60,000 = 7.5 \text{ times (current year)}$$

iii) Profitability ratios (current year):

- a) Gross profit ratio = (Gross profit/sales)  $\times$  100 = (Rs. 12,00,000/Rs. 40,00,000)  $\times$  100 = 30 per cent
- b) Net profit ratio = (Net profit/sales)  $\times$  100 = (Rs. 6,76,000/Rs. 40,00,000)  $\times$  100 = 16.9 per cent
- c) Return on total resources = (EAT + Interest – Tax savings on interest)/Total assets  $\times$  100 = [(Rs.6,76,000 + Rs. 1,60,000 – Rs. 56,000)/Rs. 64,00,000]  $\times$  100 = 12.2 per cent
- d) Return on capital employed = [(EAT + Interest – Tax savings on interest)/Total assets]  $\times$  100 = [(Rs. 6,76,000 + Rs. 1,60,000 – Rs. 56,000)/44,12,000]  $\times$  100 = 17.7 per cent
- e) Return on equity funds = (Net profit after taxes/Equity funds)  $\times$  100 = (Rs. 6,76,000/Rs. 28,12,000)  $\times$  100 = 24 per cent.

**Note:** Ratios (c), (d) and (e) can also be determined by taking average total assets/capital employed/equity funds.

iv) Activity ratios:

- a) Debtors turnover = Rs. 40,00,000/Rs. 3,60,000 = 11.1 times
- b) Stock turnover = Rs. 28,00,000/Rs. 20,00,000 = 1.4 times
- c) Total assets turnover = Rs. 28,00,000/Rs. 64,00,000 = 0.44 times

**Comment:** The company's position is quite sound from the point of view of liquidity, solvency and profitability. However, its activity ratios, particularly in terms of utilization, do not seem to be satisfactory.

**PROBLEM NO: 16**

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:**

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

Copyrights Reserved  
To **MASTER MINDS**, Guntur

**THE END**

MASTER MINDS