# I. CLASSIFICATION OF ACCOUNTING RATIOS

Accounting Ratios may be grouped: (1) On the basis of Sources and (2) On the basis of Purposes.

If Ratios on the basis of Sources are discussed that will help one to understand the rest.

Source wise Classification of Accounting Ratios				
Category	No.	Ratio	How to Compute	Other Details
A. Balance Sheet Ratios	1	Current Ratio	Current Assets Current Liabilities	a. Current Assets include – Stock, Debtors, B/R, Advance, Cash, Bank, etc., which are expected to be converted into cash within the accounting period.
				b. Current Liabilities include Creditors, B/P, Outstanding Expenses, Bank Overdraft (short-term), etc.
				c. Standard Ratio 2:1
				d. If CA are proportionately more, the business is solvent, the margin of safety for creditors, etc., is more but there may be under-trading reflected by large amounts of stock, delayed collection from debtors, etc.
				e. If CL are proportionately more, there may be over-trading. Working capital will be reduced.
				f. This ratio indicates short-term solvency.
				g. It is also called Banker's Ratio or Working Capital Ratio (if expressed as a percentage).
	2	Quick or Liquid	Quick or Liquid Assets	a. Minimum desired ratio 1:1
		or Acid Test Ratio	Quick or Liquid Liabilities OR, Current Assets - Stock	<ul> <li>It is more useful in determining short-term solvency, ability of a business to pay its immediate dues.</li> </ul>
			Current Liabilities - Bank Overdraft	c. If Bank Overdraft is payable on demand, it should be considered as a quick liability and <b>not deducted here</b> .
	3	Debt-Equity Ratio	Long – term Debts Equity or Proprietor's Fund	a. It shows the relation between debt and equity in the Capital Structure of a business.
				b. Commonly 1:2 is considered as standard ratio. If debts are comparatively more, the margin of safety for creditors is reduced. Financial risk of share holders increases through payment of higher interest. High ratio cannot be recommended unless favourable conditions, increasing trend of sales, etc., prevail.

Source wise Classification of Accounting Ratios

Category No	. Ratio	How to Compute		Other Details
			c. d.	If debts are more, excessive dependence on Loan capital becomes visible. But if debts are not sufficient, too much dependence on own capital invites over capitalisation. Some modern accountants prefer to include short term liabilities within debts.
4	Fixed Assets to Net Worth or Fixed Assets- Proprietorship ratio	Fixed Assets Net Worth or Proprietor's Fund	e. f.	Net Worth = Share Capital (Equity and Preference) + Reserves & Surplus - Misc. Expenditure. It shows how much proprietary fund has been used to finance the fixed assets. If too much amount is blocked in Fixed Assets, there may be shortage of Working Capital.
5	Capital Gearing Ratio	It may be expressed either as: a. <u>Pref. Share Capital</u> Equity Share Capital OR b. Fixed Interest Bearing <u>Securities</u> Shareholder'sEquity	b. c. d. f.	Share Capital + undistributed profits & reserves - Loss (P/L Dr.) - Misc. Expenditure. Fixed Interest-Bearing Securities = Pref. Share Capital + Debenture + Bank Loan etc. Where the second formula is used, the ratio is also called Leverage. Normally low equity base means highly geared structure and high equity base indicates low-geared structure. In a highly geared company, the proportion of Preference Share Capital is high in comparison to Equity Share Capital. This ratio has no connection with the operational efficiency of a company. It affects the dividend rates only. In a highly geared structure, there is greater possibility of fluctuation in dividend rate and market value of shares. In years of prosperity, Equity Shareholders reap high returns but in a lean period, a large Preference Capital base consumes most or all of the prospect of higher returns becomes a remote possibility to

Category	No.	Ratio	How to Compute	Other Details
	6	Some Other Balance Sheet Ratios: a. Net worth to Total Assets b. Debt to Total Capital c. Fixed Assets Ratio d. Current Assets to Fixed Assets Ratio	Net Worth Total Assets Total short-term and Long – term debt Total Capital Employed Fixed Assets Prop.Fund+LT Debts <u>Current Assets</u> Total Assets	<ul> <li>a. Shows the owner's share in total assets and acts as a measure of managerial efficiency in the formulation of financial planning.</li> <li>b. Owners will like high debt ratio but creditors will like low debt ratio.</li> <li>c. It is used for solving solvency and managerial efficiency.</li> <li>d. Conventional ratio is 1:1. If current assets are more, the position indicates excessive storage of stock, slow collection from debtors, etc.</li> </ul>
B. Revenue Statement Ratios	1	Gross Profit Ratio	$\frac{\text{Gross Profit}}{\text{Net Sales}} \times 100$	<ul> <li>a. Net Sales = Total Sales - Sales Returns - Cash Discount.</li> <li>b. Where there are number of products or departments, this ratio should be separately calculated for each of them.</li> </ul>
	2	Net Profit Ratio	$\frac{\text{Net Profit}}{\text{Net Sales}} x \ 100$	It helps to ascertain profitability. It should be compared with GP Ratio. If there is a considerable difference, there must be considerable expenses and losses charged against profits.
	3	Operating Ratio	Cost of Goods Sold + Operating Expenses Net Sales	It indicates the portion of Net Sales spent to cover the cost of goods sold and operating expenses. Lower ration indicates greater managerial efficiency and control as well as higher profitability.
C. Mixed Ratios [Balance Sheet-cum- Revenue Statement Ratios]	1	Stock Turnover Ratio or Stock Velocity	Cost of Goods Sold Average Stock	<ul> <li>a. Average Stock = (Opening Stock + Closing Stock)/2</li> <li>b. The result of this ratio is usually given as the number of times like 4 times or 6 times. It may also be given as a period of time like 4 months or 73 days. The number of times can be found out as 12/4 = 3 or 365/73 = 5 etc.</li> <li>c. It shows the number of times average stock is rotated during a period. It shows the velocity of movement of stock. High results indicate quick movement of stock, lower storage costs and efficiency of management in inventory control. Low ratio indicates slow movement of stock, ineffective purchase policy and greater risk of obsolescence.</li> </ul>

Category	No.	Ratio	How to Compute		Other Details
	2	Debtors Velocity / Turnover Operating Ratio	Receivables Sales (Credit) x 12 or 365 OR Receivables Daily Credit Sale	a. b. c.	Here <b>Receivables</b> = Debtors + Bills Receivable. It shows the period of credit allowed to debtors which in a competitive situation may extend up to three months. If the result is high, that shows a slow trend of collections which may invite bad debts and other risks. In any case credit should be collected faster than credit paid off.
	3	Creditors Velocity / Turnover of Creditors	Payable Credit Purchase x 12 or 365	a. b.	<b>Payables</b> = Creditors + Bills Payable. It shows the period of credit employed.
	4	Capital Turnover OR Turnover of Capital Employed	Turn over or Sales Capital Employed	a. b.	Capital Employed = Share Holder's Fund + Long-Term Debts. If capital employed can be kept unchanged and sales can be improved, the result will become higher. So, a high ratio indicates better performance.
	5	Fixed Assets Turnover Ratio	Turn over or Sales Fixed Assets	a. b. c.	It shows the efficiency of management in the utilisation of fixed assets. A low ratio indicates under- utilisation of fixed assets. In labour intensive industries, this ratio becomes high whereas in capital intensive industries the ratio tends to be low.
	6	Return on Capital Employed	Net Profit Capital Employed x 100	а. b.	Capital Employed = Proprietary Fund + Long-Term Loans. If the ratio is calculated only in terms of own capital, it may be called Return on Proprietary Fund. An efficient business must have reasonable turnover of sales and also a reasonable margin on sales. This ratio is a combination of both. It clearly shows operational efficiency.
	7	Return on Long- term Investment	Earnings before Tax and Interest Capital Employed = EBIT P.F.+Loans	a. b.	This ratio is another version of the preceding ratio. It indicates the earning capacity of total capital employed.

Some other important ratios grouped source wise are:

- 1. Return on Shareholder's Funds =  $\frac{\text{Net Profit after Tax}}{\text{Shareholders Funds}} \times 100$
- 2. Profit Volume Ratio or P/V Ratio =  $\frac{\text{Total Contribution}}{\text{Net Sales}} \ge 100$

Where, Contribution = Sales – Variable Cost of Sales,  $\underline{OR}$  = Fixed Cost + Profit This ratio is widely applied in Marginal Costing.

3. Financial Leverage Ratio =  $\frac{\text{Operating Profit}}{\text{Profit before Tax}} = \frac{\text{EBIT}}{\text{PBT}}$ 

# **II. SOME OTHER IMPORTANT INFORMATION ABOUT RATIOS**

- 1. **Cash Position Ratios**: These ratios are used to ascertain whether sufficient cash is available in the business to meet day to day expenses and other requirements. The management will be interested to know this always. How much cash is maintained in total assets, can be assessed through these ratios.
  - a. Absolute Cash Ratio = Cash Reservoir / Current Liabilities
  - b. Cash Position to Total Assets = (Cash Reservoir / Total Assets) x 100
  - c. Intermediate Measure = Cash Reservoir / Average Daily Cash Expenses

Note: Cash Reservoir = Cash in hand and at Bank + Marketable non-trading investments.

2. **Debt Service Coverage Ratio**: Debt service costs means payments of instalments and interest against money borrowed as per terms of loans. Debts should be paid out of profits, and preferably out of profits resulting from the use of borrowed amounts.

The ratio shows the ability of the business to pay instalments and interest out of profits. The money lenders and management want to know this ratio.

Dabt Samias Comanana Datis	=	Returns available for Debt Service
Debt Service Coverage Ratio		Interest and Loans payable through instalments in the current period
	=	Net Profit + Interest + Depreciation and Non-cash Expenses - Tax
		Loan Instalments + Interest

## 3. Profitability Indicators for Shareholders:

(a) Formings Dan Share (FDS)	Profit after providing for Tax and Preference Dividend	
(a) <b>Earnings Per Share (EPS)</b>	= No. of Equity Shares	
(b) <b>Dividend per Share (DPS)</b>	= Total Equity Dividend No. of Equity Shares	

(c) **Yield** = Dividend per Share / Market Price per Share

# 4. *Expenses Ratio*: May be sub-divided as:

(a) **Direct Expenses Ratio** = 
$$\frac{\text{Direct Expenses}}{\text{Sales}} \ge 100$$

[It may again be separately calculated for each Direct Expense, like Direct Materials, Direct Wages and Direct Productive Expense]

(b) Indirect Expenses/Overhead Ratio =  $\frac{\text{Indirect Expenses}}{\text{Sales}} \ge 100$ 

[It may be further analysed separately for Administrative, selling, distribution and Financial Charges]

# **III. ILLUSTRATION:**

Calculate the Closing Debtors of a Company whose

- 1. Debtors Turnover Ratio is 3 times;
- 2. Gross Profit Ratio is 25% on Sales;
- 3. Cash sales is 1/3<sup>rd</sup> of Credit Sales;
- 4. Closing Debtors amount to Rs. 18,000 more than Opening Debtors; and
- 5. Cost of Goods Sold during the year has been Rs. 12,00,000.

## Solution:

As G.P. is 25% of sales, Cost of Goods Sold (COGS) = 75% of sales = Rs.12,00,000

Total Sales = Credit Sales + Cash Sales

= Credit Sales +  $1/3^{rd}$  of Credit Sales = 4/3 of Credit Sales

:. Credit Sales = Total Sales x  $\frac{3}{4}$  = Rs. 16,00,000 x 3/4 = Rs. 12,00,000

Debtors Turnover Ratio = Credit Sales/Average Debtors

:. Average Debtors = Credit Sales / Debtors Turnover Ratio

= Rs. 12,00,000/3 = **Rs. 4,00,000** 

The difference between closing debtors and opening debtors is Rs. 18,000.  $\therefore$  Average difference is Rs. 9,000.

Closing Debtors = Average Debtors + Rs. 9,000 = **Rs. 4,09,000**.

# Illustration 1: Use of Balance Sheet Ratios; Preparation of a Balance Sheet

From the following information prepare a summarized Balance Sheet in the books of X Ltd., as at 31<sup>st</sup> Dec, assuming that the capital is composed of Equity shares of Rs.10 each.

Liquid Ratio	1.5
Current Ratio	2.5
Asset (Fixed) Proprietorship Fund Ratio	0.75
Working Capital	Rs. 1,20,000
Reserves and Surplus	Rs. 60,000
Bank Overdraft	Rs. 20,000

# Working Notes:

1.	Current Ratio = 2.5
	Or, $\frac{\text{Current Assets (CA)}}{\text{Current Liabilities (CL)}} = \frac{5}{2}$ or, CA - CL = 5 - 2 = 3
	So, Working Capital =3 = Rs. 1,20,000 (given)
	: Current Assets = $5 = \frac{5}{3} \times \text{Rs.} 1,20,000 = \text{Rs.} 2,00,000$
	And Current Liabilities = $2 = 1,20,000 \text{ x} \frac{2}{3} = \text{Rs. } 80,000$
2.	Liquid Ratio = 1.5
	Or, $\frac{\text{Quick Assets (CA)}}{\text{Quick Liabilities (CL)}} = 1.5$ or, $\frac{\text{Current Assets - Stock}}{\text{Current Liabilities - Bank Overdraft}} = 1.5$
	Or, $\frac{2,00,000 - \text{Stock}}{80,000 - 20,000} = 1.5$ or, 2,00,000 - Stock = 1.5 x 60,000 = 90,000
	$\therefore$ Stock = 2,00,000 - 90,000 = Rs. 1,10,000
	Now, Current Assets = Stock + Debtors + Cash
	Or, 2,00,000 = 1,10,000 + Debtors + Nil (assumed Cash is Nil as there is Bank Overdraft)
	∴ Debtors = Rs. 90,000
	Similar, Current Liabilities = Creditors + Bank Overdraft
	0r, 80,000 = Creditors + 20,000 ∴ Creditors = Rs. 60,000
3.	$\frac{\text{Fixed Assets}}{\text{Proprietorship Fund}} = 0.75 = \frac{3}{4}$
	Assuming that there is no loan, working capital = $1 - \frac{3}{4} = \frac{1}{4}$ th of Proprietorship Fund
	Or, $\frac{1}{4}$ x Prop. Fund = Rs. 1,20,000 $\therefore$ Prop. Fund = Rs. 4,80,000
	Here, Reserves and Surplus = Rs. 60,000
	So, Share Capital = Prop. Fund - Reserves & Surplus = 4,80,000 - 60,000 = <b>Rs. 4,20,000</b>
4.	Fixed AssetsSo, Fixed Assets = $0.75 \times 4,80,000 = $ Rs. 3,60,000Proprietorship FundSo, Fixed Assets = $0.75 \times 4,80,000 = $ Rs. 3,60,000

# Solution:

Liabilities	Amount Rs.	Assets	Amount Rs.
Share Capital:		Fixed Assets	3,60,000
42,000 Equity Shares of Rs.10 each	4,20,000	Current Assets:	
Reserves & Surplus	60,000	Stock	1,10,000
Loans		Debtors	90,000
Current Liabilities:			
Creditors	60,000		
Bank Overdraft	20,000		
	5,60,000	]	5,60,000

# *Notes*: 1. Schedule VI Part I cannot be maintained with scanty information 2. Here Debtors = Receivables and Creditors = Payables

# Balance Sheet as on .....

				Rs.
Sources of Funds				
Share Capital: 40,000 Equit	y Shares of Rs. 10 each			4,00,000
Reserves & Surplus				80,000
				4,80,000
Represented by:				
Fixed Assets				3,60,000
Current Assets	Stock		1,10,000	
	Debtors		90,000	
			2,00,000	
Less: Current Liabilities	Trade Creditors	60,000		
	Bank Overdraft	20,000	80,000	1,20,000
				4,80,000

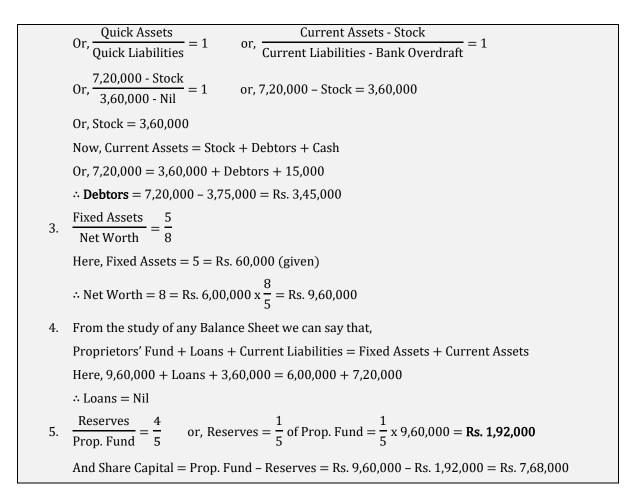
# Illustration 2:

From the following particulars prepare the Balance Sheet of Light Ltd., for the year ended 31.3.1989:

Fixed Assets to Net Worth	5:8
Current Ratio	2:1
Acid Test Ratio	1:1
Reserves to Proprietors' Funds	1:5
Current Liabilities	Rs. 3,60,000
Cash in hand	Rs. 15,000
Fixed Assets	Rs. 6,00,000

# Working Notes:

1.	Current Ratio = 2:1
	Or, $\frac{\text{Current Assets (CA)}}{\text{Current Liabilities (CL)}} = 2$ or, $\text{CA} = 2\text{CL} = 2\text{x} 3,60,000 = \text{Rs}.7,20,000$
	Thus, Current Assets = Rs. 7,20,000
2.	Acid Test Ratio = 1:1



Solution:

Balance Sheet of Light Ltd., as on 31.3.1989
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Liabilities	Amount Rs.	Assets	Amount Rs.
Share Capital:	7,68,000	Fixed Assets	6,00,000
Reserves	1,92,000	Current Assets:	
Loans	Nil	Stock	3,60,000
Current Liabilities	3,60,000	Debtors	3,45,000
		Cash	15,000
	13,20,000		13,20,000

# Illustration 3:

From the following information, prepare a Balance Sheet. Show the workings:

(a) Working Capital Rs. 75,000, (b) Reserves & Surplus Rs. 1,00,000, (c) Bank Overdraft Rs. 60,000,

(d) Current Ratio 1.75, (e) Liquid Ratio 1.15, (f) Fixed Assets to Proprietors' Funds 0.75 (g) Long term Liabilities Nil.

# Working Notes:

1.	Current Ratio = 1.75
	Or, $\frac{\text{Current Assets}}{\text{Current Liabilities}} = 1.75$ or, CA – CL = 1.75 – 1 = 0.75
	Or, Working Capital $= 0.75 = 75,000$
2.	Liquid Ratio = 1.15
	Or, $\frac{\text{Current Assets - Stock}}{\text{Current Liabilities - Overdraft}} = 1.15 \text{ or } \frac{1,75,000 - \text{Stock}}{1,00,000 - 60,000} = 1.15$
	Or, 1,75,000 – Stock = 1.15 x 40,000
	$\therefore$ Stock = 1,75,000 - 46,000 = 1,29,000 and Liquid Assets = 1,75,000 - 1,29,000 = Rs. 46,000
	(there being no cash, assumed)
3.	$\frac{\text{Fixed Assets}}{\text{Proprietorship Fund}} = 0.75 = \frac{3}{4}$
	As there are no long-term liabilities
	$\frac{\text{Working Capital}}{\text{Proprietorship Fund}} = \frac{1}{4} \qquad \text{or, } \frac{75,000}{\text{Prop. Fund}} = \frac{1}{4}$
	: Prop. Fund = Rs. 3,00,000 and Fixed Assets = $\frac{3}{4} \times 3,00,000 = \text{Rs. } 22,500$
	Share Capital = Prop. Fund – Reserves & Surplus = Rs. 3,00,000 – Rs. 1,00,000 = Rs. 2,00,000

## Solution:

# Balance Sheet of ..... as on .....

Liabilities	Amount Rs.	Assets	Amount Rs.
Share Capital:	2,00,000	Fixed Assets	2,25,000
Reserves & Surplus	1,00,000	Current Assets:	
Loans	Nil	Stock	1,29,000
Current Liabilities		Liquid Assets	46,000
Bank Overdraft	60,000		
Others (1,00,000 – 60,000)	40,000		
	4,00,000		4,00,000

# Illustration 4:

What would be the difference if in the previous problem it is clearly said that "Overdraft is payable on demand".

*Note:* As overdraft is payable on demand it has to be treated as a quick liability.

# Working Notes:

1.	Current Assets = Rs. 1,75,000 and Current Liabilities = Rs. 1,00,000 (same as Illustration 3)
2.	Liquid Ratio = $\frac{\text{CA - Stock}}{\text{CL}}$ = 1.15 (as CL = QL here) or $\frac{1,75,000 - \text{Stock}}{1,00,000}$ = 1.15
	Or, 1,75,000 – Stock = 1,15,000
	∴ Stock = Rs. 60,000
	$\therefore$ Debtors = 1,75,000 - 60,000 = 1,15,000
	Other calculations will be same as shown under illustration 3.

# Solution:

Balance Sheet of ..... as on .....

Liabilities	Amount Rs.	Assets	Amount Rs.
Share Capital:	2,00,000	Fixed Assets	2,25,000
Reserves & Surplus	1,00,000	Current Assets:	
Current Liabilities:		Stock	60,000
Bank Overdraft	60,000	Debtors etc.	1,15,000
Creditors	40,000		
	4,00,000		4,00,000

# Illustration 5:

From the following information prepare the Balance Sheet of Moon Ltd., as on 31.12. 1999:

Current Ratio	2:1
Liquidity Ratio	1.25: 1
Fixed Assets to Proprietorship Ratio	0.75: 1
Gearing Ratio	5:1
Working Capital	Rs. 8,000
Reserves & Surplus	Rs. 2,000
Bank Overdraft	Rs. 2,000
Long-term Loan	NIL

## Working Notes:

1.	Current Ratio = 2:1
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Or, 
$$\frac{\text{Current Assets (CA)}}{\text{Current Liabilities (CL)}} = \frac{2}{1}$$
 or, CA – Cl

, CA – CL = Working Capital = 2 - 1 = 1

	As, Working Capital is Rs. 8,000 here.
	So, Current Assets = 2 x 8,000 = Rs. 16,000 and Current Liabilities = 1 x 8,000 = Rs. 8,000
2.	Liquidity Ratio = 1.25:1
	Or, $\frac{\text{Current Assets - Stock}}{\text{Current Liabilities - Bank Overdraft}} = 1.25 \text{ or, } \frac{16,000 - \text{Stock}}{8,000 - 2,000} = 1.25$
	: Stock = Rs. 8,500 and Other Current Assets = $16,000 - 8,500 = $ <b>Rs. 7,500</b>
	Creditors or Payables = Current Liabilities = Bank Overdraft = 8,000 - 2,000 = <b>Rs. 6,000</b>
3.	Fixed Assets to Proprietorship Ratio $= 0.75:1$ or, $3:4$
	Or, $\frac{\text{Fixed Assets}}{\text{Prop. Fund}} = \frac{3}{4}$ or, Proprietorship Fund – Fixed Assets = 4 – 3
	Or, Working Capital = 1 = Rs. 8,000 (given)
	$\therefore$ Proprietorship Fund = 4 x 8,000 = Rs. 32,000 and Fixed Assets = 3 x 8,000 = Rs. 24,000
	[Please note that:
	$\sum A = \sum L$
	Or, FA + CA + Misc. Exp. = Sh. Capital + Reserves & Surplus + Loans + CL
	Or, Sh. Capital + Res. & Surplus - Misc. Exp. + Loans - FA = CA - CL
	Or, Prop. Fund + Loans -FA = Working Capital
	As there is no Loan, Prop. Fund – Fixed Assets = Working Capital]
	Share Capital = Proprietorship Fund - Reserves & Surplus = 32,000 - 2,000 = <b>Rs. 30,000</b>
4.	Gearing Ratio = 5:1
	Assumed, Eq. Sh. Capital: Pref. Sh. Capital $= 5:1$
	: Eq. Sh. Capital = $\frac{5}{6}$ of Sh. Capital = $\frac{5}{6}$ x Rs. 30,000 = Rs. 25,000
	And Pref. Sh. Capital $=\frac{1}{6}$ of Rs. 30,000 = Rs. 5,000

# Solution:

# Balance Sheet of Moon Ltd., as on 31.3.1999

Liabilities	Amount Rs.	Assets	Amount Rs.
Share Capital:		Fixed Assets	24,000
Equity Share Capital	25,000		
Preference Share Capital	5,000	Current Assets:	
Reserves & Surplus	2,000	Stock	8,500
Loans	Nil	Others	7,500
Current Liabilities: Payables	6,000		
Bank Overdraft	2,000		
	40,000		40,000

*Notes.* The Gearing Ratio may be assumed to be reserve. In that case Preference Share Capital should be Rs. 25,000 and Equity Share Capital should be Rs. 5,000.