Paper – 20: Financial Analysis & Business Valuation

Time Allowed: 3 hours **Full Marks: 100**

Working Notes should form part of the answer.

"Whenever necessary, suitable assumptions should be made and indicated in answer by the candidates."

Section A
(Answer Question No. 1 and Question No. 2 which are compulsory and any two from the rest in this section)

Question 1.

Pawan Ltd.

The summarized Balance Sheets of the company as on 31st March 2012 and 2013 were:

Liabilities	2012 ₹	2013 ₹	Assets	2012 ₹	2013 ₹
Issued Share Capital	1,00,000	1,50,000	Freehold Property at cost	1,10,000	1,30,000
Securities Premium	15,000	35,000			
Profit & Loss A/c	28,000	70,000	Plant & Machinery at cost	1,20,000	1,51,000
Debentures	70,000	30,000			
Bank Overdraft	14,000	---	Furniture & Fixture at cost	24,000	29,000
Creditors	34,000	48,000			
Proposed Dividends	15,000	20,000	Stocks	43,000	44,000
Depreciation:			Debtors	37,000	51,000
Plant:	45,000	54,000	Bank	---	16,000
Fixtures:	13,000	15,000	Premium on Redemption of debentures	---	1,000
	3,34,000	4,22,000		3,34,000	4,22,000

The following additional information is relevant:

(i) There had been no disposal of freehold property in the year.
(ii) The Machine tool which has cost ₹ 8,000 and in respect of which ₹ 6,000 depreciation has been provided, was sold for ₹ 3,000, and fixtures, which had cost ₹ 5,000 in respect of which depreciation of ₹ 2,000 has been provided, were sold for ₹ 1,000. The Profit and losses on these transactions had been dealt with through the Profit and Loss Account.
(iii) The actual premium of the redemption of debentures was ₹ 2,000 of which ₹ 1,000 had been written-off to the Profit and Loss A/c.
(iv) No interim dividend has been paid.
(v) Interest paid on debentures amounted to ₹ 4,500.

After reading the above financial statements and informations, answer the following questions:

(a) Calculate the cash flows from the operating activities. Necessary workings should be part of the answer.
(b) Find out those ratios which are essential to analyse the financial position of the company, based on cash flows. Provided —

Net cash flows from Investing Activities: (-) ₹ 65,000

Net cash flows from Financing Activities: ₹ 8,500

(c) Interpret and comment on the financial position of the company, based on the data obtained from above point (b).

[6+4+5]

Answer:

(a) Calculation of Cash Flows from Operating Activities

For the year ended 31st March 2013

	₹	₹	₹
Net Profit during the year:			
Net Profit for the year 2012-13	70,000		
Less: Net Profit for the year 2011-12	28,000		
		42,000	
Add: Non-Operating Expenses			
Depreciation (₹ 15,000 + ₹ 4,000)	19,000		
Loss on Sale of Fixtures	2,000		
Discount on Debenture	1,000		
Proposed Dividend	20,000		
Debenture Interest	4,500		
		46,500	
		88,500	
Less: Non-Operating Income			
Profit on Sale of Plant		1,000	
		87,500	
Add: Decrease in Current Assets or Increase in Current Liabilities:			
Decrease in Current Assets		Nil	
Increase in Current Liabilities:			
Increase in Creditors	14,000		
		14,000	
		1,01,500	
Less: Increase in Current Assets or Decrease in Current Liabilities:			
Increase in Current Assets:			
Increase in Stock	1,000		
Increase in Debtors	14,000		
		15,000	
Net Cash Flows from Operating Activities			86,500

Workings:

Plant & Machinery A/c

Dr. Cr.

	₹		₹
To Balance b/d	1,20,000	By Bank Account – Sale	3,000
`` Profit & Loss Account – Profit on Sale	1,000	`` Provision for Depreciation	6,000
`` Bank A/c – Purchase	39,000	`` Balance c/d	1,51,000

	1,60,000		1,60,000

Fixtures & Fittings A/c

Dr. Cr.

	₹		₹
To Balance b/d	24,000	By Bank Account – Sale	1,000
`` Bank Account – Purchase	10,000	`` Profit & Loss Account – Loss on Sale	2,000
		`` Provision for Depreciation	2,000
		`` Balance c/d	29,000
	34,000		34,000

Provision for Depreciation on Plant & Machinery A/c

Dr. Cr.

	₹		₹
To Plant & Machinery Account	6,000	By Balance b/d	45,000
`` Balance c/d	54,000	`` Profit & Loss Account	15,000
	60,000		60,000

Provision for Depreciation on Fixtures & Fittings A/c

Dr. Cr.

	₹		₹
To Furniture & Fixture	2,000	By Balance b/d	13,000
`` Balance c/d	15,000	`` Profit & Loss Account	4,000
	17,000		17,000

(b) Ratios required to analyse financial position:

(i) Ratio of Dividend to Operating Cash Flow (OCF)

$$= \frac{\text{Dividend}}{\text{Operating Cash Flows}} \times 100 = \frac{₹15,000}{₹86,500} \times 100 = 17.34\%$$

(ii) Rate of Depreciation to Cash Flow

$$= \frac{₹19,000}{₹86,500} \times 100 = 21.97\%$$

(iii) Debts Coverage Ratio

$$= \frac{\text{OCF - Interest - Dividend}}{\text{Debts}} = \frac{₹86,500 - ₹4,500 - ₹15,000}{₹30,000} = \frac{₹67,000}{₹30,000} = 2.23 \text{ times}$$

(iv) Interest Coverage Ratio

$$= \frac{\text{Operating Cash Flow (OCF)}}{\text{Interest}} = \frac{₹86,500}{₹4,500} = 19.22 \text{ times}$$

(v) Return of Cash to Total Assets

$$= \frac{\text{Operating Cash Flow}}{\text{Total Assets}} \times 100 = \frac{₹86,500}{₹4,21,000} \times 100 = 20.55\%$$

(vi) Dependence of Capital Investment on Internal Fund

$$= \frac{\text{Operating Cash Flow - Increase in Cash Balance}}{\text{Investing Cash Flow}} = \frac{₹86,500 - ₹30,000}{₹65,000} \times 100 = 86.92\%$$

(vii) Return of Cash on Net Worth

$$= \frac{\text{Operating Cash Flow - Interest}}{\text{Net Worth}} \times 100 = \frac{₹86,500 - ₹4,500}{(₹1,50,000 + ₹35,000 + ₹70,000 - ₹1,000)}$$

$$= \frac{₹82,000}{₹2,54,000} \times 100 = 32.28\%$$

(viii) Dependence of Extra Funds for Capital Expenditure Ratio

$$= \frac{\text{Financing Cash Flow}}{\text{Investing Cash Flow}} \times 100 = \frac{₹8,500}{₹65,000} \times 100 = 13.08\%$$

(c) Comments and Interpretation

Rate of Dividend to Operating Cash Flow is found to be 17.34% which indicates that percentage of cash generated through operational activities which may be considered as good. But if it is found to be 'good', more cash will be required for paying dividend.

Similarly, Rate of Depreciation of Operating Cash Flow ratio is computed as only 21.96% which reveals percentage of cash used to replace fixed assets. It may be considered as normal. But Debt Coverage Ratio is found to be 2.23 times which is very poor and the same is used to redeem the existing debts by the amount of net cash generated from operation.

Interest Coverage Ratio, on the other hand, is found to be 19.22 times. It means ability of the firm to repay interest and also indicates the proportion of interest of 'cash generated from operation'. This ratio is high which invites obstruction to take the benefit of trading on equity. Return of cash to total assets ratio is found to be satisfactory, i.e., percentage of OCF to total assets is 20.55% which is considered as good. Similarly, dependence of capital investments on internal funds ratio is taken as 86.93% which reveals that percentage of OCF to Investing Cash Flow is 86.93% i.e., 86.93%, of capital expenditure has been founded out of cash to be generated from internal funds.

Return of Cash to Net Worth Ratio is found to be 32.28% which may be considered as good, and it indicates that shareholder's fund is efficiently used. Dependence of External Funds to Capital Expenditure Ratio is found to be 13.08% which reveals that external funds are used only a little portion and the rest is used as Working Capital.

From the discussion made so far, it may be concluded that the overall position to be measured in terms of Cash Flow Statement may be considered as sound. But whether such ratios are satisfactory or not can be measured by making proper comparison with the industry average ratio.

Question 2.

Akash Ltd.

Profit and Loss Account (Extract)
for the year ended 31.03.2013

	₹		₹
To Opening Stock	4,00,000	By Sales	24,00,000
`` Purchases	16,00,000	`` Closing Stock	2,00,000
`` Gross Profit c/d	6,00,000		
	26,00,000		26,00,000
To Office and Administration Expenses	2,00,000	By Gross Profit b/d	6,00,000
`` Selling & Distribution	1,00,000		
`` Net Profit	3,00,000		
	6,00,000		6,00,000

Balance Sheet (Extract)
as at 31.03.2013

Liabilities	₹	Assets	₹
Share Capital:		Land & Building	3,00,000
50,000 Equity Shares of ₹ 10 each,		Plant & Machinery	3,50,000
fully paid	5,00,000	Stock	2,00,000
General Reserve	1,00,000	Debtors	3,50,000
Profit & Loss Account	3,00,000	Bills Receivable	1,00,000
8% Debentures	2,00,000	Cash at Bank	1,00,000
Sundry Creditors	50,000		
Bank Overdraft	1,00,000		
Bills Payable	1,50,000		
	14,00,000		14,00,000

Note: Dividend declared on Equity Share Capital amounted to ₹ 50,000.

You are required to answer the following questions:

(a) Calculate the ratios which will analyse the liquidity and solvency position of the company. Comment on the result.

(b) Find out any five ratios which will measure the profitability of the company and also analyse them.

(c) Analyse the financial statement from the management efficiency perspective with the suitable ratios.

[5+5+5]

Answer:

(a) Calculation and comments on ratios for analysing the liquidity and solvency position:

(i) Current Ratio: $\frac{\text{Current Assets}}{\text{Current Liabilities}} = \frac{₹\,7,50,000}{₹3,00,000} = 2.5:1$

Since this ratio is more than normal Current Ratio of 2: 1, it reveals that the liquidity position is sound, i.e., the company is able to pay its maturing obligation as soon as it becomes due.

(ii) Liquid Ratio/Quick Ratio/Acid Test Ratio:

$$\frac{\text{Liquid Assets}}{\text{Liquid Liabilities}} = \frac{\text{Current Assets - Stock}}{\text{Current Liabilities - Bank Overdraft}} = \frac{₹\ 5,50,000}{₹\ 2,00,000} = 2.75:1$$

The ratio is also more than its normal level (1: 1). It also indicates that the liquidity and solvency position of the company is highly satisfactory, since two rupees and seventy-five paise of Liquid Assets are available against each rupee of Liquid Liability.

(iii) Proprietary Ratio:

$$\frac{\text{Proprietor's Equity}}{\text{Total Assets}} = \frac{₹\ 9,00,000}{₹\ 14,00,000} = 0.64:1.$$

It proves that the efficiency of the management is good as it fulfills its norms which are 60% to 75%.

Therefore, the financial position may be considered as sound.

(iv) Debt-Equity Ratio: $\frac{\text{Total Debts}}{\text{Proprietary Equity}} = \frac{₹\ 5,00,000}{₹\ 9,00,000} = 0.56:1.$

This ratio reveals the claims of Creditors and Debenture holders and the Shareholders against the Assets of the company. The norm of such ratio is 1: 2. Since it satisfies almost the normal level, the Creditors' and Debenture holders' claims are also secured.

(v) Capital Gearing Ratio:

$$\frac{\text{Equity Share Capital}}{\text{Debentures}} = \frac{₹\ 5,00,000}{₹\ 2,00,000} = 2.5:1$$

Since it is more than the normal gear ratio of 2: 1 the gearing is very much low, i.e., very low-geared, and, from the financial point of view, it is very much satisfactory.

(b) Analysis of ratios to measure profitability:

(i) Gross Profit Ratio: $\frac{\text{Gross Profit}}{\text{Sales}} \times 100 = \frac{₹\ 6,00,000}{₹\ 24,00,000} \times 100 = 25\%$

This ratio also maintains its norm and, hence, may be considered as good but not highly satisfactory.

(ii) Net Profit Ratio: $\left(\frac{₹\ 3,00,000}{₹\ 24,00,000} \times 100\right) = 12.5\%$

It is found to be quite satisfactory since it exceeds its normal ratio of 5% - 10%.

(iii) Operating Ratio:

$$\frac{\text{Cost of Goods Sold} + \text{Operating Expenses}}{\text{Sales}} = \frac{₹\,18,00,000 + ₹\,3,00,000}{₹\,24,00,000} = 0.88:1$$

It may also be considered good as it maintains its normal ratio of 80% - 90%.

(iv) Return on Capital Employed: $\frac{\text{Net Profit}}{\text{Capital Employed}} = \frac{₹\,3,00,000}{₹\,11,00,000} \times 100 = 27\%$

It indicates that the amount of capital employed in the company was properly utilized and, at the same time, efficiency of the management was good enough.

(v) Dividend per Share: $\frac{\text{Dividend declared}}{\text{No. of Equity Shares}} = \frac{₹\,50,000}{50,000} = ₹\,1$

i.e., $10\%\left[\frac{₹1}{₹10} \times 100\right]$. It may be considered as good.

(c) For Management efficiency, the following ratios are commonly used:

(i) Stock-Turnover Ratio:

$$\frac{\text{Cost of Goods Sold}}{\text{Average Stock}} = \frac{₹\,18,00,000}{₹\,3,00,000\left(\text{i.e., } \frac{₹4,00,000 + ₹\,2,00,000}{2}\right)} = 6 \text{ times}$$

This ratio also satisfies the normal ratio which is 5 times on an average and, hence, efficiency of the management is provided to be good.

(ii) Debtors' Turnover Ratio:

$$\frac{\text{Debtors} + \text{Receivables}}{\text{Sales}} \times 365 = \frac{₹\,4,50,000}{₹\,24,00,000} \times 365 = 68 \text{ days' credit}$$

This ratio indicates that the collection policy of the company is faulty since it exceeds its normal level.

(iii) Creditors Turnover Ratio:

$$\frac{\text{Creditors} + \text{Bills Payable}}{\text{Credit Purchases}} \times 365 = \frac{₹50,000 + ₹1,50,000}{₹16,00,000} \times 365 = 46 \text{ days' credit}$$

It may be considered as good.

(iv) Turnover to Fixed Assets: $\frac{\text{Turnover}}{\text{Fixed Assets}} = \frac{₹24,00,000}{₹6,50,000} = 3.69 \text{ times}$

It may also be considered as satisfactory.

(v) Turnover to Total Assets: $\frac{\text{Turnover}}{\text{Total Assets}} = \frac{₹\,24,00,000}{₹\,14,00,000} = 1.71 \text{ times}$

It is not desirable since turnover is nearly 2 times of Total Assets.

Question 3.

(a) Using Altman's 1983 Multiple Discriminant Function, calculate Z-score of Somlata & Co. Ltd., where the five accounting ratios are as follows and comment about its financial position:

Working Capital to Total Assets=0.350
Retained Earnings to Total Assets = 50%
EBIT to Total Assets = 19%
Book Value of Equity to Book Value of Total Debt= 1.65
Sales to Total Assets = 3 times

(b) A ₹ 1,000 par value bond bears a coupon rate of 14 percent and matures after 5 years. Interest is payable semi-annually. Compute the value of the bond if the required rate of return is 16 percent. Given $PVIFA_{8\%,\ 10\ years}$ = 6.710 and $PVIF_{8\%,\ 10\ years}$ = 0.463.

(c) What is the relation between Financial Leverage and Debt-to-equity Ratios in relation to the profitability analysis?

[5+3+2]

Answer:

(a) As per Altman's Model (1983) of Corporate Distress Prediction,
Z=0.717 X1 + 0.847 X2+3.107 X3 + 0.420 X4 + 0.998X5

Here, the five variables are as follows:
X1 = Working Capital to Total Assets = 0.350
X2 = Retained Earnings to Total Assets = 0.50
X3 = EBIT to Total Assets = 0.19
X4 = Market Value of Equity Shares to Book Value of Total Debt= 1.65
X5 = Sales to Total Assets = 3 times

Hence, Z-score = (0.717x0.350) + (0.847x0.50) + (3.107x0.19) + (0.420x 1.65) + (0.998x3)
= 0.25095 + 0.4235 + 0.59033+0.693 + 2.994 = 4.95

Note: As the calculated value of Z-score is much higher than 2.99, it can be strongly predicted that the company is a non-bankrupt company (i.e., non-failed company).

(b) In this case the number of half yearly period is 10, the half-yearly interest payment is ₹ 7, and the discount rate applicable to a half-yearly period is 8 percent. Hence the value of the bond is:

$$V = \sum_{t=1}^{10} \frac{7}{(1.08)^t} + \frac{1000}{(1.08)^{10}}$$

= 7 ($PVIFA_{8\%, 10\ years}$) + 1,000 ($PVIF_{8\%, 10\ years}$)
= 7 (6.710) + 1,000 (0.463)
= 46.97 + 463
= ₹ 509.97

(c) A common measure of financial leverage is the debt-to-equity ratio, calculated as total debt divided by equity. This measure is useful in credit analysis but, for the analysis of profitability, it confuses operating liabilities (which create operating liability leverage) with financial liabilities (which create financial leverage). And, as usually defined, it does not net out financial liabilities against financial assets.

Question 4.

(a) The accompanying balance sheet and profit and loss account relate to T Ltd. Convert these into common-size statements.

Balance Sheet as at 31st March (Extract) **(Amount in ₹ lakhs)**

Particulars	Previous year	Current Year
Liabilities		
Equity share capital (of ₹ 10 each)	**240**	**240.0**
General reserves	**96**	**182.0**
Long-term loans	**182**	**169.5**
Creditors	**67**	**52.0**
Outstanding expenses	**6**	**-**
Other current liabilities	**19**	**6.5**
	610	**650.0**
Assets		
Plant [net of accumulated depreciation]	**402**	**390**
Cash	**54**	**78**
Debtors	**70**	**65**
Inventories	**84**	**117**
	610	**650**

Income Statement for the Year Ended 31st March (Extract) **(Amount in ₹ lakhs)**

Particulars	Previous year	Current year
Gross sales	**370**	**480**
Less: Returns	**20**	**30**
Net sales	**350**	**450**
Less: Cost of goods sold	**190**	**215**
Gross profit	**160**	**235**
Less: Selling, general and administrative cost	**50**	**72**
Operating profit	**110**	**163**
Less: Interest expenses	**20**	**17**

Earnings before taxes	**90**	**146**
Less: Taxes	**31.5**	**51.5**
Earnings after taxes	**58.5**	**94.5**

(b) There are different types of financial models. One of them is Macroeconomic Financial Model. Write few sentences about this model.

[8+2]

Answer:

(a) Income Statement (Common-size) for the Years Ended 31st March

Particulars	Previous year (Percentages)	Current year (Percentages)
Net sales	100.0	100.0
Cost of goods sold	54.3	47.8
Gross profit	45.7	52.2
Selling, general and administrative expenses	14.3	16.0
Operating profit	31.4	36.2
Interest	5.7	3.8
Earnings before taxes	25.7	32.4
Taxes	9.0	11.4
Earnings after taxes (EAT)	16.7	21.0

Balance Sheets (Common-size) as at 31st March

Particulars	Previous year (Percentages)	Current year (Percentages)
Owners' equity:		
Equity share capital	39.3	36.9
General reserves	15.7	28.0
	55.0	64.9
Long-term borrowings:		
Loan	29.8	26.1
Current liabilities:		
Creditors	11.1	8.0
Outstanding expenses	1.0	
Other liabilities	3.1	1.0
	15.1	9.0
Total liabilities	100.0	100.0
Fixed assets:		
Plant (net of accumulated depreciation)	65.9	60.0
Current assets:		
Cash	8.9	12.0
Debtors	11.4	10.0
Inventories	13.8	18.0
	34.1	40.0
Total assets	100.00	100.00

These percentage figures bring out clearly the relative significance of each group of items in the aggregative position of the firm. For instance, in the current year the EAT of T Ltd. has increased to 21 per cent from 16.7 per cent in the previous year. This improvement in

profitability can mainly be traced to the decrease of 6.5 per cent in the cost of goods sold, reflecting improvement in efficiency of manufacturing operations. The decrease in financial overheads (interest) by 1.9 per cent during the current year can be traced to the repayment of a part of long-term loans. Further analysis indicates that profitability would have been more but for an increase in operating expenses ratio by 1.7 per cent.

The common-size balance sheets show that current assets as a percentage of total assets have increased by 5.9 per cent over previous year. This increase was shared by inventories (4.2 per cent) and cash (3.1 per cent); the share of debtors is reduced by 1.4 per cent. The proportion of current liabilities (mainly due to creditors) was also lower at 9 per cent in the current year compared to 15.1 per cent in the previous year. These facts signal overall increase in the liquidity position of the firm. Further, the share of long-term debt has also declined and owners' equity has gone up from 55 per cent in the previous year to 64.9 per cent in the current year.

(b) The Macroeconomic Financial Models are usually econometric analysis based, built by government departments, universities or economic consulting firms, and used to forecast the economy of a country. Macroeconomic models are used to analyze the like effect of government policy decisions on variables such as foreign exchange rates, interest rates, disposable income and the gross national product (GNP).

Question 5.

(a) A firm has sales of ₹75,00,000, variable cost of ₹42,00,000 and fixed cost of ₹6,00,000. It has a debt of ₹ 45,00,000 at 10% and equity of ₹ 55,00,000.

- **(i) What is the firm's Return on Investment (ROI)?**
- **(ii) Does it have favourable financial leverage?**
- **(iii) If the firm belongs to an industry whose asset turnover is 3, does it have a high or low asset leverage?**
- **(iv) What are the operating, financial and combined leverages of the firm?**
- **(v) If the sales drop to ₹ 50,00,000, what will be the new EBIT?**
- **(vi) At what level the EBT of the firm will be equal to zero?**

(b) When a firm can be called as "no growth firm" in connection to the growth analysis?

[8+2]

Answer:

(a) Basic Calculations

	₹
Sales	75,00,000
Less: Variable	42,00,000
Contribution	33,00,000
Les: Fixed Cost	6,00,000
Earnings before Interest and Taxes (EBIT)	27,00,000
Less: Interest at 9% on Debt ₹45,00,000	4,50,000
Earnings before Taxes (EBT)	22,50,000

(i) $ROI = \frac{EBIT}{Capital\ Employed} \times 100 = ₹\ \frac{27,00,000}{1,00,00,000} x100 = 27\%$

(ii) The return on investment at 27% is higher than the interest payable on debt at 10%. The firm has a favourable financial leverage.

(iii) Asset Turnover = $\frac{Net\ Sales}{Total\ Assets}$

Firm's Assets Turnover is = $₹\frac{75,00,000}{1,00,00,000} = 0.75$

The industry average is 3. Hence, the firm has a low asset leverage.

(iv) Operating leverage = $\frac{Contribution}{EBIT} = ₹\ \frac{33,00,000}{27,00,000} = 1.2222$

Financial leverage = $\frac{EBIT}{EBT} = ₹\ \frac{27,00,000}{22,50,000} = 1.2$

Combined Leverage = $\frac{Contribution}{EBT} = ₹\ \frac{33,00,000}{22,50,000}$

Combined Leverage = Operating Leverage x Financial leverage

= 1.2222 x 1.2 = 1.46664

(v) If the sales drop to ₹ 50,00,000 from ₹ 75,00,000, the fall is by 33.33%. Hence, EBIT will drop by 40.73% (% Fall In Sales x Operating Leverage) Hence, the new EBIT will be ₹ 27,00,000 x (1 - 40.73%) = ₹ 16,00,290 or rounded to ₹ 16,00,000.

(vi) EBT to become zero means 100% reduction in EBT. The combined leverage is1.438, hence, sales have to drop by 100/1.438 i.e. 68.18%. The new sales will therefore, be ₹75,00,000 x(1 – 68.18%) = ₹ 23,86,500 (approx.)

(b) Residual earnings are the relevant growth measure when evaluating the price-to-book (P/B) ratio. Abnormal earnings growth is the relevant growth measure when evaluating the price-earnings (P/E) ratio. However, the two measures are just different ways of looking at the same thing: Abnormal earnings growth is equal to the change in residual earnings. If a firm has no growth in residual earnings, its abnormal earnings growth must be zero: at this time, the firm is called "no growth firm".

Section B – Business Valuation

(Full Marks: 50)

(Answer Question No. 6 and Question No. 7 which are compulsory and any two from the rest in this section)

Question 6.

Super Cars Ltd. is engaged in the business of manufacture of electric Passenger Cars. The Company requires you to determine the value of its goodwill also showing the leverage effect on goodwill. Its Balance Sheet is as on 31.03.2013 is as under – (₹ Lakhs)

Liabilities	₹	Assets	₹	₹
Share Capital – Equity Shares of ₹10 each	1,500	Gross Fixed Assets	1,500	
General Reserve	500	Less: Depreciation till date	500	1,000
12% Term Loan from Bank	500	Investments:		
Creditors	210	Non- trade	300	
Provision for Tax	10	Trade	90	390
Proposed Dividend	140	Current Assets:		
		Overseas Debtors (1$= INR 42)	420	
		Indian Debtors	400	820
		Stock in Trade		350
		Cash and Bank Balances		300
	2,860			2,860

Additional Information:

(i) The closing exchange rate for the U.S. dollar was INR 48. Income from Non- trade Investments was a loss for the year ended 31.03.2013 owing to write down of cost of acquisition by 4%. There was no other transaction under Non-trade Investments during the year.

(ii) Current Year Depreciation changed on Historical Cost was ₹100 Lakhs. Current Cost of Fixed Assets is determined at ₹2,000 Lakhs.

(iii) While Current Cost of Closing Stock is ₹367 Lakhs, that of the Opening Stock was ₹200 lakhs against its Historical Cost of ₹148 Lakhs. The Market Value of Non- Trade Investments at the year end was ₹300 lakhs. The Overseas debtors made settlements in U.S.$ only.

(iv) The Industry Average rate of return on current cost of capital employed is 12% on long term debt and 15% on equity. The opening balance in General reserve was ₹150 Lakhs. While prevailing tax rate is 30% such is expected to decline by 5%.

(v) Using the above information you are required to arrive at value of the goodwill of the company under equity and long-term fund approached and also show the leverage effect on goodwill. [15]

Answer:

Computation of Future Maintainable Profits

Particulars	₹ Lakhs	
Profits for the year 2012-13:		
Increase in Reserves [₹500 Lakhs - ₹150 Lakhs]	350.00	
Proposed Dividend	140.00	490.00
Add back: Tax [(₹490.00 Lakhs x Tax Rate of 30%) ÷ (100% - Tax Rate of 30%)]		210.00
Profit Before tax		**700.00**
Add: Forex Gain on Foreign Currency Debtors (See WN 2)		60.00
Add: Loss from Non- Trade Investments (₹300 Lakhs x 4/96)		12.50
Add: Adjustment for Current Cost of Closing Stock (₹367 - ₹350)		17.00
Less: Extra Depreciation Required (See WN 1)		(81.80)
Less: Adjustment for Current Cost of Opening Stock (₹200 - ₹148)		(52.00)
Future Maintainable Profit Before Tax		**655.70**
Less: Future Tax Expense at 25% (₹655.70 x 25%)		(163.93)
Future maintainable Profit After Tax		**491.77**
Add: Interest on Long Term Loan (after considering tax) ₹500 x 12% x (100% – 25%)		45.00
Future Maintainable Profit After Tax Before Interest		**536.77**

Therefore, Future Maintainable Profit on: –

(a) Long Term Capital Employed (including Long term Loans) is **₹536.77 Lakhs**
(b) Net Worth (Shareholders Funds) is **₹491.77 Lakhs**

Computation of Capital Employed

Particulars	₹	₹
Fixed Assets (1,000 + Revaluation Gain 1,000 – Addl. Depreciation ₹81.80)		1,918.20
Investments Trade		90.00
Overseas Debtors ($ 10.00 Lakhs x 48)		480.00

Indian Debtors		400.00
Stock in Trade at Current Cost		367.00
Cash and Bank Balances		300.00
Current Cost of Total Assets		3,555.20
Less: **Outside Liabilities:**		
Sundry Creditors	210.00	
Provision for Taxation [10.00 + Additional for Exchange Rate Difference 18.00]	28.00	
Proposed Dividend (See Note)	140.00	(378.00)
Capital Employed (Total Long Term Funds)		**3,177.20**
Less: 12% Term Loan		500.00
Equity Capital Employed		**2,677.20**

Note: Since the Proxy Capital Employed is based on Closing Balances, proposed dividend is treated as a liability. This is because, such funds will not stand invested in the business in the future, but distributed in the immediate future. Adjustments for Exchange Rate differences are assumed to be tax deductible.

Computation of Goodwill using different approaches

Particulars	Owners funds	Total Funds
a. Future Maintainable Profits	491.77	536.77
b. Normal Rate of Return	15%	12%
c. Capitalized Value of Future Maintainable Profits (a ÷b)	3,278.47	4,473.08
d. Capital Employed	2,677.20	3,177.20
e. Goodwill (c-d)	**601.27**	**1,295.88**

Leverage Effect on Goodwill

- Goodwill computed using Equity Fund Concept (₹601.27 Lakhs), is low when compared to the Goodwill as computed using Total Long Term Funds Concept (₹1,295.88 Lakhs)
- Leverage Effect on Goodwill = ₹1,295.88 - ₹601.27 = **₹694.61**

Working Notes: 1. Computation of Additional Depreciation Required

Particulars	₹ Lakhs
Calculation of Depreciation Rate:	
Book Value as on 31.03.2013	1,000
Add: Depreciation for 2012-13	100
Book Value as on 1.4.2012	1,100
Therefore, Depreciation Rate = Current Depreciation ÷ Opening bal. = 100 ÷ 1,100	9.09%
Calculation of Extra Depreciation on Sundry Fixed Assets:	
Current Cost of Sundry Fixed Assets as on 1.4.2012	2,000
Depreciation on Current Cost of Fixed Assets = ₹2,000 x9.09%	181.80
Less: Depreciation already provided in the books	(100.00)
Extra Depreciation to be provided	**81.80**

Note: It is assumed that the Company charges WDV method of depreciation Alternatively, Depreciation Rate can be determined based on SLM i.e. on Gross Value. [₹100/1500= 6.67%]

Working Notes: 2. Computation of Foreign Exchange Gain

Dollar Value of Debtors (₹420.00 Lakhs ÷ ₹42.00)	₹10.00 Lakhs
Exchange Gain [₹10.00 Lakhs x (₹48.00 – 42.00)	₹60 Lakhs
Adjustment in Provision for Tax [30% of ₹60.00 Lakhs] (Additional Provision)	₹18 Lakhs

Question 7.

Reliable Industries Ltd. (RIL) is considering a takeover of Sunflower Industries Ltd. (SIL). The particulars of two companies are given below:

Particulars	RIL	SIL
Earnings After Tax (₹)	**20,00,000**	**10,00,000**
Equity shares (No.)	**10,00,000**	**10,00,000**
EPS (₹)	**2**	**1**
P/E ratio (times)	**10**	**5**

Required:

(i) What is the market value of each company before merger?

(ii) Assuming that the management of RIL estimates that the shareholders of SIL will accept an offer of one share of RIL for four shares of SIL. If there are no synergic effects, what is the market value of the post-merger RIL? What is the new price for share? Are the shareholders of RIL better or worse off than they were before the merger?

(iii) Due to synergic effects, the management of RIL estimates that the earnings will increase by 20%. What is the new post-merger EPS and price per share? Will the shareholders be better off or worse off than before the merger? [3+(2+2+2)+(2+2+2)]

Answer:

(i) Market value of companies before merger

Particulars	RIL	SIL
EPS (₹)	2	1
P/E ratio	10	5
Market price per share (₹): (EPS × P/E Ratio)	20	5
Equity shares	10,00,000	10,00,000
Total market value	2,00,00,000	50,00,000

(ii) Post merger effect on RIL

Particulars	₹
Post merger earnings ₹ (20,00,000 + 10,00,000)	30,00,000
Equity Shares : $\left(10,00,000+10,00,000\times\frac{1}{4}\right)$ As exchange ratio is 1 : 4	12,50,000
EPS : $\frac{30,00,000}{12,50,000}$	2.4
P/E ratio	10.00
Market price per share(₹): (EPS × P/E Ratio) i.e. 10 × 2.4	24
Total market value (12,50,000 × 24)	3,00,00,000

Gains from Merger

Post Merger Market value of the firm	= ₹ 3,00,00,000
Less : Pre-Merger market value	

RIL 2,00,00,000 SII 50,00,000	= ₹ 2,50,00,000
	= ₹ 50,00,000

Apportionment of Gains between shareholders

Particulars	**RIL**	**SIL**
Post merger market value		
10,00,000 × 24	2,40,00,000	
2,50,000 × 24		60,00,000
Less : Pre merged market value	2,00,00,000	50,00,000
Gain	40,00,000	10,00,000

Thus the shareholders of both the Co. have gained from merger

(iii) Post Merger Earnings

When increase in earning by 20%

Particulars	₹
Post merger earnings ₹ (30,00,000 × 120%)	36,00,000
No. of Equity shares	12,50,000
EPS : $\frac{36,00,000}{12,50,000}$	2.88
P/E ratio	10.00
Market price per share(₹): (EPS × P/E Ratio) i.e. 10 × 2.88	28.80
Total market value (12,50,000 × 28.80)	3,60,00,000

Gains from Merger

Post Merger Market value of the firm	= ₹ 3,60,00,000
Less : Pre-Merger market value RIL 2,00,00,000 SII 50,00,000	= ₹ 2,50,00,000
	= ₹ 1,10,00,000

Apportionment of Gains between shareholders

Particulars	RIL	SIL
Post merger market value		
10,00,000 × 28.80	2,88,00,000	
2,50,000 × 28.80		72,00,000
Less : Pre merged market value	2,00,00,000	50,00,000
Gain	88,00,000	22,00,000

∴ Hence, shareholders will be better off than before the merger situation.

Question 8.

(a) Who are the participants in the Merger and Acquisition Process?

(b) The following financial share date pertaining to TECHNO LTD an IT company is made available to you:

Year ended March 31st	2014	2013	2012
EBIT (₹)	**696.03**	**325.65**	**155.86**
Non-branded Income (₹)	**53.43**	**35.23**	**3.46**
Inflation compound factor @ 8%	**1.000**	**1.087**	**1.181**
Remuneration of Capital	**5% of average capital employed**		
Average capital Employed (₹)	**1112.00**		
Corporate Tax Rate	**35%**		
Capitalization Factor	**16%**		

You are required to calculate the Brand Value for Techno Ltd. [4+6]

Answer:

(a) There are many professionals who play an essential role in the successful completion of a deal.

(i) **Investment Bankers:** Investment bankers are always at the forefront of the acquisition process. They offer strategic and tactical advice, screen potential buyers and sellers, make initial contact with a seller and buyer and provide negotiation support,

valuation and deal structuring.

(ii) **Lawyers:** The legal framework surrounding a typical transaction has become so complicated that no one individual can have sufficient expertise to address all the issues. So, legal teams consist of more than a dozen lawyers each of whom represents a specialised aspect of the law.

(iii) **Accountants:** Accountants perform the role of auditors by reviewing the target's financial statements and operations through a series of interviews with senior and middle level managers.

(iv) **Valuation Experts:** They build models that incorporate various assumptions such as costs or revenues growth rate.

(v) **Institutional Investors:** Institutional investors can announce how they intend to vote on a matter and advertise their position in order to seek support and have more influence.

(vi) **Arbitrageurs:** Arbitrageurs provide market liquidity during transactions. With the number of merger arbitrageurs increasing, they are becoming more proactive in trying to anticipate takeover situations. Their objective is to identify the target before the potential acquirer is required by law to announce its intentions.

(b)

TECHNO LTD.

Computation of Brand Value **(Amount in ₹ Crores)**

Year ended March 31st		**2014**	**2013**	**2012**
EBIT	(₹)	696.03	325.65	155.86
Less : Non-brand income	(₹)	53.43	35.23	3.46
Adjusted Profits	(₹)	642.60	290.42	152.40
Inflation Compound Factor @ 8%		1.000	1.087	1.181
Present Value of Profits for the brand	(₹)	642.60	315.69	179.98
Weightage Factor		3	2	1
Weightage Profits	(₹)	1927.80	631.38	179.98
Weightage Average Profit $\left(\frac{1927.80+631.38+179.98}{3+2+1}\right)$	(₹)	456.53		
Remuneration of Capital (5% of Average capital employed) i.e. ₹ 1112 × 5%		55.60		
Brand Related		400.93		
Corporate tax @ 35%		140.33		
Brand Earning		260.60		

Capitalization Factor	16%		

Brand Value: (Return / Capitalization Rate)
260.60 / 0.16 = ₹ 1628.75 Crore

Question 9.

(a) The stock of MOULIN LTD is currently trading at ₹500 and call option exercisable in three months time and has an exercise rate of ₹488. The standard deviation of continuously compounded stock price change for MOULIN LTD is estimated to be 20% per year. The annualized Treasury bill rate corresponding to this option life is 6% p.a. The company is going to declare a dividend of ₹15 and it is expected to be paid in two months time. Requirements:

(i) Determine the value of a three-month call option on the stock of MOULIN LTD (using Black Scholes model)

(ii) What would be the value of Put Option if the current price of stock is considered to be ₹ 485.15?

Note: Extracted from tables:

(1) Natural Logarithm: ln (0.99416) = - 0.005857
ln (1.02459) = 0.024929

(2) Value of e^{-x}: $e^{-0.02}$ = 0.9802, $e^{-0.015}$ = 0.9851

(3) For N (x) : Where X ≥ 0 : N(0.1414) = 0.5562
N(0.0414) = 0.5165
Where X ≤ 0 : N(- 0.144) = 0.4438
N(- 0.0414) = 0.4835

(4) PVIF (6%, 0.25 years) = 0.9852, PVIF (6%, 1/6 years) = 0.9901

(b) Identify the Factors that favour external growth and diversification through Mergers and Acquisitions? [(5+2)+3]

Answer: (a)

(i) Since dividend is expected to be paid in two months time, we have to adjust the stock price and then use Black and Scholes model to value the option.

P.V. of the expected dividend: 15 x 0.9901 = ₹14.85
Dividend adjusted stock price: ₹500 – ₹14.85 = ₹ 485.15

Valuation of CALL OPTION: (using Black & Scholes Mode)
$V_o = V_s . N(d_1) - Ee^{-rt}N(d_2)$

Where, V_s = current price of stock (adjusted) = ₹ 485.15
E = exercise price = ₹488, r = Risk free rate = 0.06

$$d_1 = \frac{\ln(V_S/E) + [r + i/2\sigma^2]xt}{\sigma\sqrt{t}}$$

$$= \frac{\ln(488.15/488)+[0.06+1/2(0.020)^2]x0.25}{0.20\sqrt{0.25}}$$

$$= \frac{\ln(0.99416)+0.02}{0.10} = (-0.005857+0.20)/0.10$$

$$= 0.1414$$

$d_2 = 0.1414 - 0.10 = 0.0414$

$N(d_1) = N(0.1414) = 0.5562$
$N(d_2) = N(0.414) = 0.5165$

Value of call option (Vo) = Vs. $N(d_1) - Ee^{-rt}N(d_2)$

Where $e^{-rt} = e^{-0.06+0.25} = e^{-0.015} = 0.9851$

Therefore, Vo = (485.15 × 0.5562) - (488 × 0.9851 × 0.5165)
= 269.84 - 248.30 = ₹ 21.54

(ii) Value of Put option : $Xe^{-rt}[1 - N(d_2) - S[1 - N(d_1)]$
= 488 × 0.9851 [1 – 0.5165] – 485.15 [1- 0.5562]
= 232.43 – 215.31 = ₹17.12

(b) Factors that favour external growth and diversification through Mergers and Acquisitions:

(i) Some goals and objectives may be achieved more speedily through an external acquisition.
(ii) The cost of Building an organization internally may exceed cost of an acquisition.
(iii) There may be fewer risks, lower costs, or shorter time requirements involved in achieving an economically feasible market share by the external route.
(iv) The firm may not be utilizing their assets or arrangement as effectively as they could be utilized by the acquiring firm.
(v) The firm may be able to use securities in obtaining other companies, where as it might not be able to finance the acquisition of equivalent assets and capabilities internally.
(vi) There may be tax advantages.
(vii) There may be opportunities to complement capabilities of other firms.

Question 10.

(a) A company has a capital base of ₹3 crore and has earned profits of ₹33 Lakhs. Return on investment of the particular industry to which the company belongs is 12.5%. If the services of a particular executive are acquired by the company, it is expected that the profits will increase by ₹7.5 lakhs over and above the target profit. Determine the amount of maximum bid price for that particular executive and the maximum salary that could be offered to him.

Particulars	₹

Capital Base	**3,00,00,000**
Actual profit	**33,00,000**
Target profit (₹3Cr ×12.5%)	**37,50,000**

(b) Describe the situations when FCFE models and dividend discount valuation models provide similar as well as dissimilar results. [5+5]

Answer: (a)

(i) Maximum Salary Payable:

Particulars	**₹ Lakhs**
Capital Base	300.00
Target Profits (= Capital Base x 12.50%)	37.50
Add: Extra Profits due to induction of the Executive	7.50
Total Profits of the Company (anticipated after induction of the Executive)	45.00
Less: Current Profits	33.00
Incremental Profit	**12.00**

Maximum Salary = Incremental Profit due to introduction = ₹12.00 Lakhs per annum.

(ii) Maximum Bid Price:

= Value of Salary Payable in perpetuity

= Maximum Salary Payable ÷ Desired Rate of Return on Investment

= ₹12 Lakh ÷ 12.5% = **₹96 Lakhs.**

(b) FCFE model is alternative to dividend discounting model. But at times both provide similar results.

When result obtained from FCFE and Dividend discount model may be same:

(i) Where dividends are equal to FCFE.

(ii) Where FCFE is greater than dividends but excess cash (FCFE - dividends) is invested in projects with NPV = 0 (Investments are fairly priced)

When results from FCFE and Dividend discounting models are different:

(i) When FCFE is greater than dividends and excess cash earns below market interest rates or is invested in negative NPV - value projects, the value from FCFE will be greater than the value from discount model.

(ii) When dividends are greater than FCFE, the firm will have to issue either new stock or new debt to pay their dividends- with attendant costs.

(iii) Paying too much of dividend can lead to capital rationing constraints when good projects are rejected, resulting in loss of wealth.

Conclusion:

The dividend model uses a strict definition of cash flows to equity, i.e. expected dividends on stock, while FCFE model uses an expensive definition of cash flows to equity as the residual cash flows after meeting all financial obligations and investment needs.

When the firms have dividends that are different from FCFE, the values from two models will be different.

In valuing firms for takeover or where there is reasonable chance of changing corporate control, the value from the FCFE provides the better value.