PAPER – 20: FINANCIAL ANALYSIS & BUSINESS VALUATION

The following table lists the learning objectives and the verbs that appear in the syllabus learning aims and examination questions:

	Learning objectives	Verbs used	Definition
LEVEL C	KNOWLEDGE What you are expected to know	List	Make a list of
		State	Express, fully or clearly, the details/facts
		Define	Give the exact meaning of
	COMPREHENSION What you are expected to understand	Describe	Communicate the key features of
		Distinguish	Highlight the differences between
		Explain	Make clear or intelligible/ state the meaning or purpose of
		Identity	Recognize, establish or select after consideration
		Illustrate	Use an example to describe or explain something
	APPLICATION How you are expected to apply your knowledge	Apply	Put to practical use
		Calculate	Ascertain or reckon mathematically
		Demonstrate	Prove with certainty or exhibit by practical means
		Prepare	Make or get ready for use
		Reconcile	Make or prove consistent/ compatible
		Solve	Find an answer to
		Tabulate	Arrange in a table
	ANALYSIS How you are expected to analyse the detail of what you have learned	Analyse	Examine in detail the structure of
		Categorise	Place into a defined class or division
		Compare and contrast	Show the similarities and/or differences between
		Construct	Build up or compile
		Prioritise	Place in order of priority or sequence for action
		Produce	Create or bring into existence
	SYNTHESIS How you are expected to utilize the information gathered to reach an optimum conclusion by a process of reasoning	Discuss	Examine in detail by argument
		Interpret	Translate into intelligible or familiar terms
		Decide	To solve or conclude
	EVALUATION How you are expected to use your learning to evaluate, make decisions or recommendations	Advise	Counsel, inform or notify
		Evaluate	Appraise or asses the value of
		Recommend	Propose a course of action

Paper – 20: Financial Analysis & Business Valuation

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

This paper contains 4 questions, representing two separate sections as prescribed under syllabus 2012. All questions are compulsory, subject to the specific guidance/ instructions stated against every question. All workings, wherever necessary, must form a part of your answer. Assumptions, if any, should be clearly stated.

Question No. 1. (Answer **all** questions. Each question carries **10 marks**)

1. (a) From the following income statements prepare a common-size income statement and also interpret the result.

Particulars	2013-14 (₹ crores)	2014-15 (₹ crores)
Sales/Income from operations	1,18,353.71	1,39,269.46
Excise duty, sales tax etc.	6,660.99	5,826.46
Net sales	1,11,692.72	1,33,443.00
Other income	478.28	5,628.79
Total income	1,12,171.00	1,39,071.79
Variation in stocks	(654.60)	1,867.16
Purchases	1,821.28	6,007.71
Raw material consumed	76,871.66	90,303.85
Manufacturing expenses	5,855.06	4,074.66
Payment for employees	2,094.09	2,119.33
Sales and distribution expenses	3,661.45	3,229.59
Establishment expenses	2,108.76	2,710.31
Preoperative expenses of projects under commissioning	(111.21)	(175.46)
Total Expenditure	91,646.49	1,10,137.15
Profit before Interest, Depreciation and Tax	20,524.51	28,934.64
Interest and Finance charges	1,188.89	1,077.36
Profit before Depreciation and Tax	19,335.62	27,857.28
Depreciation	4,815.15	4,847.14
Profit before tax	14,520.47	23,010.14

Provision for tax : Current	**1,657.44**	**2,651.96**
Deferred	**919.63**	**899.89**
Profit after tax	**11,943.40**	**19,458.29**

[10]

Answer:

(a) Common-size Income Statement

Particulars	**2013-14 % of sales**	**2014-15 % of sales**
Sales/Income from operations	100.00	100.00
Excise duty, sales tax etc.	5.63	4.18
Net sales	94.37	95.82
Other income	0.40	4.04
Total income	94.78	99.86
Variation in stocks	(0.55)	1.34
Purchases	1.54	4.31
Raw material consumed	64.95	64.84
Manufacturing expenses	4.95	2.93
Payment for employees	1.77	1.52
Sales and distribution expenses	3.09	2.32
Establishment expenses	1.78	1.95
Preoperative expenses of projects under commissioning	(0.09)	(0.13)
Total Expenditure	77.43	79.08
Profit before Interest, Depreciation and Tax	17.34	20.78
Interest and Finance charges	1.00	0.77
Profit before Depreciation and Tax	16.34	20.00
Depreciation	4.07	3.48
Profit before tax	12.27	16.52
Provision for tax : Current	1.40	1.90
Deferred	0.78	0.65
Profit after tax	10.09	13.97

Interpretation

(i) There is no change in raw material consumption rate which is stayed at 65% of total sales.

(ii) The manufacturing expenses have reduced from 4.95% to 2.93% during current accounting year.

(iii) The payments for employees have also shown reduction from 1.77% to 1.52% of total sales.

(iv) The establishment expenses have increased from 1.78% to 1.95%.

(v) Due to exceptional items, the other income has risen from 0.40% to 4.04%.

(vi) The content of excise duty, sales tax etc. has reduced from 5.63% to 4.18%.

(vii) The interest and finance charges have reduced from 1.00% to 0.77% due to redemption of non-convertible debentures.

(viii) The proportion of depreciation to total sales has reduced from 4.07% to 3.48%.

(ix) The profit before interest, depreciation and tax has increased to 20.78% from 17.34%, and the profit after tax has increased from 10.09% to 13.97%.

1(b). In connection with a proposal to secure additional finance for meeting its expansion as well as the working capital requirements, the following figures have been projected to a bank by a borrower. The figures have been adjusted for borrowal, debt redemption and interest payments.

		1	2	3	4	5	6	7
Current ratio	Borrower	2.0	2.0	2.5	2.2	2.0	2.5	2.0
	Industry's average	1.8	1.8	2.0	2.0	2.5	2.5	2.5
Debt equity ratio	Borrower	1.8	1.8	1.6	1.6	1.5	1.5	1.2
	Industry's average	1.5	1.5	1.8	1.8	1.8	1.6	1.8
Return on investment	Borrower	20	20	18	18	15	15	18
	Industry's average	18	18	20	20	18	18	18

You are required to ascertain the trend (base year = 1) and interpret the result. Kindly indicate how the bank would react to the proposal of financing put forward by the borrower. [6+3+1]

Answer:

Trend statement (base = year 1)

	Current ratio		Debt equity ratio		Return on investment	
Year	**Borrower**	**Industry**	**Borrower**	**Industry**	**Borrower**	**Industry**
1	100	100	100	100	100	100
2	100	100	100	100	100	100
3	125	111	89	120	90	111
4	110	111	89	120	90	111
5	100	139	83	120	75	100
6	125	139	83	107	75	100
7	100	139	67	120	90	100

Interpretation:

(i) Current ratio : While the projected industry trend is steadily upward (from 100 in base yr. 1 to 111 in years 3-4 and to 139 in years 5-7), it is likely to witness a fluctuating trend in the case of the borrower. In spite of oscillating position, however, the borrower's current ratio is not likely to decrease below 2:1. The borrower is not likely to encounter any major problems in meeting his short-term debt obligations.

(ii) Debt – equity (D/E) ratio: The D/E ratio of the borrower is likely to decrease at a steady pace by one-third over the projected 6-year period. In absolute terms also, D/E ratio of 1.5:1 or 1.2:1 is satisfactory. In contrast, the industry's D/E ratio is marked by an upward trend. The long term solvency position of the borrower is stronger vis-à-vis industry. The margin of safety to the bank seems to be adequate.

(iii) Return on investment (ROI): As per the projected trend, the industry figures appear to be better. The ROI is the lowest in years 5 and 6 (15%) and is the highest in years 1 and 2 in the case of the borrower. In contrast, it is maximum (20%) for the industry in years 3-4 and 18% in all other years. The only positive feature for the borrower is that while industry trend reflects decline from year 4 onwards, it is upward for the former from year 7.

Thus, as the current ratios of the borrower are satisfactory in spite of decline, it is safe for the bank to lend for working capital requirements of the borrower. In the case of long-term (expansion) requirements, the bank can seek additional data to determine debt-service coverage ratio, (more appropriate measure), as the projected D/E ratios are satisfactory.

Question No. 2 (Answer **any two** questions. Each question carries **15 marks**)

2(a). Below are given Summaries Balance Sheet and Income Statement of ABC Ltd.:

Income Statement for the year ended 31.03.2015	
	(₹ in thousands)
Sales	**1,600**
(-) Cost of goods sold	**1,310**
Gross Margin	**290**
Less: Selling and Administrative expenses	**40**
	250
Less: Interest expense	**45**
Earnings before tax	**205**
Tax paid	**82**
Earnings per share (EPS) ₹ 3.075	**123**

Balance Sheet as at 31.03.2015 (₹ in thousands)

Equity & Liabilities	₹	Assets	₹
Shareholders' Fund:		**Non-current Assets:**	
Paid up Capital (40,000		**Net Fixed Assets**	**800**
Shares of ₹ 10 each fully paid)	**400**	**Current Liabilities:**	
Retained Earnings	**120**	**Inventory**	**400**
Non-current Liabilities:		**Debtors**	**175**
Debenture	**700**	**Marketable Securities**	**75**
Current Liabilities:		**Cash**	**50**
Creditors	**180**		
Bills Payable	**80**		
Other Current Liabilities	**20**		
	1,500		**1,500**
Market Price per share ₹ 15			
Industry's average ratios are :			
Current ratio			**2.4**
Quick ratio			**1.5**
Sales to Inventory			**8**
Average Collection Period			**36 days**
Times Interest Earned			**6**
Profit margin			**7%**
Price to Earning Ratio			**15**
Return on total assets			**11%**

ABC Ltd. would like to borrow ₹ 5,00,000 from a bank for less than a year. Evaluate the firm's current financial position by calculating ratios that you feel would be useful for the banks evaluation. [15]

Answer:

Before granting short term loan, the bank should consider liquidity position, profitability position and interest payment ability of the firm. So let us calculate the requisite ratios for this purpose:

Ratio	Formula used	Value of ratio of ABC Ltd.	Industry's average ratio	Remarks
(A) Liquid Ratio				
(i) Current Ratio	$\frac{\text{Current Assets}}{\text{Current Liabilities}}$	$\frac{₹700}{₹280} = 2.5$	2.4	Above Standard
(ii) Quick Ratio	$\frac{\text{Current Assets} - \text{Inventory}}{\text{Current Liabilities}}$	$\frac{₹700 - ₹400}{₹280}$ = 1.07	1.5	Below Standard
(iii) Inventory Turnover ratio	$\frac{\text{Cost of goods sold}}{\text{Inventory}}$	$\frac{₹1,310}{₹400} = 3.28$	8	Below Standard
(iv) Average Collection	$\frac{\text{Debtors}}{\text{Sales}} \times 365 \text{days}$	$\frac{₹175}{₹1,600} \times 365$		

Period		= 40 days	36 days	4 days longer
(B) Profitability Ratio				
(i) Profit margin	$\frac{\text{Net income after tax}}{\text{Sales}} \times 100$	$\frac{₹123}{₹1,600} \times 100$ = 7.69%	7%	Above the Standard
(ii) Price to Earnings ratio	$\frac{\text{Market Price Per Share}}{\text{Earning per Share}}$	$\frac{₹15}{₹3.075} = 4.88$	15	Below Standard
(iii) Return on total Assets	$\frac{\text{Net Profit after tax}}{\text{Total assets}}$	$\frac{₹123}{₹1,500} \times 100$ = 8.2%	11%	Below Standard
(C) Coverage ratio				
(i) Interest Coverage Ratio	$\frac{\text{Profit before interest and tax}}{\text{Interest}}$	$\frac{₹250}{₹45}$ = 5.56 times	6	Near to Standard

Comments on the liquidity, profitability and interest payment capacity of ABC Ltd.:

Liquidity Position: The current ratio of ABC Ltd. is little-bit higher than industry's average ratio. So it may be thought that liquidity position of the firm is sound. But if we look at the quick ratio, we will see that the position is not at all satisfactory. The quick ratio of ABC Ltd. is lower than industry's average ratio by as much as $\left(\frac{1.5-1.07}{1.5} \times 100\right)$ = 28.67%. Clearly this has resulted in due to high inventory holding which is around 57% of total current assets. That inventory holding is disproportionately high which is evident from inventory turnover ratio. While the industry's average inventory turnover ratio is 8, it is only 3.28 in case of ABC Ltd. This poor turnover ratio indicates a very inefficient inventory management. The company is holding either excessive inventory than warranted by volume of production or a huge quantity of slow-moving and non-moving inventory. The liquidity position of ABC Ltd. is further strained by 4 days longer debt collection period than the industry's average.

Profitability Position: The Profit margin ratio of ABC Ltd. is slightly better than industry's average. But the return on total assets of the company is far below the industry's average. It is only 8.2% while it should be around 11% as per industry norm. It indicates that ABC Ltd. is less efficient in utilising its assets compared to industry average. So to make the return on total assets at par with industry average, ABC Ltd. has to either reduce the investments in total assets or increase sales volume. The price-earnings ratio of ABC Ltd. is too lower compared with the industry's average. It indicates that investors' evaluation about the prospect of the firm is very poor.

Interest Payment Capacity: Interest payment capacity of ABC Ltd. is satisfactory as the Interest Coverage Ratio is near to industry's average.

Conclusion: It appears that if inventory of ABC Ltd. is properly managed and debt collection becomes more prompt, the necessity of the short term loan may not exist. Moreover, it should not be lost sight of that current ratio and quick ratio will be further worsened if this loan is granted. They will be then as follows:

$$\text{Current ratio} = \frac{₹700 + ₹500}{₹280 + ₹500} = 1.54$$

$$\text{Quick Ratio} = \frac{₹800}{₹780} = 1.03$$

So before granting loan bank should consider the above facts very carefully.

2(b) **Cash Flow Statement**
for the year ended 31st March, 2015

	₹	₹	₹
Cash Flows from Operating Activities :			
Net Profit during the year :			
Net Profit for the year 2014-15	**70,000**		
Less : Net Profit for the year 2013-14	**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 (15% on ₹ 30,000)	**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**
Cash Flows from Investing Activities:			
Sale of Plant & Machinery	**3,000**		
Sale of Fixture & Fittings	**1,000**	**4,000**	
Less: Purchase of Plant & Machinery	**39,000**		

Purchase of Fixture & Fittings	**10,000**		
Purchase of Freehold Properties	**20,000**	**69,000**	
Net Cash Flow from Investing Activities			**(-)65,000**
Cash Flows from financing Activities :			
Issue of Share		**70,000**	
Less: Redemption of Debenture (including Premium)	**42,000**		
Dividend Paid	**15,000**		
Debenture Interest	**4,500**	**61,500**	
Net Cash Flows from Financing Activities			**8,500**
Net Increase in Cash or Cash Equipment			**30,000**
Less: Cash and Cash equivalent at the beginning– Bank Overdraft			**(-)14,000**
Cash or Cash equivalent at the end – Cash at Bank			**16,000**

Additional information:

- **Total assets as at 31.03.2015 amounting to ₹ 4,21,000.**
- **Equity share capital, Securities Premium Account and Profit & Loss Account as at 31.03.2015 are amounted to ₹ 1,50,000, ₹ 35,000 and ₹ 69,000 respectively.**

From the above calculate the relevant ratios to analyse the cash flow statement and interpret the result. [8+7]

Answer:

$$\text{Rate of Dividend to Operating Cash Flow (OCF)} = \frac{\text{Dividend}}{\text{Operating Cash Flows (OCF)}} \times 100$$

$$= \frac{₹15,000}{₹86,500} \times 100 = 17.34\%$$

$$\text{Rate of Depreciation to Operating Cash Flow} = \frac{\text{Depreciation}}{\text{Operating cash flow}}$$

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

$$\text{Debts Coverage Ratio} = \frac{\text{OCF - Interest - Dividend}}{\text{Debts}}$$

$$= \frac{₹86,500 - ₹4,500 - ₹15,000}{₹30,000}$$

$$= \frac{₹67,000}{₹30,000} = 2.23 \text{ times}$$

$$\text{Interest Coverage Ratio} = \frac{\text{Operating Cash Flows (OCF)}}{\text{Interest Payment}}$$

$$= \frac{₹86,500}{₹4,500} = 19.22 \text{ times}$$

$$\text{Return of Cash to Total Assets} = \frac{\text{Operating Cash Flows}}{\text{Total Assets}} \times 100$$

$$= \frac{₹86,500}{₹4,21,000} \times 100 = 20.55\%$$

$$\text{Dependence of Capital Investment on Internal Fund} = \frac{\text{OCF - Increment in Cash Balance}}{\text{Investing Cash Flow}}$$

$$= \frac{₹86,500 - ₹30,000}{₹65,000} \times 100 = 86.92\%$$

$$\text{Return of Cash on Net Worth} = \frac{\text{Operating Cash Flow - Interest}}{\text{Net Worth}} \times 100$$

$$= \frac{₹86,500 - ₹4,500}{(₹1,50,000 + ₹35,000 + ₹69,000)}$$

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

$$\text{Dependence of External Funds for Capital Expenditure Ratio} = \frac{\text{Financing Cash Flow}}{\text{Investing Cash Flow}} \times 100$$

$$= \frac{₹8,500}{₹65,000} \times 100 = 13.08\%$$

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 21.97% which reveals percentage of cash used to replace fixed assets. It may be considered as normal.

The 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 86.92% which reveals that percentage of OCF less increment in cash balance to Investing Cash Flow is 86.92% i.e. 86.92%, 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 shareholders' 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.

2(c)(i) Using Altman's 1983 Multiple Discriminant Function, calculate Z-score of Geeta & 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

[5]

Answer:

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).

2(c)(ii). Ved Ltd. which is considering two financial plans provides you the following informations:

- **Total funds to be raised, ₹ 4,00,000.**
- **Financing Plans: A – 50% Equity and balance 8% Debt.**
  B – 50% Equity and balance 8% Preference shares.
- **Tax rate: 30%**
- **Equity shares of face value ₹ 10 each.**
- **Expected EBIT, ₹ 2,00,000.**

You are required to determine:

(I) Earnings per share (EPS) and Financial break-even point.
(II) Indicate if any of the plans dominate, and compute the EBIT range among the plans for difference. [(2+1)+2]

Answer:

(I) Determination of EPS under A and B

Particulars	Plan A	Plan B
EBIT	₹ 2,00,000	₹ 2,00,000
Less: Interest	16,000	-
EBT	1,84,000	2,00,000
Less : Tax @ 35%	55,200	60,000
EAT	1,28,800	1,40,000
Less: Preference Dividend	-	16,000
Earning for Equity – holders	1,28,800	1,24,000
Number of shares	20,000	20,000
EPS	6.44	6.20

Financial BEP for plans, A and B

Financial BEP $= \text{Interest} + \frac{\text{Pref.Dividend}}{(1-t)}$

For Plan A $= ₹\ 16,000 + 0 = ₹16,000$

For Plan B $= ₹0 + \frac{₹16,000}{1-0.30} = ₹\ 22,857$

(II) Calculation of Indifference Point among A and B:

$$\frac{(X-\text{Interest})(1-t)-\text{Pref.Dividend}}{N_1} = \frac{(X-\text{Interest})(1-t)-\text{Pref.Dividend}}{N_2}$$

$$\frac{(X-₹16,000)(1-0.30)-0}{20,000} = \frac{(X-0)(1-0.30)-₹16,000}{20,000}$$

Or, 0.7X – ₹ 11,200 = 0.7X – ₹ 16,000

Or, 0.7X – 0.7X = ₹ 11,200 – ₹ 16,000

Thus, indifference point between plans A and B is indeterminable.

Domination of Plan: Plan A dominates plan B as the financial BEP of plan A is lower.

2(c)(iii). Home Grades Co. is considering building an assembly plant. The decision has been narrowed down to two possibilities. The company desires to choose the best plants at a level of operation of 10,000 gadgets a month. Both plants have an expected life of 10 years and are expected not to have any salvage value at the time of their retirement. The cost of capital is 12%. Assuming a Zero income-tax rate, suggest what would be the durable choice? Cost of 10,000 gadgets per month output level:

	Large Plant ₹	Small Plant ₹
Initial Cost	**30,00,000**	**22,93,500**
Direct Labour:		
First Shift	**15,00,000 (p.a.)**	**7,80,000 (p.a.)**
Second Shift	**—**	**9,00,000 (p.a.)**
Overheads	**2,40,000 (p.a.)**	**2,10,000 (p.a.)**

The present value of an ordinary annuity of ₹ 1 for 10 years, at 12%, is 5.6502. [5]

Answer:

Annual savings of installing large plant
Savings—

	₹
In direct labour (both shift) [₹ 9,00,000 + ₹ 7,80,000 = ₹ 16,80,000 - ₹ 15,00,000]	1,80,000
In overhead cost (₹ 2,40,000 - ₹ 2,10,000)	(-) 30,000
Annual Savings	1,50,000
P.V. of Annual Savings of ₹ 1,50,000 at 12% = ₹ 1,50,000 x 5.6502	8,47,530

Now, the additional outlay for the large plant is:

	₹
Cost of large plant	30,00,000
Less: Cost of small plan	22,93,500
	7,06,500

Since the present value of annual savings amounting to ₹ 8,47,530 against the large plant is more than the additional outlay for the large plant, viz., ₹ 7,06,500, it is advisable to undertake the large plant.

Question No. 3. (Answer **all** questions. Each question carries **10 marks**)

3 (a). ABC Ltd. wants to acquire PQR Ltd. The cash flow of ABC Ltd. & the merged entity is given as follows:

Year (₹ in Lakhs)	1	2	3	4	5
ABC Ltd.	**275**	**302.5**	**324.5**	**641**	**357.5**
Merged entity	**440**	**495**	**563.75**	**591.25**	**618.75**

After 5 years, earnings would have witnessed 5% constant growth rate without merger and 6% with merger on account of economies of operation. The cost of capital is 15%. The exchange ratio agreed upon is 0.6. From the viewpoint of ABC Limited, find out the value of acquisition, make suitable assumptions. [10]

Answer:

Assumption:
Total number of shareholding in both companies is taken as 1.

Post merger – Total shareholding = 1+0.6 = 1.6

		ABC Ltd.		Merged Entity	
Year	**PV @15%**	**Cash flow**	**PV of CF**	**Cash Flow**	**PV of CF**
1	0.8696	275	239.14	440	382.62
2	0.7561	302.5	228.72	495	374.27
3	0.6575	324.5	213.36	563.75	370.67
4	0.5718	341	194.98	591.75	338.36
5	0.4972	357.5	177.75	618.75	307.64
6	0.4972	*3753.75	1866.36	**7287.50	3623.35
	Total		**2920.31**		**5396.91**

*Terminal value ABC = $\frac{CF(1+g)}{k_e - g} = \frac{357.5 \times 1.05}{0.15 - 0.05} = 3753.75$

**terminal value Merged Entity = $\frac{CF(1+g)}{k_e - g} = \frac{618.75 \times 1.06}{0.15 - 0.06} = 7287.5$

Value of shareholders of ABC [after merger] = 5396.91/1.6 = ₹33730.6
Value of shareholders of ABC [before merger] = 2920.31/1.0 = ₹2920.31 lacs
Cost of acquisition payable for Merger by ABC Ltd. = (₹3373.06 – ₹2920.31) = ₹452.75 lacs

3 (b). The following information is given for 3 companies that are identical except for their capital structure:

Particulars	X Ltd.	Y Ltd.	Z Ltd.
Total Invested Capital	**1,00,000**	**1,00,000**	**1,00,000**
Debt/Assets Ratio	**0.8**	**0.5**	**0.2**
Shares Outstanding	**6,100**	**8,300**	**10,000**
Pre tax cost of debt	**16%**	**13%**	**15%**
Cost of Equity	**26%**	**22%**	**20%**
Operating Income (EBIT)	**25,000**	**25,000**	**25,000**

The tax rate is uniform 35% in all cases.

(i) Compute the Weighted Average Cost of Capital for each company.

(ii) Compute the Economic Valued Added (EVA) for each company.

(iii) Based on the EVA, which company would be considered for better investment? Give reasons.

(iv) If the industry PE ratio is 11, estimate the price for the share of each company.

(v) Calculate the estimated market capitalization for each of the companies.

[2+2+1+3+2]

Answer:

(i) Weighted Average Cost of Capital

WACC = (Cost of Debt × Debt%) + (Cost of Equity × Equity%)

Cost of debt after Tax = Cost of Debt before Tax (1 – Tax Rate)

X Ltd. = 16% (1 – 0.35) = 10.4%

Y Ltd. = 13% (1 – 0.35) = 8.45%

Z Ltd. = 15% (1 – 0.35) = 9.75%.

WACC

X Ltd. (10.4 × 0.8) + (26 × 0.2) = 13.52%

Y Ltd. (8.45 × 0.5) + (22 × 0.5) = 15.225%

Z Ltd. (9.75 × 0.2) + (20 × 0.8) = 17.95%

(ii) Weighted Average Cost of Capital

	X Ltd.	Y Ltd.	Z Ltd.
A. EBIT (1 – T)	16,250	16,250	16,250
B. Less: WACC of Invested Capital	13,520	15,225	17,950
C. EVA [A – B]	2,730	1,025	-1,700

(iii) X Ltd. would be considered as the best investment since the EVA of the company is highest and its weighted average cost of capital is the lowest.

(iv) Estimated Price of each company shares

	X Ltd.	Y Ltd.	Z Ltd.
EBIT	₹25,000	₹25,000	₹25,000
Less: Interest	(₹12,800)	(₹6,500)	(₹3,000)
Taxable Income	₹12,200	₹18,500	₹22,000
Less: Tax @ 35%	(₹4,270)	(₹6,475)	(₹7,700)
Net Income	₹7,930	₹12,025	₹14,300
Shares	6,100	8,300	10,000
EPS	1.3	1.45	1.43
Stock Price (EPS × PE Ratio)	₹14.30	₹15.94	₹15.73

Since the three entities have different capital structures they would be exposed to different degrees of financial risk. The PE ratio should therefore be adjusted for the risk factor .

(v) Market Capitalisation

	X Ltd.	Y Ltd.	Z Ltd.
Estimated Stock Price (Rs.)	14.30	15.94	15.73
No. of Shares	6,100	8,300	10,000
Estimated Market Cap (Rs.)	87,230	1,32,302	1,57,300

Question No. 4. (Answer **any two** questions. Each question carries **15 marks**)

4(a)(i). A company needs ₹5.1 crores to finance its investments for which ₹1.1 crore is available out of profits. The market price per share at the end of the current financial year is expected to be ₹100. If the discount rate is 10%, determine the present value of a share using the M-M Model. (Outstanding shares=10 lakhs). [8]

Answer:

Given that profits = E = ₹1.1 crore.
Company needs total = I= ₹5.1 crores.
The balance would be raised by issuing new shares (m) at price (P_1 of ₹100)
= 4,00,00,000 /100 = 4,00,000 shares
Original shares (n) = 10,00,000
Total no. of shares after issue (m+n)= 14,00,000 shares
k=10%

According to the MM Model

We have $nP_O = \frac{(m+n)P_1 + nD_1 - mP_1}{1+k}$

Now, mP_1 = Amount raised = Investment – [Earnings – Dividend distributed]
$= I - [E - nD_1]$

Substituting in the above equation, we have

$nP_O = \frac{(m+n)P_1 + E - I}{1+k}$ = 10,00,000 × P_o = $\frac{1400000 \times 100 + 11000000 - 51000000}{1+0.10}$

Substituting we get P_o = ₹90.90

4(a)(ii). S Ltd furnishes the following Cash Flows estimate -

Year 1	**₹ 20.00 Lakhs**
Years 2 to 4	**Compounded Growth Rate 6.5%**
Years 5 to 8	**Compounded Growth Rate 9.5%**

Apply 20% Discount Rate and determine the Value of Business. [7]

Answer:

(₹ 000's)

Year	Cash Flows	Discount Factor at 20%	Discounted Cash Flows
1	20,000.00	0.8333	16,66.60
2	20,00.00 + 6.5% = 2,130.00	0.6944	14,79.07
3	21,30.00 + 6.5% = 2,268.45	0.5787	13,12.75

4	22,68.45 + 6.5% = 2,415.90	0.4823	11,65.19
5	24,15.90 + 9.5% = 2,645.41	0.4019	10,63.19
6	26,45.41 + 9.5% = 2,896.72	0.3349	9,70.11
7	28,96.72 + 9.5% = 3,171.91	0.2791	8,85.28
8	31,71.91 + 9.5% = 3,473.24	0.2326	8,07.88
Total			**93,50.07**

Value of Business is based on discounted value of 8 years Cash Flows (CFAT) is ₹ 93.50 Lakhs.

4(b) SUPER Garments Ltd. is a company which produces and sells to retailers a certain range of fashion clothing.They have made the following estimates of prudential cash flows for the next 10 years.

(₹ in lakhs)

Yr.	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Cash flow	**3750**	**4250**	**5000**	**6250**	**7500**	**8500**	**9500**	**11250**	**12500**	**15000**

SONA Ltd. is a company which owns a series of boutiques in a certain locality. The boutiques buy clothes from various suppliers and retail them. Each boutique has a manager and an assistant but all purchasing and policy decisions are taken centrally. An independent cash flow estimate of SONA Ltd. was as follows;

(₹ in lakhs)

Yr.	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Cash flow	**300**	**400**	**500**	**700**	**850**	**1150**	**1300**	**1500**	**1650**	**2000**

SUPER Garments Ltd. is interested in acquiring SONA Ltd. in order to get some additional retail outlets. They make the following cost-benefit calculation;

(i) Net value of assets of SONA Ltd.

₹ in lakh

Sundry fixed assets	**2000**
Investments	**500**
Stock	**1000**
Total	**3500**
Less : Sundry Creditors	**1000**
Net Assets	**2500**

(ii) Sundry fixed assets amounting to ₹ 125,00,000 cannot be used and their net realisable value is ₹ 112,50,000

(iii) Stock can be realised immediately at ₹ 1,175 lakh.

(iv) Investments can be disposed off for ₹ 530 lakhs.

(v) Some workers of SONA Ltd. are to be retrenched for which estimated compensation is ₹ 325 lakh.

(vi) Sundry creditors are to be discharged immediately.

(vii) Liabilities on account of retirement benefits not accounted for in the balance sheet by SONA Ltd. is ₹ 120 lakhs.

(viii) Expected cash flows of the combined business will be as follows:

(₹ in lakhs)

Yr.	1	2	3	4	5	6	7	8	9	10
Cash flow	4500	4750	5750	7375	8750	10000	11250	13250	14500	17250

Find out the maximum value of SONA Ltd. which SUPER Garments Ltd. can quote. Also show the difference in valuation had there been no merger. Use 20% as discount factor.

Year	1	2	3	4	5	6	7	8	9	10
Discounting factor @ 20%	0.8333	0.6944	0.5787	0.4823	0.4019	0.3349	0.2791	0.2326	0.1938	0.1615

[15]

Answer:

Calculation of operational synergy expected to arise out of merger

(₹ in lacs)

Year	1	2	3	4	5	6	7	8	9	10
Projected cash flows of SUPER Garments Ltd. after merger with SONA Ltd.	4500	4750	5750	7375	8750	10000	11250	13250	14500	17250
Less: Projected Cash-flows of SUPER Garments Ltd. without merger	3750	4250	5000	6250	7500	8500	9500	11250	12500	15000
Projected Cash flows of SONA Ltd individually post merger	750	500	750	1125	1250	1500	1750	2000	2000	2250

(2) Valuation of SONA Ltd. ignoring merger

Year	Cash flows (₹ in lacs)	Discount factor	Discounted cash flow (₹ in lacs)
1	300	0.8333	249.990
2	400	0.6944	277.760

3	500	0.5787	289.350
4	700	0.4823	337.610
5	850	0.4019	341.615
6	1150	0.3349	385.135
7	1300	0.2791	362.830
8	1500	0.2326	348.900
9	1650	0.1938	319.770
10	2000	0.1615	323.000
			3235.960

(3) Valuation of SONA Ltd. individually in case of merger

Year	Cash flows (₹ in lacs)	Discount Factor	Discounted Cash Flow (₹ in lacs)
1	750	0.8333	624.975
2	500	0.6944	347.200
3	750	0.5787	434.025
4	1125	0.4823	542.588
5	1250	0.4019	502.375
6	1500	0.3349	502.350
7	1750	0.2791	488.425
8	2000	0.2326	465.200
9	2000	0.1938	387.600
10	2250	0.1615	363.375
			4658.113

(4) Maximum value to be quoted

	₹ in Lacs	₹ in Lacs
Value as per discounted cash flows from operation		4,658.113
Add: Cash to be collected immediately by disposal of assets:		
Sundry Fixed Assets	112.500	
Investments	530.000	
Stock	1175.000	

		1817.500
		6,475.613
Less: Sundry Creditors	1000.000	
Provision for retirement benefits	120.000	
Retrenchment compensation	325.000	
		1445.000
		5,030.613

So, SUPER Garments Ltd. can quote as high as ₹ 50,30,61,300 for taking over the business of SONA Ltd. In this case value arrived at in isolation ₹ 32,35,96,000 is not providing reasonable value estimate.

4 (c). The following Balance Sheet of ABC Ltd. as at 31.03.2015 is presented to you –

(₹in lakhs)

Equity and Liabilities	₹	Assets	₹
(1) Shareholders' Funds:		**(1) Non-Current Assets:**	
(a) Share Capital		**Fixed Assets (Tangible):**	
Fully paid up Equity Shares of ₹10	**5,000**	**Plant and Machinery**	**4,780**
(b) Reserves & Surplus		**Furniture and Fittings**	**1,090**
(i) Securities Premium	**500**	**Intangibles – Trade market & Patents**	**20**
(ii) General Reserve	**1,603**	**Other Non-Current Assets–Cost of Issues of Shares**	**10**
(iii) Profit and Loss Account	**807**	**(2) Current Assets**	
(2) Current Liabilities		**Inventories**	**1,265**
Trade Payables – Crs.	**1,204**	**Trade Receivables – Drs.**	**644**
Short Term Prov. – Prov. for Tax	**110**	**Cash & Cash Equivalents**	**1,415**
Total	**9,224**	**Total**	**9,224**

Authorized Capital: 8 Crore Shares of ₹10 each. Subscribed Share Capital is the same as issued Share Capital.

The Book Profits for the last four years are as under-

Year ending	31.03.2012	31.03.2013	31.03.2014	31.03.2015
Profits (₹in lakhs)	4,100	2,725	3,200	3,060

Provision of Income Tax in each one of the above mentioned four years had been made @ 35%.
A scrutiny of the Balance Sheet as at 31.03.2015 reveals that-

- **Stock should have been valued at ₹1,230 lakhs.**
- **A debt amounting to ₹20 lakhs is really bad but has not been recorded in the books.**
- **A liability of ₹5 lakhs for damages exists but has not been recorded in the books.**

It is decided that the necessary adjustments be made in the books of accounts for the above – mentioned matters.

You are also informed that –

1. **There used to be an annual income of ₹1 Crore from Non-Trade Investments till the accounting year ended 31.03.2013.**
2. **During the year ended 31.03.2013, there was a special income of ₹150 due to an international fair.**
3. **Due to an earthquake the Company suffered a loss of ₹75 lakhs during the year 2013-14, the loss was not covered by Insurance Policy and was written off.**

You are required to calculate Goodwill of the Company at 4 years Purchase of the Super Profits of the Company assuming that additional remuneration amounting to ₹70 lakhs annually will be paid to the Directors in the years of come and rate of taxation these years will be 40%.

Assume that the Normal Rate of Profit expected in the Industry is 20% of Capital Employed.

[15]

Answer:

1. Future Maintainable Profits (₹lakhs)

Particulars	2011-12	2012-13	2013-14	2014-15
Profit Before Tax	4,100	2,725	3,200	3,060
Less: Income from Non trade Investments	(100)	(100)	---	---
Less: Special Income due to fair	---	(150)	---	---
Add: Abnormal Loss due to Earthquake	---	---	75	---
Less: Revaluation of Stock	---	---	---	(35)
Bad Debts	---	---	---	(20)
Liability for Damages	---	---	---	(5)
Adjusted Net Profit	4,000	2,475	3,275	3,000

Average Adjusted Trading Profits = $\frac{4,000 + 2,475 + 3,275 + 3,000}{4}$	3,187.50
Less: Additional Remuneration to Directors	70.00
Adjusted Net Profit Before Tax	3,117.50
Less: Income Tax at 40% (₹3,117.50 × 40%)	1,247.00
Future Maintainable Profits	1,870.50

2. Effect of Adjustments on 2014 – 2015 Taxation Liability

- Reduction in 2014-15 Profit = Stock + Bad Debts + Damages = 35 + 20 + 5 = ₹60 lakhs.
- Tax Savings thereon at 35% of ₹60 lakhs = ₹21 lakhs.
- Hence, Revised Provision for Taxation for the year 2014-15 =110 (as per Books)– 21 =₹89 lakhs.

Note: It is assumed that the above adjustments are tax deductible during the last financial year itself.

3. Average Capital Employed

Particulars	₹(Lakhs)	₹(Lakhs)
Plant and Machinery (at Balance Sheet Value)		4,780
Furniture and Fittings (at Balance Sheet Value)		1,090
Trade marks & Patents (at balance Sheet Value)		20
Stocks (at Revalued Amount given)		1,230
Debtors (₹644 Less ₹20 Bad Debts)		624
Cash & bank Balances (at Balance Sheet Value)		1,415
Total Tangible Assets		9,159
Less: External Liabilities Sundry Creditors	1,204	
Liability for Damages	5	
Provision for Taxation – as per WN 2	89	(1,298)
Closing capital Employed		7,861
Less: 50% of Adjusted Post Tax Profit for the year (3,000 – 35% Tax) × 50%		975
Average Capital employed		6,886

Note: It is assumed that there have been no fresh issue of Capital, additional capital raised and new asset acquisition during the year.

4. Computation of Goodwill

Particulars	₹(Lakhs)
Expected Profit = Future Maintainable Profits as above	1,870
Less: Normal Profits = Normal Rate of Return × Average Capital employed =20% × 6,886	(1,377)
Super Profit	493
Goodwill at 4 year purchase of Super Profits	1,972

Note: Alternatively, Normal Profits can be computed based on Closing Capital Employed.