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). The extracts of Balance sheet and Income statement of M/s. Tineto Company over the last 3 years are as follows:

(₹ '000)

Particulars	2011-12	2012-13	2013-14
Current Assets:			
Cash	561	387	202
Receivables	1,963	2,870	4,051
Inventories	2,031	2,613	3,287
Total Current Assets (A)	4,555	5,870	7,540
Non-current Assets:			
Net fixed assets (B)	2,581	4,430	4,364
Total Assets (A+B)	7,136	10,300	11,904
Current Liabilities:			
Payables	1,862	2,944	3,613
Accruals	301	516	587
Bank loan	250	900	1,050
Total Current Liabilities (C)	2,413	4,360	5,250
Non-current Liabilities:			
Long-term debt (D)	500	1,000	950
Shareholders' Fund:			
Shareholders' equity (E)	4,223	4,940	5,704
Total Liabilities and Equity (C+D+E)	7,136	10,300	11,904
Sales	11,863	14,952	16,349
Cost of goods sold	8,537	11,124	12,016
Selling, general and administrative expenses	2,349	2,659	2,993
Profit before tax	977	1,169	1,340
Taxes	390	452	576
Profit after tax	587	717	764

You are required to prepare Common Size Balance Sheet and Common Size Income Statement for the years 2011-12 to 2013-14 and analyse the results. [5+5]

Answer:

Common Size Balance Sheet of M/s Tineto Company for the years 2011-12 to 2013-14

Particulars		2011-12	2012-13	2013-14
Current Assets:				
Cash		7.9	3.8	1.7
Receivables		27.5	27.8	34.0
Inventories		28.4	25.4	27.6
Total Current Assets	(A)	63.8	57.0	63.3
Non-current Assets:				
Net fixed assets	(B)	36.2	43.0	36.7
Total Assets	(A+B)	100.0	100.0	100.0
Current Liabilities:				
Payables		26.1	28.6	30.4
Accruals		4.2	5.0	4.9
Bank loan		3.5	8.7	8.8
Total Current Liabilities	(C)	33.8	42.3	44.1
Non-current Liabilities:				
Long-term debt	(D)	7.0	9.7	8.0
Shareholders' Fund:				
Shareholders' equity	(E)	59.2	48.0	47.9
Total Liabilities and Equity	(C+D+E)	100.0	100.0	100.0

Common size Income Statement of M/s Tineto Company for the years 2011-12 to 2013-14

Particulars	2011-12	2012-13	2013-14
Sales	100.0	100.0	100.0
Less: Cost of goods sold	72.0	74.4	73.5
Gross Profit	28.0	25.6	26.5
Less: Selling, general and administrative expenses	19.8	17.8	18.3
Profit before tax	8.2	7.8	8.2
Less: Taxes	3.3	3.0	3.5
Profit after tax	4.9	4.8	4.7

Analysis:

(i) The cash balance is dwindling over years 2011-12 to 2013-14 which may cause liquidity problems in future.

(ii) There is sharp increase of receivables balance which may be due to inefficiency in collection of debtors' balances.

(iii) The proportion of inventories to total assets almost remains same in year 2011-12 and year 2013-14 but the inventory has shown reduced balance in year 2012-13.

(iv) The proportion of net fixed assets to total assets almost remains unchanged for years 2011-12 and 2013-14. But higher proportion is shown in year 2012-13.

(v) The shareholders equity to total liabilities has sharply declined from 59.2 in 2011-12 to 47.9 in 2013-14.

(vi) The proportion of long-term debt almost remains same in all the 3 years.

(vii) The proportion of bank loan in total liabilities has increased from 3.5 in 2011-12 to 8.8 in

2013-14.

(viii) The proportion of accruals to total liabilities remains almost same in all three years.

(ix) The payables have increased from 26.1 to 30.4 over a period of 3 years, represents delay in making payments for creditors.

(x) There is not much of change in cost of goods sold, selling, general and administrative expenses in all three years causing uniform profit in all three years.

1(b). A company is reviewing an investment proposal in a project involving a capital outlay of ₹ 90,00,000 in plant and machinery. The project would have a life of 5 years at the end of which the plant and machinery could fetch a resale value of ₹30,00,000. Further the project would also need a working capital of ₹12,50,000 which would be built during the year 1 and to be released from the project at the end of year 5. The project is expected to yield the following cash profits:

Year	1	2	3	4	5
Cash profit (₹ lakhs)	35	30	25	22	20

25% depreciation for plant and machinery is available on WDV basis as Income-tax exemption. Assume that the corporate tax is paid one year in arrear of the periods to which it relates and the first year's depreciation allowance, would be claimed against the profits of year 1.

The Assistant Management Accountant has calculated NPV of the project using the company's corporate target of 20% pre-tax rate of return and has ignored the taxation effect in the cash flows.

As the newly recruited Management Accountant, you realize that the project's cash flows should incorporate the effects of tax. The corporate tax is expected to be 35% during the life of the project and thus the company's rate of return post-tax is 13% (65% of 20%).

Your Assistant is surprised to note the difference between discounting the pre-tax cash flows at a pretax DCF rate and post-tax cash flows at a post-tax rate.

Required:

(i) Calculate the NPV of the project as the Assistant Management Accountant would have calculated it,

(ii) Re-calculate the NPV of the project taking tax into consideration,

(iii) Comment on the desirability of the project vis-a-vis your findings in (ii). [4+4+2]

Answer:

(i) Assistant Management Accountant's calculation (i.e. Ignoring taxation)

(₹ lakhs)

Year	Investments		Cash profit	Net cash flows	Discount factor at 20%	Present value
	Plant and machinery	Working capital				
0	(90.0)		-	(90.0)	1.00	(90.000)
1	-	(12.5)	35.0	22.5	0.83	18.675

2	-		30.0	30.0	0.69	20.700
3	-		25.0	25.0	0.58	14.500
4	-		22.0	22.0	0.48	10.560
5	30.0	12.5	20.0	62.5	0.40	25.000
						NPV = (0.565)

It is assumed that working capital (debtors, stocks etc.) would reduce cash flows in year 1 and would be recovered soon after the end of year 5. The working capital cash flows are therefore assigned to years 1 and 5. Here it is observed that NPV is negative and hence, the Assistant Management Accountant would have concluded that the project should be rejected.

(ii) Allowing for Taxation

1. Tax on cash profit

(₹ lakhs)

Year of profit	Cash profit	Tax @ 35%	Year of tax payment
1	35	12.25	2
2	30	10.50	3
3	25	8.75	4
4	22	7.70	5
5	20	7.00	6

2. Depreciation Allowances – tax rebate etc.

(₹ lakhs)

Year	Reducing balance	Depreciation	Tax rebate/ (tax payable)	Year of cash flow
0	90.00	-	-	-
1	67.500	22.500	7.875	2
2	50.625	16.875	5.906	3
3	37.969	12.656	4.430	4
4	28.477	9.492	3.322	5
5	21.358	7.119	2.492	6
*Profit on sale of Plant and machinery (30.000 – 21.358)		(8.642)*	(3.025)	6

Calculation of NPV of the Project

(₹ lakhs)

Year	Investment		Depreciation Allowance tax saved	Cash profits	Tax on profits	Net cash flow	Discount factor at 13%	Present value
	Plant & machinery	Working capital						
0	(90)	-	-	-	-	(90.000)	1.00	(90.000)
1	-	(12.5)	-	35	-	22.500	0.88	19.800
2	-	-	7.875	30	(12.25)	25.625	0.78	19.988
3	-	-	5.906	25	(10.50)	20.406	0.69	14.080
4	-	-	4.430	22	(8.75)	17.680	0.61	10.785
5	30	12.5	3.322	20	(7.70)	58.122	0.54	31.386

6	-	-	(0.533)	-	(7.00)	(7.533)	0.48	(3.616)
								NPV + 2.423

(iii) The NPV is positive, although it is very small in relation to the capital outlay of ₹ 90 lakhs. It is also apparent the positive NPV depends heavily on the assumption that the plant and machinery would have a resale value of ₹ 30 lakhs at the end of year 5. Such projects which rely on their residual values for their positive NPV should normally be regarded high-risk ventures. It can be further seen that a drop of around 10% i.e. ₹ 3 lakhs in resale value would make the project negative.

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

2(a). From the following Balance Sheet (extract) and Income Statement (extract) of X Ltd. evaluate its financial position and performance with reference to the standard value of ratio.

Balance Sheet (Extract)
As at 31.03.14

Equities & Liabilities	₹	Assets	₹
Shareholders' Fund:		**Non-current Assets:**	
Equity Share of ₹ 10 each	**10,00,000**	**Fixed Assets**	**32,50,000**
Reserve	**22,50,000**	**Inventory**	**20,00,000**
Non-current Liabilities:			
Long term Debt	**12,50,000**	**Current Assets:**	
Current Liabilities:		**Receivable**	**15,00,000**
Bank Overdraft	**15,00,000**	**Cash**	**5,00,000**
Creditors	**10,00,000**	**Prepaid expenses**	**2,50,000**
Provision	**5,00,000**		
	75,00,000		**75,00,000**

Income Statement (Extract)
For the year ended 31.03.14

		₹
	Sales	**95,00,000**
Less	**Cost of goods sold**	**72,00,000**
	Gross Profit	**23,00,000**
Less	**Operating expenses**	**7,90,000**
	Earnings before interest & Tax (EBIT)	**15,10,000**
Less	**Interest**	**5,00,000**
	Earnings before Tax (EBT)	**10,10,000**
Less	**Tax**	**5,00,000**
	Net Profit / Earnings after Tax	**5,10,000**
Less	**Dividend**	**1,80,000**
	Retained Profit	**3,30,000**

Standard values of the ratios are as follows:

	Standard Ratio
1. Current Ratio	1.5
2. Liquid Ratio	0.8
3. Debt-equity Ratio	1.5
4. Interest Coverage	3.6 times
5. Inventory turnover	4 times
6. Debt Collection period	60 days
7. Total Asset Turnover	1 time
8. Net margin on sales	6%
9. Return on Investment	10%
10. Return on Equity	12%

Answer the following questions:

(i) Calculate the ratios which are relevant for the analysis of liquidity, profitability. Also calculate the Debt-equity ratio as a part of Capital Structure ratio and Interest coverage ratio as a part of Coverage ratio.

(ii) Analyse and comment of the position of the company as compared to the standard on the basis of those ratios which are calculated in point (i). [10+5]

Answer:

(i) Evaluation of Financial Position and Performance of X Ltd.

Ratio	Formula Used	Value of ratio of X Ltd.	Standard Value of Ratio	Remarks
(A) Liquidity Ratios				
(I) Current Ratio	$\frac{\text{Current Assets(CA)}}{\text{Current Liabilities(CL)}}$	$\frac{42.5}{30.0}=1.42$	1.5	Below Standard
(II) Acid test Ratio	$\frac{\text{CA - (Inventory + prepaid expenses)}}{\text{CL - BankO/D}}$	$\frac{20}{15}=1.33$	0.80	Above Standard
(III) Inventory Turnover Ratio	$\frac{\text{Cost of goods sold}}{\text{Closing Inventory}}$	$\frac{7.2}{2.0}=3.6$	4 times	Below Standard
(IV) Average Collection Period	$\frac{\text{Receivables}}{\text{Sales}}\times 365$	$\frac{15}{95}\times 365 = 58$ days	60 days	Near to Standard
(B) Profitability Ratios				
(I) Return on Investment	$\frac{\text{Earnings after tax}}{\text{Total Assets - Current Liabilities}}$	$\frac{5.10}{45.00}\times 100$ = 11.33%	10%	Above Standard

(II) Return on Equity	$\frac{\text{Net Profit}}{\text{Shareholders Fund}}$	$\frac{5.1}{32.5}\times 100 =$ 15.69%	12%	Above Standard
(III) Net margin on Sales	$\frac{\text{Net Profit after tax}}{\text{Sales}}\times 100$	$\frac{5.10}{95.00}\times 100 = 5.37$	6%	Below Standard
(IV) Total Assets Turnover	$\frac{\text{Sales}}{\text{Total Assets}}$	$\frac{95}{75} = 1.27$ times	1 time	Above Standard
(C) Capital Structure Ratios				
(I) Debt-Equity Ratio	$\frac{\text{Total debt}}{\text{Shareholders Fund}}$	$\frac{12.5}{32.5} = 0.38$	1.5	Below Standard
(D) Coverage Ratios				
(I) Interest Coverage	$\frac{\text{EBIT}}{\text{Interest}}$	$\frac{15.1}{5} = 3.02$ times	3.6 times	Below Standard

(ii) Analyse and comment:

(1) Liquidity Position: The liquidity position, i.e. short term debt paying capacity of X Ltd. appears to be satisfactory as its current ratio is almost near to standard and acid test ratio is far above the standard. The average collection period is also shorter than the standard period which makes further improving the liquidity of the firm. The inventory turnover ratio of X Ltd. is little-bit lower than the standard. It indicates that average inventory holding period is relatively lengthier. Inventory holding period should be kept minimum for better liquidity. However, the matter is not serious enough for X Ltd. as other criteria of liquidity test are well-fulfilled by it.

(2) Profitability Position: The overall profitability of the firm is highly satisfactory as is evident from its ROI which is more than the standard. The return on equity of X Ltd. is also higher than the standard, but its net margin on sales is little-bit poorer than standard. This is, however, unlikely to pose any threat as its volume of sales with respect to assets is higher than the standard.

(3) Long term Solvency: The long term solvency position of the firm appears to be satisfactory as is indicated by its Debt/Equity ratio. It is being noted that for each rupee of ownership fund the debt is of ₹ 0.38, while a firm can afford to have debt of ₹ 1.5 as per industry norm. So dependence on debt Capital is lower.

(4) Interest Payment Capacity: Interest payment capacity of X Ltd. is to some extent poorer than industry standard. However, this is not likely to pose any problem as the profitability and long term solvency position of the firm are much sounder.

Conclusion: The overall performance and financial position of X Ltd. appears to be quite satisfactory. However our analysis and interpretation are subject to following limitations:

1. We do not know how the standard ratios have been computed. If the formulas used in computing standard ratios differ from those of ours, the above interpretation may not hold good.
2. We are unable to consider several other important ratios, e.g. proprietary ratio, operating ratio, Dividend payout ratio due to either non-availability of data or respective standard ratios.

2(b)(i). The selected financial data for the companies, namely P, Q and R for the year ended 31st March, 2014 are as follows:

Particulars	P	Q	R
Variable expenses as a percentage of sales	**66.67**	**75**	**50**
Interest expenses (₹)	**200**	**300**	**1,000**
Degree of operating leverage (DOL)	**5**	**6**	**6**
Degree of financial leverage (DFL)	**3**	**4**	**2**
Income-tax rate	**0.30**	**0.30**	**0.30**

1. Prepare income statements for P, Q and R companies.
2. Comment on the financial position and structure of these companies. [3+2]

Answer:

1. Income Statement of companies P, Q and R for the year ended 31st March, 2014

Particulars	P (₹)	Q (₹)	R (₹)
Sales	4,500	9,600	24,000
Less: Variable costs (VC)	3,000	7,200	12,000
Less: Fixed costs (Sales – VC- EBIT)	1,200	2,000	10,000
EBIT (Earnings before Interest & Taxes)	300	400	2,000
Less: interest	200	300	1,000
Earnings before taxes	100	100	1,000
Less: Taxes	30	30	300
EAT (Net income)	70	70	700

Working Notes:
The preparation of the income statement requires data for (I) sales revenue, (II) variable costs and (III) fixed costs.

Company P:	Company Q:	Company R:
DFL = 3, DFL = $\frac{EBIT}{EBIT-I}$ $3 = \frac{EBIT}{EBIT-₹200}$ EBIT = ₹300 DOL =	$4 = \frac{EBIT}{EBIT-₹300}$ EBIT = ₹400 $6 = \frac{S-0.75\,S}{₹400}$ S = ₹ 9,600 VC = 0.75 x ₹ 9,600 = ₹ 7,200	$2 = \frac{EBIT}{EBIT-₹1,000}$ EBIT = ₹2,000 $6 = \frac{S-0.50\,S}{₹2,000}$ S = ₹ 24,000 VC = 0.50 × ₹ 24,000

$\frac{\text{Sales} - \text{Variable costs(V)}}{\text{EBIT}}$ $5 = \frac{S - 0.667\,S}{₹300}$ Where S = sales = ₹4,500 VC = 0.667 x ₹4,500 = ₹3,000		= ₹ 12,000

2. The financial position of company R can be regarded better than other companies: (I) It has the least financial risk as it is has minimum degree of financial leverage. It is true that there will be a more magnified impact on EPS of P and Q due to change in EBIT, but, their EBIT level due to low sales is very low. (II) From the point of view of DCL, company R is better placed. The degree of combined leverage is maximum in company Q (24); for company P (15) and for company R it is 12. The total risk (business plus financial) of company R is the lowest. (III) The ability of the company R to meet interest liability is better. The EBIT/interest ratios for the three companies are:
R, 2.0 (₹ 2,000 ÷ ₹ 1,000)
P, 1.5 (₹ 300 ÷ ₹ 200)
Q, 1.33 (₹ 400 ÷ ₹300)

2(b)(ii). The result of Dynamic Ltd. for the year 2012-13 and 2013-14 were as under:

	2012-13 (₹)	**2013-14 (₹)**
Direct Materials	**1,25,000**	**1,65,000**
Direct labour	**75,000**	**82,500**
Variable overheads	**15,000**	**17,500**
Fixed overheads	**25,000**	**30,000**
Net Profit	**10,000**	**21,250**
Sales	**2,50,000**	**3,16,250**

Prices of materials, wages and overheads had an increase of 10% in 2013-14 as compared to 2012-13. Selling price had also gone up by 10%.

Prepare a statement showing how much each factor has contributed to variance in Net Profit. **[10]**

Answer:
Working notes:

Calculation of rate of gross profit in 2012-13:

	₹	₹
Sales		2,50,000
Less : Direct Materials	1,25,000	
Less : Direct Labour	75,000	
Less : Variable overheads	15,000	
		2,15,000

		35,000
Gross Profit $\therefore$ Rate of gross profit = $\frac{\text{Gross Profit}}{\text{Sales}} \times 100 = \frac{35,000}{2,50,000} \times 100 = 14\%$		

Statement showing variances in Net Profit:

		₹	₹
(I)	Increase in profit due to increase in selling price : Actual Sales in 2013-14 Less : Sales in 2013-14 at 2012-13 price $\left[\frac{100}{110} \times 3,16,250\right]$	3,16,250 2,87,500	28,750
(II)	Increase in profit due to increase in sales volume: Sales of 2013-14 at 2012-13 price Less: Actual sales of 2012-13 Increase in sales due to volume increase [Percentage increase in volume = $\frac{37,500}{2,50,000} \times 100 = 15\%$] $\therefore$ Increase in gross profit at 14% on ₹ 37,500	2,87,500 2,50,000 37,500	5,250
(III)	Decrease in profit due to increase in usage of material: Cost of material in 2012-13 Add: Increase in volume by 15% in 2013-14 Permitted material cost of 2013-14 at 2012-13 price Actual material cost of 2013-14 at 2012-13 price $\left[\frac{100}{110} \times 1,65,000\right]$	1,25,000 18,750 1,43,750 1,50,000	(6,250)
(IV)	Decrease in profit due to increase in material price: Actual material cost of 2013-14 at 2012-13 price Less: Actual material of 2013-14	1,50,000 1,65,000	(15,000)
(V)	Effect on profit due to variation in labour efficiency: Direct labour cost in 2012-13 Add: Expected increase due to volume increase by 15% in 2013-14 Permitted labour cost in 2013-14 at 2012-13 rate Actual labour cost in 2013-14 at 2012-13 rate $\left[\frac{100}{110} \times 82,500\right]$	75,000 11,250 86,250 75,000	11,250
(VI)	Effect on profit due to an increase in labour rate: Actual labour cost in 2013-14 at 2012-13 price Less: Actual labour cost in 2013-14	75,000 82,500	(7,500)
(VII)	Effect on profit due to variable overhead efficiency variance: Variable overhead in 2012-13 Add: Expected increase due to volume increase by 15% in 2013-14 Permitted variable overhead in 2013-14 at 2012-13 rate Actual variable overhead in 2013-14 at 2012-13 rate $\left[\frac{100}{110} \times 17,500\right]$	15,000 2,250 17,250 15,909	1,341
(VIII)	Effect on profit due to variable overhead price variance:		

	Actual variable overhead in 2013-14 at 2012-13 rate Actual variable overhead in 2013-14	15,909 17,500	(1,591)
(IX)	Effect on profit due to Fixed overhead volume variance: Fixed overhead in 2012-13 Actual Fixed overhead in 2013-14 at 2012-13 rate $\left[\frac{100}{110} \times 30,000\right]$	25,000 27,273	(2,273)
(X)	Effect on profit due to fixed overhead price variance: Fixed overhead in 2013-14 at 2012-13 rate Actual fixed overhead in 2013-14	27,273 30,000	(2,727)
	Increase in Net Profit in 2013-14 over 2012-13 ₹ [21,250 - 10,000]		11,250

2(c)(i). From the following informations, calculate the cash from operations after analysing each of the following items in relation to the cash flow analysis:

	Balances as on	
	31st March, 2013 (₹)	**31st March, 2014 (₹)**
1. Stocks	**12,000**	**14,000**
2. Debtors	**12,000**	**15,000**
3. Creditors	**5,000**	**9,000**
4. Bills Receivable	**5,000**	**8,000**
5. Outstanding Expenses	**4,000**	**7,500**
6. Bills Payable	**4,000**	**2,000**
7. Prepaid Expenses	**2,000**	**1,000**

Provided that operating profit before working capital changes are ₹ 3,000. [5]

Answer:

The operating profit before working capital changes is amounted to ₹3,000 (provided). However, adjustments will have to be made in this amount for current assets and current liabilities in order to compute cash from operations. This has to be done by taking each item of current assets and current liabilities independently, as explained below:

1. The investment in stock has increased by ₹ 2,000 as compared to the previous year. This means cash must have gone out to the extent of ₹ 2,000. It will, therefore, decrease the cash balance.
2. Debtors have gone up from ₹ 12,000 on 31st March, 2013 to ₹ 15,000 on 31st March, 2014. There is an increase of ₹ 3,000. It shows that sales to the extent of ₹ 3,000 have not been realised in cash. Hence, cash from operations will be reduced by ₹ 3,000.
3. Creditors have gone up by ₹ 4,000. Thus, purchases to the extent of this amount have not been paid in cash. It is, therefore, a 'source' of cash.
4. Bills receivable have increased by ₹ 3,000. Thus, sales to the extent of ₹ 3,000 have not been realised in cash. Hence, cash on account of operations will be reduced by ₹ 3,000.
5. Outstanding expenses have increased by ₹ 3,500. Thus, expenses to this extent have not been paid resulting in increase of cash from operations by this amount.

6. Bills payable have come down by ₹ 2,000. It shows more payment of cash. The cash from operations will stand reduced by ₹ 2,000.

7. Prepaid expenses have come down by ₹ 1,000. This shows less of payment and hence cash from operations will increase by ₹ 1,000.

Cash from operations now can be computed as follows:

	Increase (+) (₹)	Decrease (-) (₹)	(₹)
Operating profit before working capital changes			3,000
Increase in stock		2,000	
Increase in debtors		3,000	
Increase in creditors	4,000		
Increase in bills receivable		3,000	
Decrease in bills payable		2,000	
Increase in outstanding expenses	3,500		
Decrease in prepaid expenses	1,000		
	8,500	10,000	(1,500)
Inflow of cash on account of operations			1,500

2(c)(ii). From the following Profit and Loss Account of AB Limited, prepare (A) Gross Value Added Statement, and [B] show the Reconciliation between Gross Value Added and Profit before Taxation:

Profit and Loss Account (Extracts) for the year ended 31st March, 2014

Particulars	(₹ in lakhs)	(₹ in lakhs)
Income:		
Sales		**800**
Other Income		**50**
		850
Expenditure:		
Production and Operational Expenses	**600**	
Administrative Expenses	**30**	
Interest and Other Charges	**30**	
Depreciation	**20**	**680**
Profit before Tax		**170**
Provision for Tax		**30**
		140
Balance as per last Balance Sheet		**20**
		160
Transferred to:		
General Reserve		**80**
Proposed Dividend		**30**
Surplus carried to Balance Sheet		**50**
		160
Break-up of some of the Expenditure is as follows:		
Production and Operational Expenses:		
Consumption of Raw Materials and		**320**

Salaries, Wages and Bonus		**60**
Cess and Local Taxes		**20**
Other Manufacturing Expenses		**200**
		600
Administrative Expenses:		
Audit Free		**6**
Salaries and Commission to Directors		**8**
Provision for Doubtful Debts		**6**
Other Expenses		**10**
		30
Interest and other charges:		
On Working capital Loans from bank		**10**
On Fixed Loans from ICICI		**15**
On Debentures		**5**
		30

[4+2]

Answer:

AB Limited

Gross Value Added Statement

for the year ended 31st March, 2014

	(₹ in lakhs)	(₹ in lakhs)	%
Sales		800	
Less: Cost of bought in material or services:			
Production and Operational Expenses ₹ (320 + 200) lakhs	520		
Administrative Expenses ₹ (6 + 6 + 10) lakhs	22		
Interest on Working Capital Loans	10	552	
Value added by manufacturing and trading activities		248	
Other Income		50	
Gross Value Added		298	
Application of Value Added:			
To Pay Employees:			
Salaries, Wages and Bonus		60	20.14
To Pay Directors:			
Salaries and Commission		8	2.68
To Pay Government:			
Cess and Local Taxes	20		
Income Tax	30	50	16.78
To Pay Providers of Capital:			
Interest on Debentures	5		
Interest on Fixed Loans	15		
Dividend	30	50	16.78
To Provide for Maintenance and Expansion of the Company:			
Depreciation	20		
General Reserve	80		
Retained Profit ₹ (50 - 20) lakhs	30	130	43.62
		298	100.00

Reconciliation between Gross Value Added and

Profit before Taxation

	(₹ in lakhs)	(₹ in lakhs)
Profit before Tax		170
Add:		
Depreciation	20	
Salaries, Wages and Bonus	60	
Salaries & commission to Directors	8	
Cess and Local Taxes	20	
Interest on Debentures	5	
Interest on Fixed Loans	15	128
Gross Value Added		298

2(c)(iii). From the following informations, compute Price Earnings Ratio, Earning Yield Ratio, Dividend Yield Ratio and Market Price to Book Value Ratio with analytical aspects:

- **Market price of an equity share: ₹ 225**
- **Net profit after interest, tax and preference dividend: ₹ 2,25,000**
- **Profit distributed as dividend: ₹ 1,35,000**
- **No. of Equity Shares: 10,000 @ ₹ 10 each**
- **Profit distributed as dividend: ₹ 1,35,000**
- **General Reserve: ₹ 3,00,000**
- **Profit & Loss Account: ₹ 2,00,000** **[4]**

Answer:

- $\text{Price Earnings Ratio} = \frac{\text{Market Price per Share}}{\text{Earnings per Share (EPS)}}$

$$\text{Again, Earnings per Share} = \frac{\text{Net profit after interest, tax and preference dividend}}{\text{Number of Equity Shares}}$$

$$= \frac{₹\ 2,25,000}{10,000} = ₹\ 22.50$$

$$\text{Therefore, Price Earnings Ratio} = \frac{₹\ 225}{₹\ 22.50} = 10$$

It indicates the number of times of EPS, the share is being quoted in the market. In other words, it indicates the payback period within which the prospective investor can recover his investment in a single share by way of EPS. A higher P/E ratio indicates that the company is growing and has good earning prospects.

- $\text{Earning Yield Ratio} = \frac{\text{Earnings per Share}}{\text{Market Price per Share}}$

$$= \frac{₹\ 22.50}{₹\ 225} \times 100 = 10\%$$

It indicates earnings as percentage of market price. In general, higher the ratio, better it is. An enterprise should have a satisfactory ratio.

- $\text{Dividend Yield Ratio} = \frac{\text{Dividend per Share (DPS)}}{\text{Market Price per Share}}$

  $\text{Dividend per Share} = \frac{\text{Profit distributed as dividend}}{\text{No. of quity Share}} = \frac{1,35,000}{10,000} = ₹\ 13.50$

  $\text{Therefore, Dividend Yield Ratio} = \frac{₹\ 13.50}{₹\ 225} \times 100 = 6\%$

  It indicates the return (in terms of DPS) on market price. To judge whether the ratio is satisfactory or not, it should be compared with its own past ratios or with the ratio of similar enterprises in the same industry or with the industry average.

- $\text{Market Price to Book Value Ratio} = \frac{\text{Market Price per Share}}{\text{Book value per Share}}$

  $\text{Again, Book Value per Share} = \frac{\text{Equity Shareholders' Fund}}{\text{No. of Equity Shares}}$

  $= \frac{(1,00,000 + 3,00,000 + 2,00,000)}{10,000} = ₹\ 60 \text{ per share}$

  $\text{Therefore, Market Price to Book Value Ratio} = \frac{₹\ 225}{₹\ 60} \times 100 = 375\%$

  It indicates the market response to the book value of a share. Higher the ratio better is the shareholders' position in terms of capital gains. It is the price paid for the company's assets. Lower the ratio, more attractive the investment opportunity.

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

3 (a). The following information is provided related to the acquiring Firm Black Ltd. and the target Firm White Ltd.

Particulars	Black Ltd.	White Ltd.
Earnings after tax (₹)	4000 lakhs	800 lakhs
Number of shares outstanding	400 lakhs	200 lakhs
P/E ratio (times)	20	10

Required:

(i) What is the swap Ratio based on current market prices?

(ii) What is the EPS of Black Ltd. after acquisition?

(iii) What is the expected market price per share of Black Ltd after acquisition assuming P/E ratio of Black Ltd. remains unchanged?

(iv) Determine the market value of the merged firm.

(v) Calculate gain/loss for shareholders of the two independent companies after acquisition. [3+2+1+1+3]

Answer to 3(a):

Particulars	Black Ltd.	White Ltd.

EPS	$\frac{₹4000 \text{ lakhs}}{400 \text{ lakhs}} = ₹10$	$\frac{₹800 \text{ lakhs}}{200 \text{ lakhs}} = ₹4$
Market Price [MPS = EPS x P/E ratio]	₹10 x 20 = ₹200	₹4 x 10 = ₹40

(i) The swap ratio based on current market price is = $\frac{₹\ 40}{₹\ 200}$ = 0.20 or 1 share of Black Ltd. for 5 shares of white Ltd.

No. of shares to be issued = 200 lakhs x 0.20 = 40 lakhs

(ii) EPS after merger = $\frac{₹(4000\text{lakhs} + 800\text{lakhs})}{400\text{lakhs} + 40\text{lakhs}}$ = ₹10.91.

(iii) Expected market price after merger assuming P/E ratio = 20 times
= ₹10.91 x 20
= ₹218.20

(iv) Market value of merged firm = ₹218.20 x 440 lakhs
= ₹96008 lakhs
= ₹960.08 crores.

(v) Total Gains after acquisition

Particulars	₹ in crores	₹ in crores.
Post merger market value of the merged firm		960.08
Less: Pre-merger market value		
Black Ltd. [400 lakhs x ₹200]	800	
White Ltd. [200 lakhs x ₹40]	80	(880)
		80.08

Appropriation of gains from the merge among shareholders:

Particulars	Shareholders of Black Ltd.	Shareholders of White Ltd.
Post merger value	872.80	87.28
Less: Pre merger value	(800.00)	(80.00)
Gain to shareholders	72.80	7.28

3 (b). Following information are available in respect of ABC Ltd. which is expected to grow at a higher rate for 4 years after which growth rate will stabilize at a lower level:

Base year information:

Particulars	₹in lakhs
Revenue	**20,000**
EBIT	**3,000**

Capital Expenditure	**2,800**
Depreciation	**2,000**

Information for high growth and stable growth period are as follows:

Particulars	High Growth	Stable Growth
Growth in Revenue & EBIT	**20%**	**10%**
Growth in capital expenditure and depreciation	**20%**	**Capital expenditure are offset by depreciation**
Risk free rate	**10%**	**9%**
Equity beta	**1.15**	**1**
Market risk premium	**6%**	**5%**
Pre tax cost of debt	**13%**	**12.86%**
Debt equity ratio	**1:1**	**2:3**

For all time, working capital is 30% of revenue and corporate tax rate is 35%.
What is the value of the firm? **[10]**

Answer to 3(b):

High growth phase

K_e = 0.10 + 1.15 x 0.06 = 0.169 or 16.9%

K_d = 0.13 x (1 – 0.35) = 0.0845 or 8.45%

WACC = 0.50 x 0.169 + 0.50 x 0.0845 = 0.12675 or 12.68%

Stable growth phase

K_e = 0.09 + 1 x 0.05 = 0.14 or 14%

K_d = 0.1286 x (1 – 0.35) = 0.08359 or 8.36%

WACC = 0.60 x 0.14 + 0.40 x 0.08359 = 0.117436 or 11.74%

Determination of forecasted Free Cash Flow of the Firm (FCFF)

Particulars	Year 1	Year 2	Year 3	Year 4	Terminal Year
Revenue	24,000	28,800	34,560	41,472	45,619.2
EBIT	3,600	4,320	5,184	6,220.8	6,842.88
EAT = EBIT (I – t)	2,340	2,808	3,369.6	4,043.52	4,447.87
Add: Depreciation	2,400	2,880	3,456	4,147.20	---
Less: Capital Expenditure	(3,360)	(4,032)	(4,838.4)	(5,806.08)	---
Less: Change in working capital	(1,200)	(1,440)	(1,728)	(2,073.60)	(1,244.16)
Free Cash Flow (FCF)	180.00	216.00	259.20	311.04	3,203.71

Present value of FCF during the explicit forecast period is:

FCF (₹ in lakhs)	PVF @ 12.68%	PV (₹ in lakhs)
180.00	0.8875	159.75
216.00	0.7876	170.12
259.20	0.6989	181.15
311.04	0.6203	192.94
		703.96

PV of terminal value is $\frac{₹\ 3{,}203.71}{(0.1174 - 0.10)} \times \frac{1}{(1.1268)^4}$ = (184121.26 × 0.6203) = 114210.42 lakhs.

Therefore, the value of the firm is ₹ (703.96 + 1,14,210.42) lakhs = ₹1,14,914.38 lakhs

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

4 (a) (i). Supreme Ltd. is comprised of only four major investment projects, details of which are as follows:

Project	% of market value	Annual % return during last 5 years	Risk % of standard deviation	Correlation with the market
A	**30**	**10**	**15**	**0.55**
B	**15**	**18**	**20**	**0.75**
C	**29**	**15**	**14**	**0.84**
D	**26**	**13**	**18**	**0.62**

The risk free rate is expected to be 6% per year, the market return is 15% per year and the standard deviation of market returns is 14%.

Assume that Supreme Ltd's shares are currently priced based upon the assumption that the last five years experience of returns will continue for the foreseeable future.
Evaluation whether or not the share price of Supreme Ltd. is undervalued/overvalued. [7]

Answer to 4(a)(i):

Project	Beta factor	% of company value
A	$15 \times \frac{0.55}{14} = 0.589$	30%
B	$20 \times \frac{0.75}{14} = 1.071$	15%
C	$14 \times \frac{0.84}{14} = 0.84$	29%

D	$18 \times \frac{0.62}{14} = 0.797$	26%

Over all Beta = 0.589 x 30% + 1.071 x 15% + 0.84 x 29% + 0.797 x 26%
= 0.788

Assuming the company has no debt, and using the CAPM.

Required Return = 6% + 0.788 (15% - 6%)
= 13.092%

The historical return over the last 5 years has been
= 10% x 30% + 18% x 15% + 15% x 29% + 13% x 26%
= 13.43%

The actual return is higher than the required return. Hence, shares are undervalued.

4 (a) (ii). Black Ltd., a lessee, acquired a machinery on lease from White Ltd., (lessor) on January 1, 2013. The lease term covers the entire economic life of the machinery, i.e., 3 years. The F.V. of the machinery on January 1, 2013 is ₹10.50 lakhs. The lease agreement requires the lessee to pay an amount of ₹4.50 lakhs p.a. beginning December 31, 2013. The lessee has guaranteed an RV of ₹34,200 on December 31, 2015 to the lessor. The lessor however estimates that the machinery will have a salvage value of only ₹30,000 on December 31, 2015. The implicit rate of interest is 15%, compute the value of machinery, to be recognized by the lessee, and also the finance charges, every year, on the basis of AS – 19. [4+4]

Answer to 4(a)(ii):

Here, Fair value ₹10.50 lakhs PV of minimum lease payment from the point of lessee:

Year	MLP (₹)	Discount Factor @ 15%	PV of MLP
1	4,50,000	0.8696	3,91,320
2	4,50,000	0.7561	3,40,245
3	4,50,000	0.6575	2,95,875
3	34,200	0.6575	22,487
			10,49,927

Rounded off ₹10,50,000

Since fair value and PV of MLP is same the asset / liability will be recognized on inception of lease at ₹10,50,000.

Statement showing MLP as finance charges and principal component payable:

Year	Outstanding Amount (₹)	MLP (₹)	Finance Charger @ 15% (IRR)	Principal component
1	10,50,000	4,50,000	1,57,500	2,92,500
2	757500	4,50,000	1,13,625	3,36,375
3	421125	4,84,200	63,075	4,21,125
	Total	**13,84,200**	**3,34,200**	**10,50,000**

4 (b). The following abridged Balance Sheet as at 31.03.2013 pertains to Jupiter Ltd.

(₹ Lakhs)

Equity & Liabilities	**₹**
(1) Shareholders' Funds:	
(a) Share Capital - Equity Share Capital	
(i) 180 Lakhs Shares of ₹10, fully paid up	**1,800**
(ii) 90 Lakhs Shares of ₹10, ₹8 paid up	**720**
(iii) 150 Lakhs Shares of ₹5, fully paid up	**750**
(b) Reserves & Surplus	**5,628**
(2) Non-Current Liabilities:	
Long Term Borrowings - Secured Loans	**4,500**
(3) Current Liabilities:	
(a) Other Current Liabilities	**1,242**
(b) Short Term Provisions	**960**
Total	**15,600**
Assets	
(1) Non-Current Assets:	
(a) Fixed Assets:	
(i) Tangible Assets	**11,166**
(ii) Intangible Assets - Goodwill	**420**
(b) Other Non-Current Assets	
- Miscellaneous Expenditure	**171**
(2) Current Assets:	
(a) Short Term Loans & Advances	**943**
(b) Other Current Assets	**2,900**
Total	**15,600**

You are required to calculate the following for each one of three categories of Equity Shares appearing in the above mentioned Balance Sheet -

- **Intrinsic Value on the basis of Book Values of Assets and Liabilities including Goodwill,**
- **Value per Share on the basis of Dividend Yield. Normal Rate of Dividend in the concerned Industry is 15%, whereas Jupiter Ltd has been paying 20% Dividend for the last four years and is expected to maintain it in the next few years, and**
- **Value per Share on the basis of EPS, For the year ended 31st March, 2013 the Company has earned ₹1,371 Lakhs as Profit after tax, which can be considered to be normal for the**

Company. Average EPS for a fully paid Share of ₹10 of a Company in the same Industry is ₹2. **[7+3+5]**

Answer to 4(b):

A. Computation of Capital employed **(₹ in Lakhs)**

Particulars	Amount	Amount
Goodwill at Cost		420
Other fixed assets		11,166
Current Assets		2,900
Loans and advances		943
Total assets Less: Outside liabilities		**15,429**
Secured loans	4,500	
Current liabilities	1,242	
Provisions	960	**6,702**
Capital employed attributable to Equity Share Holders		**8,727**

B. Computation of Value per Share under Intrinsic Value Method **(₹ in Lakhs)**

Particulars	Amount
Capital employed as on valuation Date i.e. Balance Sheet Date	8,727
Add: Notional call on shares partly paid up (90 Lakhs shares × ₹ 2 per share)	180
Net assets available to equity shareholders [A]	**8,907**
Equivalent value of equity share capital (at par value)	
180 + 90 Lakhs Shares of ₹ 10	2,700
150 Lakhs Shares of ₹ 5	750
Face value of equity share capital [B]	**3,450**
Value per share of ₹1 = $\frac{A}{B} = \frac{₹8,907}{₹3,450}$	₹2.58
Value per Share	
₹ 10 Share, fully paid-up = ₹ 10 × ₹ 2.58	**₹ 25.80**
₹ 10 Share, × 8 paid-up = ₹ 25.80 **Less** × 2 Unpaid	**₹ 23.80**
₹ 5 Share, fully paid-up = ₹ 5 × ₹ 2.58	**₹ 12.90**

Note: Unpaid amount on partly paid up shares is assumed to be called up in the immediate future.

C. Computation of Value per Share under Dividend Yield Method **(₹ in lakhs)**

Particulars	Amount
Company's Dividend	20%
Normal industry	15%

Value per share	
₹ 10 Shares, fully paid up $= \frac{₹10 \times 20\%}{15\%}$	**₹ 13.33**
₹ 10 Shares, ₹ 8 paid up $= \frac{₹8 \times 20\%}{15\%}$	**₹ 10.67**
₹ 5 Shares, Fully paid up $= \frac{₹5 \times 20\%}{15\%}$	**₹6.67**

Note: Dividend is payable only on the paid up value. Hence under dividend - yield Method, the value per share for different Categories of shares, should be taken on pro- rata basis, as indicated above.

D. Computation of Value per Share on the basis of EPS **(₹ in lakhs)**

Particulars	Amount
Profit after Tax for the year	1,371
Paid up Equity share capital [1,800+720+750]	15%
Company's EPS for a share of ₹1 $= \frac{₹1,371}{₹3,270}$	0.42
Value per share $= \frac{\text{Face Value} \times \text{Company EPS per ₹1}}{\text{Market EPS}}$	
₹ 10 Shares, fully paid up $= \frac{₹10 \times 0.42}{0.20}$	**₹ 21.00**
₹ 10 Shares, ₹ 8 paid up $= \frac{₹8 \times 0.42}{0.20}$	**₹ 16..80**
₹ 5 Shares, fully paid up $= \frac{₹5 \times 0.42}{0.20}$	**₹10.50**

Summary of value per under different methods

Particulars	Intrinsic value method	Dividend yield method	EPS method
₹ 10 Shares, fully paid up	₹25.80	₹13.33	₹21.00
₹ 10 Shares, ₹ 8 paid up	₹23.80	₹10.67	₹16.80
₹ 5 Shares, fully paid up	₹12.90	₹6.67	₹10.50

Note: Under Intrinsic Value / Net Assets Method, the difference between fully and partly paid up share will reflect the uncalled amount. However, under Dividend and EPS methods, the difference between the fully and partly paid up shares will be proportional to the paid up value.

4 (c) (i). Milton Consulting Ltd. is a firm that specializes in offering management consulting services to software companies.

Milton Ltd. reported operating income (EBIT) of ₹306 lakh and net income of ₹135 lakh in the most recent year. However, the firms expenses include the cost of recruiting new consultants and the cost of training which amounts to ₹60 lakh. A consultant who joins

Milton Consulting Ltd. stays with the firm, on an average, for 4 years. Recruitment and training expenses are amortizable over 4 years immediately following the year in which they are incurred. Over the past 4 years the expenses are:

Year	Training, Recruitment Expenses (₹in lakh)
Current	60
Year 1	48
Year 2	45
Year 3	36
Year 4	30

Assuming a linear amortization schedule (over 4 years)

Estimate:

(1) The value of human capital asset and the amount of training and recruitment expenses amortization for this year.

(2) The adjustment to operating income. [4+2]

Answer to 4(c)(i):

Milton Consulting Ltd.

Year	Training, Recruitment Expenses (₹in lakh)	Unamortization portion (₹in lakhs)	Amortization this year (₹in lakhs)
Current	60	60 (100%)	---
Year 1	48	36 (75%)	12
Year 2	45	22.5 (50%)	11.25
Year 3	36	9 (25%)	9
Year 4	30	0	7.5

(1) The value of human capital assets as at the end of current year is ₹127.50 lakhs and amount of training and recruitment expenses amortization by debit to P&L account this year is ₹39.75 lakhs.

(2) Adjusted Operating Income.
= Operating Income + training & recruitment expenses – amortization of expenses this year
= (306 + 60 – 39.75) lakhs
= ₹326.25 lakhs.

4 (c) (ii). A company has been making a machine to order for a customer but the customer has, however, since gone into liquidation and there are no prospects than any money will be obtained from the winding up of his company.

Cost incurred to-date in manufacturing the machine are ₹1,00,000 and progress payments of ₹30,000 have been received from the customer prior to the liquidation. The sales department has found another company willing to buy the machine for ₹68000 once it is completed. To complete the work, the following costs have to be incurred:

(1) Material – These have been bought at a Cost of ₹12000. They have no other use and if the machine is not finished, they would be sold as scrap for ₹4000.

(2) Further labour costs would be ₹16000. Labour is in short supply and if the machine is not finished, the workforce would be switched over to another job, which earns ₹60000 in revenue, and incurs direct costs (not including direct labour) of ₹24000 and absorbs (fixed) overhead of ₹16000.

(3) Consultancy fees ₹8000. If the work is not completed, the consultant's contract would be cancelled at a cost of ₹3000.

(4) General overheads of ₹16000 would be added to the cost of the additional work. Should the new customer's offer be accepted? Prepare a statement showing the economics of the proposition. [9]

Answer to 4(c)(ii):

By an incremental analysis we can find the answer to the question: whether the new customer's offer is accepted or not.

Particulars		Amount (₹)	Amount (₹)
Incremental sales revenue			68,000
Less: incremental relevant and opportunity costs			
(1) Cost of material-sale of scrap		4,000	
(2) Cost of direct labour		16,000	
(3) Incremental opportunity cost of contribution foregone on another job:			
Sales Revenue	60,000		
Less: Direct Costs			
Labour	(16,000)		
Other direct costs	(24,000)	20,000	
(4) Incremental cost of consultancy	(8,000 – 3,000)	5,000	(45,000)
Incremental Profit			**23,000**

Decision – The new customer's offer should be accepted.