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). Use the following data to answer the following questions.

Name of the Company: AB Ltd.

Balance Sheet as at : 31.03.2015 **(Amount in ₹)**

Ref No.		Particulars	Note No.	As at 31.03.15	As at 31.03.14
I		EQUITY AND LIABILITIES			
	1	Shareholders' fund			
		(a) Share capital	(1)	430	400
		(b) Reserves and surplus-	(2)	350	300
	2	Non-current liabilities			
		(a) Long-term borrowings	(3)	635	585
	3	Current Liabilities			
		(a)Other current liabilities	(4)	485	460
		(b) Short-term provisions	(5)	10	5
		Total		1,910	1,750
II		ASSETS			
	1	Non-current assets			
		(a) Fixed assets			
		(i) Tangible assets	(6)	630	650
	2	Current assets			
		(a) Inventories		740	800
		(b) Trade receivables		250	200
		(c) Cash and cash equivalents		290	100
		Total		1,910	1,750

Workings:

(Amount in ₹)

1. Share Capital	As at 31.03.15	As at 31.03.14
Equity share capital	430	400
Total	430	400

2. Reserve & Surplus	As at 31.03.15	As at 31.03.14
Retained earnings	350	300
Total	350	300

3. Long term Borrowings	As at 31.03.15	As at 31.03.14

Mortgage	535	585
Bank note	100	0
Total	635	585

4. Other Current Liabilities	As at 31.03.15	As at 31.03.14
Accounts payable	470	450
Interest payable	15	10
Total	485	460

5. Short term Provisions	As at 31.03.15	As at 31.03.14
Dividends payable	10	5
Total	10	5

6. Tangible Assets	As at 31.03.15	As at 31.03.14
Property, plant & equipment	920	900
Less: Accumulated depreciation	(290)	(250)
Total	630	650

Name of the Company: AB Ltd.

Profit and Loss Statement for the year ended: 31.03.2015 **(Amount in ₹)**

Particulars	Note No.	As at 31.03.15	As at 31.03.14
I. Revenue from operations		1,425	—
II. Other income	(1)	10	—
III. Total Revenue (I+II)		1,435	—
IV. Expenses:			
Cost of materials consumed		1,200	—
Finance costs	(2)	30	—
Depreciation and amortization expense	(3)	100	—
Total expenses		1,330	—
V. Profit before tax (VII – VIII)		105	—
VI. Tax expense:			
- Current tax		45	—
VII. Profit (Loss) for the period (XI + XIV)		60	—

Workings: **(Amount in ₹)**

1. Other Income	As at 31.03.15	As at 31.03.14
Gain on sale of old machine	10	—
Total	10	—

2. Finance Costs	As at 31.03.15	As at 31.03.14
Interest	30	—
Total	30	—

3. Depreciation and Amortization	As at 31.03.15	As at 31.03.14
Depreciation	100	—
Total	100	—

Notes:

- **Dividends declared to shareholders were ₹10.**
- **New equity shares were sold at par for ₹ 30.**
- **Fixed assets were sold for ₹30. Original costs of these assets was ₹80 and ₹60 of accumulated depreciation has been charged to their original costs.**
- **The company borrowed ₹100 on a 10-year bank note — the proceeds of the loan were used to pay for new fixed assets.**
- **Depreciation for the year was ₹100 (accumulated depreciation of ₹40 and depreciation on sold assets ₹60).**

(A) Calculate cash flow from operations using indirect method.
(B) Calculate total cash collections, cash paid to suppliers and other cash expenses.
(C) Calculate cash flow from operations using direct method.
(D) Calculate cash flow from financing activity, cash flow from investing activity and total cash flow.
(E) Calculate free cash flow to equity owners.
(F) Determine the impact on investing cash flow and financing cash flow have been if the company leased the new fixed assets instead of borrowing the money and purchasing the equipment. [1.5+1+2+3+1.5+1]

Answer:

(A) Cash flow from operations (CFO) = net income - gain on sale of machinery + depreciation -increase in receivables + decrease in inventories + increase in accounts payable + increase in interest payable = ₹ (60 - 10 + 100 - 50 + 60 + 20 + 5) = ₹ 185.

(B) Cash collections = sales - increase in receivables = ₹ (1,425 - 50) = ₹ 1,375.

(C) Cash flow from operations (CFO) = cash collection - cash to suppliers - other cash expenses = ₹ (1,375 - 1,120 - 70) = ₹185. This must be matched with answer to the part of same illustration A, because CFO using the direct method will be the same as CFO under the indirect method.

(D) Cash flow from financing activity (CFF) = sale of shares + new bank note - payment of mortgage - dividend + increase in dividends payable = ₹ (30 + 100 - 50 - 10 + 5) = ₹ 75.
Cash flow from investing activity (CFI) = sale of fixed assets - new fixed assets = ₹(30 - 100) = ₹(70). The company sold assets for ₹ 30 and bought assets for ₹ 100.
The easiest way to determine total cash flow is to simply take the change in cash from the balance sheet. However, adding the three components of cash flow will yield ₹(185 - 70 +75) = ₹190.

(E) Free cash flow to equity owners (FCFE) = cash flow from operations - capital spending + sale of fixed assets + debt issued - debt repaid = ₹ (185 - 100 + 30 + 100 - 50) = ₹ 165. No adjustment is necessary for interest since FCFE includes debt services.

(F) Investing cash flow would be higher and financing cash flow would be lower. The company would spend less on investment but would not have inflows from the borrowing.

1(b). Assume that XYZ Construction Corp. has a contract to build a ship for ₹1,000 and a reliable estimate of the contract's total cost is ₹800.Project costs incurred by XYZ are as follows:

XYZ Project Costs:

Year	2012-13	2013-14	2014-15	Total
Cost incurred	₹400	₹300	₹100	₹800

Determine XYZ's net income from this project for each year using the percentage-of-completion and completed contract methods. [10]

Answer:

Since one-half of the total contract cost [₹400/₹800] was incurred during 2012-13, the project was 50% complete at year-end. Under the percentage-of-completion method, 2012-13 revenue is ₹500 [₹1,000 x 50%]. Expenses (cost incurred) were ₹400; thus, net income for 2012-13 was ₹100 [₹500 revenue - ₹300 expenses].

At the end of 2013-14, the project is 87.5% complete [(₹400 + ₹300)/₹800]. Revenue to date should total ₹875 [₹1,000 x 87.5%]. Since XYZ already recognized ₹500 of revenue in 2012-13, 2013-14 revenue is ₹375 [₹875 - ₹500]. 2013-14 expenses were ₹300. So 2013-14 net income was ₹75 [₹375 revenue - ₹300 expense].

At the end of 2014-15, the project is 100% complete [(₹400 + ₹300 + ₹100)/ ₹800]. Revenue to date should total ₹1,000 [₹1,000 x 100%]. Since XYZ already recognized ₹875 of revenue in 2012-13 and 2013-14, 2014-15 revenue is ₹125 [₹1,000-₹875]. 2014-15 expenses were ₹100 so 2014-15 net income was ₹25 [₹125 revenue - ₹100 expense].

The table below summarizes the XYZ's revenue, expenses and net income over the term of project under the percentage-of-completion method.

XYZ Income Statements

	2012-13 (₹)	2013-14 (₹)	2014-15 (₹)	Total (₹)
Revenue	500	375	125	1,000
Expense	400	300	100	800
Net Income	100	75	25	200

Under the completed contract method, revenue, expenses, and profit are not recognized until the contract is complete. Therefore, at the end of 2014-15, XYZ reports revenue of ₹1,000, expense of ₹800, and net income of ₹200.

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

2(a)(i). From the following balance sheet prepare common size statement.

	Amount (₹) 31.03.2014	Amount (₹) 31.03.2015
Shareholders' Fund		
Equity share capital (of ₹10 each)	**7,20,000**	**7,20,000**
Reserve & Surplus	**2,88,000**	**5,46,000**
Non-current Liabilities		
Long term debt	**5,46,000**	**5,08,000**
Current Liabilities		
Current Liabilities & Provisions	**2,40,000**	**1,75,500**
Total	**18,00,000**	**19,50,000**
Non-current Assets		
Fixed Assets	**12,06,000**	**11,70,000**
Current Assets		
Inventory	**2,52,000**	**3,51,000**
Debtors	**1,80,000**	**1,95,000**
Bank	**1,62,000**	**2,34,000**
Total	**18,00,000**	**19,50,000**

[10]

Answer:

Common Size Balance Sheet as on 31.03.2014 & 31.03.2015

	On 31.03.2014 % of total	On 31.03.2015 % of total
Shareholders' Fund		
Equity Share capital $\left(\frac{\text{Share capital}}{\text{Total liabilities}}\times 100\right)$	40%	36.92%
Reserve & surplus $\left(\frac{\text{Reserve \& surplus}}{\text{Total liabilities}}\times 100\right)$	16%	28%

Non-current Liabilities

Long term debt $\left(\frac{\text{Long term debt}}{\text{Total liabilities}}\times 100\right)$	30.33%	26.05%

Current Liabilities

Current Liabilities & Provision $\left(\frac{\text{Current liablities}}{\text{Total liabilities}}\times 100\right)$	13.33%	9%
	100%	100%
Non-current Assets		
Fixed assets $\left(\frac{\text{Fixed assets}}{\text{Total assets}}\times 100\right)$	67%	60%

Current Assets		
Inventory $\left(\frac{\text{Inventory}}{\text{Total assets}}\times 100\right)$	14%	18%
Debtors $\left(\frac{\text{Debtors}}{\text{Total assets}}\times 100\right)$	10%	10%
Bank $\left(\frac{\text{Bank}}{\text{Total assets}}\times 100\right)$	9%	12%
	100%	100%

Comment: (i) The proportion of owner's equity to total liabilities of the company has been increased from 56% to 64.92% where as the proportion of long term debt to total liabilities has been decreased from 30.33% to 26.05% in the year 2014-15. So we can conclude that the dependency on outsiders has been decreased and degree of financial risk associated with the company has been reduced during the study period.

(ii) The percentage of current assets to total assets has been increased from 33% to 40% whereas the percentage of current liabilities to total liabilities decreased from 13.33% to 9% in the year 2014-15. Therefore it indicates that the liquidity position of the company have been significantly improved during the period under study. But reduction of fixed assets may hamper the long term stability and operating efficiency of the company.

2(a)(ii). On 1st January 2014, EFG issued 10,000 5% convertible bonds at their par value of ₹ 50 each. The bonds will be redeemed on 1st January 2019. Each bond is convertible at the option of the holder at any time during the five year period. Interest on the bond will be paid annually in arrears.
The prevailing market interest rate for similar debt without conversion options at the date of issue was 6%.
At what value should the equity element of the hybrid financial instrument be recognised in the financial statements of EFG at the date of issue? [5]

Answer:

Bond principal: 10,000 x ₹50 = ₹500,000. Annual interest payment = ₹500,000 x 5% = ₹25,000.

	₹
Present value of principal: ₹500,000/(1·06)^5 (factor from table = 0·747)	373,500
Present value of interest: ₹25,000 x cumulative discount factor (from table = 4·212)	105,300
	478,800
Balancing figure = equity element	21,200
Principal	5,00,000

2(b)(i). Using Altman's Model, compute the value of Z from the provided data (Balance Sheet extract):

Liabilities	₹	Assets	₹
Share Capital (@ ₹10 each)	**2,00,000**	**Fixed Assets**	**4,20,000**
Reserves & Surplus	**60,000**	**Inventory**	**1,80,000**
10% Debentures	**3,00,000**	**Book Debts**	**70,000**

Sundry Creditors	**80,000**	**Loans & Advances**	**20,000**
Outstanding Expenses	**60,000**	**Cash at Bank**	**10,000**
	7,00,000		**7,00,000**

Additional Information

(i) Market value per share ₹ 12.50.

(ii) Operating Profit (20% on sales) ₹ 1,40,000. **[10]**

Answer:

As per Altman's Model (1968) of Corporate Distress Prediction

$Z= 1.2 X_1 +1.4 X_2 + 3.3 X_3 + 0.6 X_4 + 1.0 X_5$

Here, the five variables are as follows:

X_1 = Working Capital to Total Assets = $\left(\frac{1,40,000}{7,00,000}\right)$ = 0.20

X_2 = Retained Earnings to Total Assets = $\left(\frac{60,000}{7,00,000}\right)$ = 0.0857

X_3 = EBIT to Total Assets = $\left(\frac{1,40,000}{7,00,000}\right)$ = 0.2

X_4 = Market Value of Equity and Preference Shares to Book Value of Total Debt = $\left(\frac{2,50,000}{4,40,000}\right)$ = 0.568

X_4 = Sales to Total Assets = $\left(\frac{7,00,000}{7,00,000}\right)$ = 1 times

Hence, Z-score = (1.2 x 0.20) + (1.4 x 0.0857) + (3.3 x 0.20) + (0.6 x 0.568) + (1 x 1)
= 0.24 + 0.11998 + 0.66 + 0.3408+1 = 2.36078

Notes:

1. **Calculation of Working Capital**
   Working Capital = Current Assets - Current Liabilities
   Here, Working Capital = (Inventory + Book Debts + Loans & Advances+ Cash at Bank) - (Sundry Creditors +Outstanding Expenses)
   = ₹ (1,80,000 + 70,000 +20,000+10,000)-(80,000 + 60,000)
   = ₹ 1,40,000
2. **Calculation of Total Assets**
   Total Assets = Fixed Assets + Current Assets
   Here, Total Assets = ₹ [4,20,000 + (1,80,000 + 70,000 + 20,000+10,000)] = ₹ 7,00,000
3. **Calculation of Retained Earnings**
   Retained Earnings = Reserves & Surplus = ₹ 60,000
4. **Calculation of Earnings before Interest & Tax (EBIT)**
   EBIT=Operating Profit = ₹1,40,000
5. **Calculation of Market Value of Equity**
   Market Value of Equity Shares = 20,000 shares x ₹12.50 = ₹ 2,50,000
6. **Calculation of Book Value of Total Debts**
   Book Value of Total Debts = Long-term Debts + Current Liabilities
   Here, Book Value of Total Debts = 10% Debentures + (Sundry Creditors + Outstanding Expenses)
   = ₹ [3,00,000 + (80,000 + 60,000)] = ₹4,40,000

7. Calculation of Sales

Here, Operating Profit = 20% on Sales = ₹ 1,40,000

Hence, Sales = $\left(\frac{100}{20}\right) \times$ ₹ 1,40,000 = ₹ 7,00,000

As the calculated value of Z-score lies between 1.81 and 2.99, which is marked as Grey Area, it is predicted that the company consists of both bankrupt and non-bankrupt elements (i.e., a mixture of failed & non-failed elements) and, therefore, requires further investigation to determine its conclusive solvency status.

2(b)(ii). How fixed assets are analysed in financial modeling? [5]

Answer:

Financial modeling is the task of building a financial model, or the process of using a financial model for financial decision making and analysis. It is an abstract representation of a financial decision making situation. Financial modeling is used to do historical analysis of a company's performance, and to do projections of its financial performance into the future. Fixed assets are analysed in financial modeling in the following manner:

(A) Each Class of asset should show —
  (i) Opening balance
  (ii) Additions / deletions
  (iii) Depreciation
  (iv) Closing balance

(B) Divide Additions in following —
  (i) Sustainability Capital Expenditure (CAPEX) –historical analysis
  (ii) Capacity expansion addition /Projects / BMR(CWIP)
  (iii) Interest capitalization of the project (CWIP)

(C) In case of any Capacity expansion / Projects / BMR —
  (i) Identify cost of project
  (ii) Add increase capacity because of project in production & revenue
  (iii) Sources of Finance (Debt / Equity), adding it in debt portion

(D) Cash flow impact

(E) Tax benefits on capital expenditure

2(c). Krishna Toys Ltd. is manufacturing and selling three standard products (toys). The company has a standard cost system and analyses the variances between the budget and the actual periodically.

The summarized result for 2014-15 were as follows:

Product	Budget			Actual		
	Selling price per unit (₹)	Cost per unit (₹)	No. of units sold	Selling price per unit (₹)	Cost per unit (₹)	No. of units sold
Toys X	80	55	10,000	75	50	13,000
Toys Y	50	28	15,000	54	30	13,000
Toys Z	70	43	16,000	72	48	15,000

(a) Analyse the variance in profit into:
(i) Sales price variance;
(ii) Sales volume variance;
(iii) Cost variance;
(iv) Sales margin quantity variance;
(v) Sales margin mix variance. **[5×3=15]**

Answer:

Working Notes:

1. (a) Actual margin per unit

Actual sales price per unit – Std. cost per unit

Toys X	= ₹ 75 – ₹ 55	= ₹ 20
Toys Y	= ₹ 54 – ₹ 28	= ₹ 26
Toys Z	= ₹ 72 – ₹ 43	= ₹ 29

(b) Budgeted margin per unit

Budgeted sales price per unit – Std. cost per unit.

Toys X	= ₹ 80 – ₹ 55	= ₹ 25
Toys Y	= ₹ 50 – ₹ 28	= ₹ 22
Toys Z	= ₹ 70 – ₹ 43	= ₹ 27

2. (a) Actual Profit = Actual Quantity of units sold x Actual Margin per unit

	₹
Toys X = 13,000 units x ₹ 20	2,60,000
Toys Y = 13,000 units x ₹ 26	3,38,000
Toys Z = 15,000 units x ₹ 29	4,35,000
Total	10,33,000

(b) Budgeted Profit = Budgeted Quantity of units sold x Budgeted Margin per unit

	₹
Toys X = 10,000 units x ₹ 25	2,50,000
Toys Y = 15,000 units x ₹ 22	3,30,000
Toys Z = 16,000 units x ₹ 27	4,32,000
Total	10,12,000

3. (a) Budgeted margin per unit on actual mix

$$= \frac{(₹25\times13,000)+(₹22\times13,000)+(₹27\times15,000)}{41,000} = \frac{₹(3,25,000+2,86,000+4,05,000)}{41,000} = ₹\ 24.78049 \text{ p.u.}$$

(b) Budgeted margin per unit on budgeted mix

$$= \frac{(₹25\times10,000)+(₹22\times15,000)+(₹27\times16,000)}{41,000} = \frac{₹(2,50,000+3,30,000+4,32,000)}{41,000} = ₹\ 24.68293 \text{ p.u.}$$

Calculation of Sales Variances —

I. Total Sales Margin Variance

Actual Profit – Budgeted Profit = ₹ 10,33,000 – ₹ 10,12,000 = ₹ 21,000 (F)

II. Sales Margin Price Variance

Actual Quantity (Actual margin per unit – Budgeted margin per unit)

Toys X	= 13,000 units × ₹ (20 – 25)	= ₹ 65,000 (A)
Toys Y	= 13,000 units × ₹ (26 – 22)	= ₹ 52,000 (F)
Toys Z	= 15,000 units × ₹ (29 – 27)	= ₹ 30,000 (F)
		= ₹ 17,000 (F)

III. Sales Margin Volume Variance

Budgeted margin per unit (Actual Quantity – Budgeted Quantity)

Toys X	= ₹ 25 (13,000 – 10,000) units	= ₹ 75,000 (F)
Toys Y	= ₹ 22 (13,000 – 15,000) units	= ₹ 44,000 (A)
Toys Z	= ₹ 27 (15,000 – 16,000) units	= ₹ 27,000 (A)
		= ₹ 4,000 (F)

The sales margin volume variance can be further segregated into the following:

III. (a) Sales Margin Mix Variance

Total Actual Quantity (Budgeted margin per unit on actual mix – Budgeted margin per unit on budgeted mix)

= 41,000 units × ₹ (24.78049 – 24.68293) p.u. = ₹ 4,000 (F)

III. (b) Sales Margin Quantity (Sub-volume) Variance

Budgeted margin per unit on budgeted mix (Total actual Quantity –Total budgeted quantity)

= ₹ 24.68293 × (41,000 – 41,000) units = 0

Summary of Sales Margin Variances

	(₹)	**(₹)**
Price Variance		17,000 (F)
Volume Variance	4,000 (F)	
(i) Mix Variance	0	
(ii) Quantity sub-volume variance		4,000 (F)
Total Sales Margin Variance		21,000 (F)

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

3(a). Consider two companies - X Company Limited and Y Company Limited. Both have announced their annual results for 2014-2015 on May 10, 2015 and as per the reported results both are having Profit After Tax (PAT) of ₹ 5,700 Lakhs and 120 Lakhs equity shares outstanding (face value of each share is ₹10). Both the companies having same networth of ₹ 28,500 Lakhs.

X Company Limited has growth plans in future and accordingly, it has decided to have a low payout of 40% as dividend. It is believed that its earnings will increase by present rate of

growth every year in perpetuity. Assume that the company is having the required rate of return on equity of 15% a year.

Y Company Limited has growth plans in future but not very ambitious and due to that, it is going to have a dividend payout of 60%. It is believed that its earnings will increase by the present rate of growth every year in perpetuity. Assume that the company is having the required rate of return on equity of 13% a year.

Assume that both the companies are identical in all other aspects. Calculate P/E Ratio assuming that Constant Growth Model works. Also explain why a particular company is having higher P/E Ratio. [8+2]

Answer:

Figures in lakhs

Company		**X**	**Y**
Profit After Tax	₹	5,700	₹ 5,700
No. of Shares Outstanding		120	120
Net Worth	₹	28,500.00	₹ 28,500.00
Dividend Payout		40%	60%
Cost of Equity		15%	13%
ROE (5700 + 28,500) x 100 =		20.00%	20.00%
Growth Rate (ROE x (1-Dividend Payout Ratio))		12.00%	8.00%
EPS (PAT + No of Shares)	₹	47.50	₹ 47.50
Price (Using Dividend Discount Model)	₹	709.33	₹ 615.60

P/E Ratio	14.93	12.96

Company X has high P/E Ratio mainly because of the fact it has higher growth rate and due to the fact that the company is plowing back more profit to achieve higher growth rate as dividend payout ratio is low.

Working Note	**X**	**Y**
(i) Dividend payout @, 40% and 60%	₹ 2,280	₹ 3,420
(ii) Dividend/share	19	28.50
(iii) Dividend of next period - Do (1+g)	21.28	30.78
(iv) Difference between cost of equity & growth rate	3%	5%
(v) Price of shares (iii) ÷ (iv)	₹ 709.33	₹ 615.60

3 (b). Y is interested in purchasing the business of X for which he is welling to pay a goodwill amount equal to four years purchase of maintainable profits for the years ending 31.3.2016 to 31.3.2019 The Revenues Statement for the year ending on 31.3.2012 to 31.3.2015 were under:

Revenue Statements

Particulars	2011-12	2012-13	2013-14	2014-15
Sales	**5,00,000**	**7,00,000**	**9,00,000**	**11,00,000**
Less: Cost of Goods Gold	**(3,50,000)**	**(4,90,000)**	**(6,30,000)**	**(7,70,000)**
Gross Profits	**1,50,000**	**2,10,000**	**2,70,000**	**3,30,000**
Less: Overheads	**(1,00,000)**	**(1,40,000)**	**(1,80,000)**	**(2,20,000)**
Net Profits	**50,000**	**70,000**	**90,000**	**1,10,000**

The following further information is given:

- **Sales will increase by 25% each year over the increased figure of the earlier years.**
- **Cost of Goods sold will decline by 10% each year as compared to the earlier years.**
- **Overheads each year will increase by 2% as compared to the earlier years.**

Calculate the value of goodwill. Income-tax may be ignored. **[10]**

Answer:

Step 1: Calculation of Future Maintainable Profits

Particulars	2015-16	2016-17	2017-18	2018-19
A. Sales	13,75,000	17,18,750	21,48,438	26,85,547
B. Less: Cost of Goods Sold	(8,66,250)	(9,74,531)	(10,96,348)	(12,33,391)
C. Gross Profit	5,08,750	7,44,219	10,52,090	14,52,156
D. Less: Overheads	(2,80,500)	(3,57,638)	(4,55,988)	(5,81,384)
E. Net Profit	2,28,250	3,86,581	5,96,102	8,70,772

Step 2: Goodwill = 2,28,250 + 3,86,581 + 5,96,102 + 8,70,772 = ₹ 20,81,705

Working Notes:

(I) Projected Sales

2015-16	11,00,000x1.25	= 13,75,000
2016-17	13,75,000x1.25	= 17,18,750
2017-18	17,18,750 x 1.25	= 21,48,438
2018-19	21,48,438 x 1.25	= 26,85,547

(ii) Projected Cost of Goods Sold

2015-16	7,70,000 x 1.25 x 0.9 = 8,66,250
2016-17	8,66,250 x 1.25 x 0.9 = 9,74,531
2017-18	9,74,531 x 1.25 x 0.9 = 10,96,348
2018-19	10,96,348 x 1.25 x 0.9 = 12,33,391

(iii) Projected Overheads

2015-16	2,20,000 x 1.25 x 1.02 = 2,80,500
2016-17	2,80,500 x 1.25 x 1.02 = 3,57,638
2017-18	3,57,638 x 1.25 x 1.02 = 4,55,988
2018-19	4,55,988 x 1.25 x 1.02 = 5,81,384

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

4(a)(i). SHOAIB LTD. gives the following information:

Year	Company's Profitability Ratio	Cumulative Market's Size in next ten years (₹ In lakhs)	Cumulative Total market share enjoyed by other branded and non-branded products in next 10 years (₹ In lakhs)	PVF @15%
1	20%	1000	900	0.870
2	20%	1200	800	0.756
3	20%	1500	700	0.658
4	25%	2000	600	0.572
5	25%	2500	500	0.497
6	25%	3000	400	0.432
7	30%	3500	300	0.376
8	30%	4000	300	0.327
9	30%	5000	300	0.284
10	30%	5000	300	0.247

Weighted Average Capital Cost =15%
Determine the Value of Brand under the Market Oriented Approach. **[8]**

Answer:

Calculation of Value of Brand under the Market Oriented Approach

Year	Company's Profitability Ratio	Cumulative Market's Size in next ten years (₹ In lakhs)	Cumulative Total market share enjoyed by other branded and non-branded products in next 10 years (₹ In lakhs)	Expected Profit	PVF @ 15%	Present Value
A	B	C	D	E=(C-D)×B	F	G=E×F
1	20%	1000	900	20	0.870	17.40
2	20%	1200	800	80	0.756	60.48
3	20%	1500	700	160	0.658	105.28
4	25%	2000	600	350	0.572	200.20
5	25%	2500	500	500	0.497	248.50
6	25%	3000	400	650	0.432	280.80
7	30%	3500	300	960	0.376	360.96
8	30%	4000	300	1110	0.327	362.97
9	30%	5000	300	1410	0.284	400.44
10	30%	5000	300	1410	0.247	348.27
Value of Brand under the Market Oriented Approach =						2385.30

4(a)(ii). State the reasons and implication for restructuring of a firm. [7]

Answer:

There are basically six reasons why companies are going for restructuring.

1. Changed fiscal and government policies like deregulation/ decontrol has led many companies to go for newer market and customer segments.
2. The globalization of business has compelled Indian companies to open new export houses to meet global competition. Global market concept has necessitated many companies to restructure because efficient producers only can survive in the competitive global market.
3. Revolution in information technology has made it necessary for companies to adapt to new changes in the communication/information technology for improving corporate performance.
4. Many companies have divisionalised into smaller businesses. Wrong divisionalisation strategy followed in the past has forced them to revamp their product divisions which do not fit in to the company's main line of business which are now being divested. Fierce competition is forcing Indian companies to relaunch themselves.
5. Improved productivity and cost reduction has necessitated downsizing of the work force- both at works and managerial level.
6. Convertibility of rupee has attracted medium -sized companies to operate in the global market.

Implications of restructuring: Decrease in the number of corporate players in the market segment with increase in mergers and acquisition, there shall be a decrease in the quantum of corporate rivalry.

Emergence of new companies will result in healthy economic state of the Nation.

Social discontent will initially grow to some extent, however the restructuring will help to sustain employment and thereby help in stabilizing social discontent.

4(b)(i).An Aircraft Company has outstanding an issue of 8 percent convertible bonds that mature in 2023. Suppose the bonds were dated Oct. 1, 2013, and pay interest each April 1 and Oct1.

Complete the following effective amortization table through Oct. 1, 2015.

Bond data:
Maturity Value - ₹1,00,000
Contract interest rate-8%
Interest paid-4% semiannually, ₹4,000 (₹1,00,000 x .04)
Market interest rate at time of issue-9% annually, 4.5% semiannually
Issue price-9%
Required Amortization Table [6]

Answer:

Amortization Table

A	B	C	D	E	F
Semiannual interest date	Interest payment (4% of maturity value) ₹	Interest Expense (4.5% of preceding bond carrying value) ₹	Discount Amortization (B-A) ₹	Discount Account Balance (D-C) ₹	Bond Carrying Value (100000-D) ₹
10-01-2013				9250	90750
04-01-2014	4000	4084	84	9166	90834
10-01-2014	4000	4088	88	9078	90922
04-01-2015	4000	4091	91	8987	91013
10-01-2015	4000	4096	96	8891	91109

4(b)(ii). Find out the average capital employed of Khan Ltd. From its Balance Sheet as at 31st March, 2015:

Equity and Liability	₹ in lakhs	Assets	₹ in lakhs
(1) Shareholders Fund:		(1) Non-Current Assets:	
(a) Share Capital		(a) Fixed Assets	
(i) Equity Share Capital of ₹ 10 each	50.00	(i) Tangible Assets:	
(ii) 9% Preference Shares fully paid up	10.00	— Land and Building	25.00
(b) Reserve & Surplus		— Plant and Machinery	80.25
(i) General Reserve	12.00	— Furniture and Fixtures	5.50
(ii) Profit and Loss A/c	20.00	— Vehicles	5.00
		(b) Non-Current Investments	10.00
(2) Non-Current Liabilities:		(c) Other Non-Current Assets	
Long Term Borrowings		— Preliminary Expenses	0.50
(i) 16% Debentures	5.00		
(ii) 16% Term Loan	18.00	(2) Current Assets:	
(iii) Cash Credit	13.30	(a) Inventories	6.75
		(b) Trade Receivables	
(3) Current Liabilities:		— Sundry Debtors	4.90
(a) Trade Payables – Sundry Creditors	2.70	(c) Cash and Cash Equivalents	10.40
(b) Short Term Provision			
— Provision for Taxation(Net)	6.40		
— Proposed Dividend			
Equity Shares	10.00		
Preference Shares	0.90		
Total	148.30	Total	148.30

Non-trade investments were 20% of the total investments.
Balances as on 1.4.2014 to the following accounts were:
Profit and Loss account ₹ 8.70 lakhs, General reserve ₹ 6.50 lakhs. **[9]**

Answer:

Computation of Average Capital employed

(₹ in Lakhs)

Total Assets as per Balance Sheet		148.30
Less: Preliminary Expenses		0.50
Non-trade investments (20% of ₹ 10 lakhs)		2.00
		145.80
Less: Outside Liabilities:		
16% Debentures	5.00	
16% Term Loan	18.00	
Cash Credit	13.30	
Sundry Creditors	2.70	
Provision for Taxation	6.40	45.40
Closing Capital Employed		**100.40**
Capital Employed as on 31.03.2015		
Less: ½ of profit earned:		
Increase in reserve balance	5.50	
Increase in Profit & Loss A/c	11.30	
Proposed Dividend	10.90	
Profit earned during the year	27.70	
50% of Profit earned during the year i.e. 27.70 x ½		**13.85**
Average capital employed		**86.55**

4 (c). Following are the financial statements for A Ltd. and B Ltd. for the current financial year. Both the firms operate in the same industry:

Balance Sheets [Amount in Rupees]

Particulars	A Ltd.	B Ltd.
Total current assets	**14,00,000**	**10,00,000**
Total fixed assets (net)	**10,00,000**	**5,00,000**
	24,00,000	**15,00,000**
Equity capital (of ₹ 10 each)	**10,00,000**	**8,00,000**
Retained earnings	**2,00,000**	**--**
14% Long-term debt	**5,00,000**	**3,00,000**
Total current liabilities	**7,00,000**	**4,00,000**
	24,00,000	**15,00,000**

Income statements

Particulars	A Ltd.	B Ltd.
Net sales	**34,50,000**	**17,00,000**
Cost of goods sold	**27,60,000**	**13,60,000**

Gross profit	**6,90,000**	**3,40,000**
Operating expenses	**2,00,000**	**1,00,000**
Interest	**70,000**	**42,000**
Earnings before taxes	**4,20,000**	**1,98,000**
Taxes (50%)	**2,10,000**	**99,000**
Earnings after taxes (EAT)	**2,10,000**	**99,000**

Additional information:		
Number of equity shares	**1,00,000**	**80,000**
Dividend payment ratio (D/P)	**40%**	**60%**
Market price per share (MPS)	**₹ 40**	**₹ 15**

Assume that the two firms are in the process of negotiating a merger through an exchange of equity shares. You have been asked to assist in establishing equitable exchange terms, and are required to -

I. **Decompose the share price of both the companies into EPS and P/E components, and also segregate their EPS figures into return on equity (ROE) and book value/ intrinsic value per share (BVPS) components.**
II. **Estimated future EPS growth rates for each firm.**
III. **Based on expected operating synergies, A Ltd. estimates that the intrinsic value of B's equity share would be ₹ 20, per share on its acquisition. You are required to develop a range of justifiable equity share exchange ratio that can be offered by A Ltd. to B Ltd's shareholders. Based on your analysis in parts I and II would you expect the negotiated terms to be closer to the upper, or the lower exchange ratio limits? Why?**
IV. **Calculate the post-merger EPS based on an exchange ratio of 0.4:1 being offered by A Ltd. Indicate the immediate EPS accretion or dilution, if any, that will occur for each group of shareholders.**
V. **Based on a 0.4:1 exchange ratio, and assuming that A's pre-merger P/E ratio will continue after the merger, estimate the post-merger market price. Show the resulting accretion or dilution in pre-merger market price.** **[4+2+3+3+3]**

Answer:

$$\text{Market Price per share (MPS)} = \frac{\text{EPS}}{\text{P/E ratio}}$$

$$\text{P/E ratio} = \frac{\text{MPS}}{\text{EPS}}$$

I. Determination of EPS, P/E ratio, ROE and BVPS of A Ltd. and B Ltd.

	A Ltd.	**B Ltd.**
Earnings after tax	₹ 2,10,000	99,000
Number of equity shares	1,00,000	80,000
EPS	₹ 2.10	₹ 1.2375

Market price per share	₹ 40	₹ 15
P/E ratio (Market price/EPS)	19.05	12.12
Equity funds	₹ 12,00,000	8,00,000
BVPS (Equity funds/No. of equity shares)	₹12	₹10
ROE $\frac{\text{Earnings after tax}}{\text{Equity funds}} \times 100$	17.5%	12.37%

II.

Estimates of Growth Rates in EPS for each firm :	A Ltd.	B Ltd.
Retention Ratio (1 - Dividend payout ratio)	0.6	0.4
Growth rate (ROE x Retention ratio)	10.5%	4.95%

III. Justifiably equity share exchange ratio

1. Market price based = $\frac{MPS_B}{MPS_A} = \frac{₹15}{₹40}$ = 0.375:1 (lower limit)
2. Intrinsic value based = $\frac{₹20}{₹40}$ = 0.5:1 (upper limit)

Since A Ltd. has a higher EPS, ROE, P/E ratio, and even higher EPS growth expectations, the negotiated terms would be expected to be closer to the lower limit, based on the existing share prices.

IV. Calculation of Post-merger EPS and other effects (Amount in Rupees)

Particulars	A Ltd.	B Ltd.	Combined
EAT	2,10,000	99,000	3,09,000
Shares outstanding	1,00,000	80,000	1,32,000
EPS	2.10	1.2375	2.341
EPS accretion (dilution)	0.241	(0.301)	--

Shares outstanding (combined) = 1,00,000 shares + (0.40 * 80,000)= 1,32,000 shares
EPS claim per old share = ₹ 2.34 x 0.4 = ₹ 0.936
EPS dilution of B Ltd. = ₹ 1.2375 – ₹ 0.936 = ₹ 0.3015

V. Estimated of Post-merger Market Price and other effects (Amount in Rupees)

Particulars	A Ltd.	B Ltd.	Combined
EPS	₹ 2.10	₹1.2375	2.341
P/E Ratio	19.05	12.12	19.05
MPS (EPS x P/E ratio)	40	15	44.60
MPS accretion	4.60	2.84	

MPS claim per old share (₹ 44.60 x 0.4)	17.84
Less: MPS per old share	15.00
MPS accretion of B Ltd. (₹)	2.84