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)(i). A company manufacturing electronic equipments is currently buying 'Component A' from a local supplier at a cost of ₹ 30 each. The company has a proposal to install a machine for the manufacture of the component. Two alternatives are available as under:

A. **Installation of Semiautomatic machine involving an annual fixed expenses of ₹ 18 lakhs and a variable cost of ₹ 12 per component manufactured.**
B. **Installation of Automatic machine involving an annual fixed cost of ₹ 30 lakhs and a variable cost of ₹ 10 per component manufactured.**

Required:
(I) Find the annual requirement of components to justify a switch over from purchase of components to (A) manufacture of the same by installing semiautomatic machine and (B) manufacture of the same by installing automatic machine.
(II) If the annual requirements of the component is 5,50,000 units, which machine would you advise the company to install?
(III) At what annual volume would you advise the company to select automatic machine instead of semiautomatic machine?   **[5]**

Answer of 1(a)(i):
(1) Statement Showing Comparative Output required

(₹)

Particulars	Semiautomatic	Automatic
Purchase price of component	30	30
Less: Variable cost	12	10
Saving	18	20
Components required to be produced to justify the installation of the machine	$\frac{₹18,00,000}{₹18}$	$\frac{₹30,00,000}{₹20}$
	1,00,000 units	1,50,000 units

(2) Selection of Machine (when annual requirement is 5,50,000 units)

(₹)

Particulars	Semiautomatic	Automatic
Variable costs	66,00,000	55,00,000
Add: Fixed costs	18,00,000	30,00,000
Total	84,00,000	85,00,000

The total cost in case of semiautomatic machine is less and hence it will be beneficial to install semiautomatic machine.

(3) Volume of Output for Automatic Machine

(₹)

Particulars	Semiautomatic	Automatic	Difference
Fixed costs	18,00,000	30,00,000	(-) 12,00,000
Variable costs	12	10	+2

Volume required to justify automatic machine = ₹ 12,00,000/₹ 2 = 6,00,000 components.

Analysis -The minimum volume required to justify the installation of automatic machine is 6,00,000 units or more.

1(a)(ii). Calculate the trend percentage from the following figures of Tenta Ltd. and interpret them.

Year	Sales Revenue (₹ '000)	Inventory (₹ '000)	Earnings before Tax (₹ '000)
2010-11	1,995	820	325
2011-12	2,390	910	422
2012-13	2,805	940	478
2013-14	3,140	1,055	549
2014-15	3,650	1,368	699

[5]

Answer of 1(a)(ii):
The trend value of an accounting number of current years will be calculated as below:

Tenta Ltd.
Trend Percentage
(Base year: 2010 -11)

Year	Sales Revenue		Inventory		Earnings before Tax	
	Amount (₹ in '000)	Trend Value	Amount (₹ in '000)	Trend Value	Amount (₹ in '000)	Trend Value
2010-11	1,995	100.0	820	100.0	325	100.0
2011-12	2,390	119.8	910	111.0	422	129.8
2012-13	2,805	140.6	940	114.6	478	147.1
2013-14	3,140	157.4	1,055	128.7	549	168.9
2014-15	3,650	183.0	1,368	166.8	699	215.1

Interpretation:

1. The sales increased in all the years over the period of study. Particularly, in the last year of the period of the study, the increase in sales was quite satisfactory. While comparing to 100 in the base year 2010-11, the percentage jumped from 157.4 in 2013-14 to 183.0 in 2014-15.

2. It is being noted that over the first four years of the period of study inventory increased more or less consistently along with sales. But in the last year, inventory jumped to 166.8% from 128.7% of just previous year as compared to 100 in the base year 2010-11. Excessive inventory is not desirable from the profitability point of view. So further investigation is required to see whether the purchase of material was more than what was required in

the last year of the period of study or whether slow moving items got accumulated.

3. Profit before tax has increased very satisfactorily over the period of study. It was more than doubled just in five years period. Particularly in the last year the comparative increase was very impressive as compared to others years.

The analysis of trend percentages of sales revenue, inventory and earnings before tax reveals that Tenta Ltd. expanded in all directions in just five years time. It should be further noted that the profit increased more than the sales revenue in all the years. It indicates that the company exercised proper control over cost of goods sold. So it can be concluded that the performance of the company was satisfactory.

1(b). The following informations are related to the financial statements of Square Infotech Ltd. are as follows:

(₹ in crores)

Particulars	As at 31.03.15	As at 31.03.14
	(₹)	(₹)
1. Share capital	1,121	931
2. Reserves and surplus	8,950	7,999
3. Secured loans	—	259
4. Unsecured loans	74	—
5. Finance Lease Obligations	171	115
6. Deferred tax liabilities (Net)	320	—
7. Other current liabilities	513	572
8. Short-term provisions	10,109	7,902
9. Gross Block	6,667	5,747
Less: Accumulated Depreciation	3,150	2,561
10. Capital work-in-progress	27	28
11. Non-current investments	288	222
12. Inventories	2,709	2,540
13. Trade receivables	9,468	9,428
14. Cash and cash equivalents	3,206	662
15. Short-term loans and advances	2,043	1,712
16. Sales	23,436	17,849
17. Other income	320	306
18. Cost of materials	15,179	10,996
19. Personnel expenses	2,543	2,293
20. Other expenses	3,546	2,815
21. Depreciation	419	383
Less: Transfer from Revaluation Reserve	7	6
22. Interest	164	88
23. Profit before Tax [1-2]	1,912	1,586
24. Current tax	450	371
25. Deferred tax	(6)	—
26. Profit after tax [3-4]	1,468	1,215

You are required to:
(I) **Compute and analyse the return on capital employed (ROCE) with the help of Du-Pont analysis.**

(II) Compute and analyse the average inventory holding period and average collection period.

(III) Compute and analyse the return on equity (ROE) by bringing out clearly the impact of financial leverage. **[10]**

Answer of 1(b):

A. As per Du-Pont analysis,

Return on Capital Employed (ROCE) = Net Profit ratio × Capital Turnover ratio

$$= \frac{\text{Operating profit before interest and tax}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Capital employed}}$$

In the year 2013-14,
Operating profit before interest and tax = ₹ 1,368 crores
Sales = ₹ 17,849 crores
Capital employed = ₹ (3,186 + 12,630 – 8,474) crores = ₹ 7,342 crores
Net Profit ratio = 7.66%
Capital Turnover ratio = 2.43 times
Therefore, ROCE = 18.61%

In the year 2014-15,
Operating profit before interest and tax = ₹ 1,756 crores
Sales = ₹ 23,436 crores
Capital employed = ₹ (3,517 + 15,383 – 10,622) crores = ₹ 8,278 crores
Net Profit ratio = 7.49%
Capital Turnover ratio = 2.83 times
Therefore, ROCE = 21.20%

Return on Capital Employed (ROCE) has increased in the year 2014-15 as compared to 2013-14 because capital turnover ratio has increased. This indicates better sales effort or effective use of capital by the firm. Capital turnover ratio has increased because sales with respect to capital employed in the firm have comparatively increased.

B. Average Inventory Holding Period $= \dfrac{12}{\text{Inventory Turnover Rtaio}}$

Inventory Turnover Ratio $= \dfrac{\text{Cost of goods sold}}{\text{Closing stock}}$

In the year 2013-14,

Inventory Turnover Ratio $= \dfrac{10,996}{2,540} = 4.329$ times

Average Inventory Holding Period $= \dfrac{12}{4.329} = 2.77$ months or 83 days

In the year 2014-15,

$$\text{Inventory Turnover Ratio} = \frac{15,179}{2,709} = 5.603 \text{ times}$$

$$\text{Average Inventory Holding Period} = \frac{12}{5.603} = 2.14 \text{ months or 64 days}$$

The average inventory holding period has got reduced in the year 2014-15 as compared to the year 2013-14. This shows that the company has been in a position to improve its turnover with lower inventory.

$$\text{Average Collection Period} = \frac{12 \times \text{Debtors}}{\text{Annual credit Sales}}$$

In the year 2013-14,
$$\text{Average Collection Period} = \frac{12 \times 9,428}{17,849} = 6.34 \text{ month or 190 days}$$

In the year 2014-15,
$$\text{Average Collection Period} = \frac{12 \times 9,468}{23,436} = 4.85 \text{ month or 145 days}$$

The average collection period has reduced in the year 2014-15 as compared to the year 2013-14. The shorter the average collection period, the better is the quality of debtors as it implies quick payment by debtors.

C. $\text{Return on equity (ROE)} = \dfrac{\text{Earnings available to equity shareholders}}{\text{Equity shareholders fund}} \times 100$

In the year 2013-14,
$$\text{Return on equity} = \frac{1,215}{(931+7,999)} \times 100 = 13.61\%$$

In the year 2014-15,
$$\text{Return on equity} = \frac{1,468}{(1,121+8,950)} \times 100 = 14.58\%$$

Return on equity has increased in the year 2014-15 as compared to the year 2013-14. This indicates high profitability of the firm. The higher the ROE, the better it is for the firm as it attracts prospective investors.

Impact of Financial Leverage:

Year	2013-14	2014-15
Return on equity (ROE)	13.61%	14.58%
Return on Capital Employed	18.61%	21.2%
Loan funds / total funds	4.02%	2.37%
Shareholders fund / total funds	95.98%	97.63%

Since financial leverage is also increased in the year 2014-15 as compared to the year 2013-14, hence there is increase of return on equity in the year 2014-15 over that in the year 2013-14. This is good since due to increase in return to the equity shareholders, prospective investors will be attracted to invest money in the company.

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

2(a). You are given the following Cash-Flow Statement of Merit Ltd. for the year ended 31.03.2015:

Inflow	₹	Outflow	₹
Opening Bank Balance	1,80,000	**Purchase of Fixed Assets**	2,70,000
Cash from Operation	2,17,500	**Redemption of Debentures**	1,00,000
Issue of Shares	75,000	**Payment of Income-tax**	1,37,500
Closing Bank Balance (Overdraft)	69,000	**Payment of Dividend**	34,000
	5,41,500		5,41,500

The capital structure of the company as on 31.3.2015 consisted of:

	₹
Equity Share of ₹ 10 each fully paid	3,00,000
Reserves & Surplus	1,00,000
10% Debentures	2,00,000

The operating profit of the company (before tax, but after interest) for the year ended 31.03.2015 was ₹ 2,50,000. The tax rate of the company is 35%.

You are required to:
(I) redraft the Cash Flow Statement as per AS-3.
(II) analyse the position and performance of the company on the basis of Cash Flow Statement and other information given above. Make suitable assumptions, if necessary.

[15]

Answer of 2(a):

In the books of Merit Ltd.,
Cash Flow Statement,
for the year ended 31st March 2015

		₹	₹	₹
	Cash Flows from Operating Profit:			
	Operating Profit		2,50,000	
Add:	Non-operating expenses			
	Debenture Interest		20,000	
			2,70,000	
Less:	Increase in Working Capital (Other than Cash and Cash equivalent= ₹ 2,50,000 - ₹ 2,17,500)		32,500	
			2,37,500	
Less:	Income-Tax Paid		1,37,500	

	Net Cash Flows from Operating Activities			1,00,000
	Cash Flows from Investing Activities:			
	Purchase of Fixed Assets		2,70,000	
	Net Cash Flows for Investing Activities			(-)2,70,000
	Cash Flows from Financing Activities:			
	Issue of Shares		75,000	
Less :	Redemption of Debentures	1,00,000		
	Payment of Dividend	34,000		
	Interest paid	20,000	1,54,000	
	Net Cash Flows from Financing Activities			(-)79,000
	Net decrease in cash and cash equivalent			(-)2,49,000
Add :	Cash and Cash Equivalent at the beginning			1,80,000
	Cash or Cash Equivalent at the end			(-)69,000

Note: Here, operating profit (after Interest) amounted to ₹ 2,50,000 but as per Cash Flow Statement (Conventional) the same was ₹ 2,17,500. The balance ₹ 32,500 (i.e., ₹ 2,50,000 – ₹ 2,17,500) represent the increased working capital (Other than Cash and Cash Equivalent).

Analysis and Interpretation

Before making any comments about the financial position, we are to compute the following related ratios relating to Cash Flow Statement:

(1) Debt Coverage Ratio = $\dfrac{\text{Operating Cash Flow - Interest - Dividend}}{\text{Total Long - term Debts}}$

$= \dfrac{₹1,00,000 - ₹20,000 - ₹34,000}{₹2,00,000} = \dfrac{₹46,000}{₹2,00,000} = 0.23$

This ratio is used to redeem the existing debts by the amount of net cash generated from operating, i.e. internally generated funds. It is not at all satisfactory, since 23% of long-term debts can be redeemed immediately.

(2) Interest Coverage Ratio = $\dfrac{\text{Operating Cash Flow (OCF)}}{\text{Interest Payment}} = \dfrac{₹1,00,000}{₹20,000} = 5$ times

This ratio highlights the firm's ability to pay interest and indicates the proportion of Interest to the generation of cash from operational activities. In short, the debt-paying capacity may be considered as satisfactory.

(3) Rate of Dividend to Operating Cash Flow = $\dfrac{\text{Dividend}}{\text{Operating Cash Flow}} \times 100$

$= \dfrac{₹34,000}{₹1,00,000} \times 100 = 34\%$

This ratio is found to be 34%, which indicates that percentage of cash generation through operational activities is good.

(4) Operating Cash Flows per share = $\dfrac{\text{Operating Cash Flow}}{\text{No. of Shares}} = \dfrac{₹1,00,000}{₹30,000} = ₹\ 3.33.$

This ratio is found to be only ₹ 3.33 which is not at all satisfactory.

(5) Dependence on Extra Funds for Capital Expenditure Ratio

$= \dfrac{\text{Financing Cash Flow}}{\text{Investing Cash Flow}} \times 100 = \dfrac{₹(-)79,000}{₹(-)2,70,000} \times 100 = 29.26\%$

This ratio is found to be 29.26% which indicates that external funds are used only a little portion.

2(b). A Ltd. has been in existence for two years. The most important facts from its published account are:

Balance Sheet at year-end

Particulars	1st Year	2nd Year
	₹	₹
Shareholders' Fund:		
Equity Shares of ₹ 100 each	1,00,000	1,00,000
Reserves	10,000	20,000
Profit and Loss Account	14,000	2,000
Non-current Liabilities:		
Loan on Mortgage	1,10,000	80,000
Current Liabilities:		
Bank Overdraft	—	20,000
Creditors	30,000	90,000
Provision for Taxation	34,000	13,000
Proposed Dividend	10,000	15,000
	3,08,000	3,40,000
Non-current Assets:		
Fixed Assets (Less : Depreciation)	2,08,000	1,98,000
Current Assets:		
Stock-in-trade	30,000	60,000
Debtors	40,000	80,000
Cash and Bank Balances	30,000	2,000
	3,08,000	3,40,000

Other relevant information:

Particulars	1st Year	2nd Year
	₹	₹
Interest on Mortgage		
Loan	2,400	4,800
Directors' Remuneration	10,000	30,000
Provision for Taxation	34,000	13,000
Dividend	10,000	15,000
Transfer to Reserve	10,000	10,000
Closing balance of P/L A/c	14,000	2,000

Opening balance of P/L A/c	—	14,000
Profit for the year after normal running cost and depreciation	80,400	60,800

You are informed that the total sales amounted to ₹ 5,00,000 in the first year and ₹ 4,00,000 in the second year.

Examine the details from the point of view of: (1) Profitability, (2) Solvency, (3) Sales, and (4) Capital Structure.

Make such other computations as seem expedient to you and write a thorough overall internal analysis of the company. **[15]**

Answer of 2(b):
Before calculating the different ratios, the following components are to be computed:

1. **Profit before Interest and Tax**

Particulars	1st Year	2nd Year
Profit for the year—		
Directors' remuneration	(₹ 80,400 - ₹ 10,000) = ₹ 70,400;	(₹ 60,800 - ₹ 30,000) = ₹ 30,800.

2. **Capital Employed**

Particulars	1st Year	2nd Year
Fixed Assets +	₹ 2,08,000 +	₹ 1,98,000 +
Current Assets – Current Liabilities	₹ 1,00,000 – ₹ 74,000 = ₹ 2,34,000;	₹ 1,42,000 – ₹ 1,38,000 = ₹ 2,02,000;

3. **Shareholders' Fund/Equity**

Particulars	1st Year	2nd Year
	₹	₹
Share Capital	1,00,000	1,00,000
Reserves	10,000	20,000
Profit and Loss Account	14,000	2,000
	1,24,000	1,22,000

4. **Total Current Assets**

Particulars	1st Year	2nd Year
	₹	₹
Stock	30,000	60,000
Debtors	40,000	80,000
Cash and Bank Balances	30,000	2,000
	1,00,000	1,42,000

5. **Total Current Liabilities**

Particulars	1st Year	2nd Year
	₹	₹
Bank Overdraft	—	20,000

Creditors	30,000	90,000
Provision for Taxation	34,000	13,000
Proposed Dividend	10,000	15,000
	74,000	1,38,000

6. Total Liquid Assets

Particulars	1st Year	2nd Year
	₹	₹
Total Current Assets - Stock	(1,00,000 – 30,000) 70,000	(1,42,000 – 60,000) 82,000

7. Total Liquid Liabilities

Particulars	1st Year	2nd Year
	₹	₹
Total Current Liabilities - Bank Overdraft	74,000	(1,38,000 – 20,000) 1,18,000

8. Total Debts (including Current Liabilities)

Particulars	1st Year	2nd Year
	₹	₹
Loan on Mortgage	1,10,000	80,000
Add : Total Current Liabilities	74,000	1,38,000
	1,84,000	2,18,000

Computation of Ratios

(I)	Profitability:	1st Year	2nd Year
(A)	Return on Capital Employed		
	$\dfrac{\text{Net Profit (before Tax and Interest)}}{\text{Capital Employed}}$	$\dfrac{₹70,400}{₹2,34,000}$ = 0.30 : 1;	$\dfrac{₹30,800}{₹2,02,000}$ = 0.15 : 1
(B)	Net Profit to Total Assets		
	$\dfrac{\text{Net Profit (before Tax and Interest)}}{\text{Total Assets}}$	$\dfrac{₹70,400}{₹3,08,000}$ = 0.23 : 1;	$\dfrac{₹30,800}{₹3,40,000}$ = 0.09 : 1
(C)	Return on Shareholders' Funds		
	$\dfrac{\text{Net Profit (before Tax and Interest)}}{\text{Shareholders' Funds}}$	$\dfrac{₹34,000}{₹1,24,000}$ = 0.27 : 1;	$\dfrac{₹13,000}{₹1,22,000}$ = 0.11 : 1
(D)	Net Profit Ratio		
	$\dfrac{\text{Net Profit}}{\text{Sales}}$	$\dfrac{₹34,000}{₹5,00,000}$ = 0.07 : 1;	$\dfrac{₹13,000}{₹4,00,000}$ = 0.03 : 1
(E)	Return on Ordinary Share Capital		
	$\dfrac{\text{Net Profit (after Tax and Interest)}}{\text{Equity Share Capital}}$	$\dfrac{₹34,000}{₹1,00,000}$ = 0.34 : 1;	$\dfrac{₹13,000}{₹1,00,000}$ = 0.13 : 1
(II)	Solvency/Liquidity :		
(A)	Current Ratio		
	$\dfrac{\text{Current Assets}}{\text{Current Liabilities}}$	$\dfrac{₹1,00,000}{₹74,000}$ = 1.35 : 1;	$\dfrac{₹1,42,000}{₹1,38,000}$ = 1.03 : 1
(B)	Liquid Ratio		
	$\dfrac{\text{Liquid Assets}}{\text{Liquid Liabilities}}$	$\dfrac{₹70,000}{₹74,000}$ = 0.95 : 1;	$\dfrac{₹82,000}{₹1,18,000}$ = 0.69 : 1
(C)	Debt-Equity Ratio		

	$\dfrac{Total\,Debts}{Shareholders'\,Equity}$		$\dfrac{₹1,84,000}{₹1,24,000}$ = 1.48 : 1;		$\dfrac{₹2,18,000}{₹1,22,000}$ = 1.79 : 1
(III)	Sales :				
(A)	Debtors' Turnover Ratio				
	$\dfrac{Debtors}{Sales} \times 365$		$\dfrac{₹40,000}{₹5,00,000} \times 365$ = 29 days credit		$\dfrac{₹80,000}{₹4,00,000} \times 365$ = 73 days credit
(B)	Turnover to Total Assets				
	$\dfrac{Turnover}{Total\,Assets}$		$\dfrac{₹5,00,000}{₹3,08,000}$ = 1.62 : 1;		$\dfrac{₹4,00,000}{₹3,40,000}$ = 1.18 : 1
(C)	Stock-Turnover Ratio				
	$\dfrac{Cost\,of\,Goods\,Sold\,/\,Sales}{Average\,Stock}$		$\dfrac{₹6,00,000}{₹30,000}$ = 20 times		$\dfrac{₹5,00,000}{₹45,000\left(\dfrac{₹30,000+₹60,000}{2}\right)}$ = 11 times
	(Since the amount of Cost of Goods Sold or percentage of Profit on Sales is not given, amount of sales is considered.)				
(IV)	Capital Structure:				
(A)	Capital Gearing Ratio				
	$\dfrac{Equity\,Share\,Capital}{Fixed\,Income-bearing\,Securities}$		$\dfrac{₹1,00,000}{₹1,10,000\,(Loan)}$ = 0.91 : 1		$\dfrac{₹1,00,000}{₹80,000}$ = 1.25 : 1
(B)	Long-term Loan to Net Worth				
	$\dfrac{Long\,term\,Loan}{Net\,Worth\,/\,Capital\,Employed}$		$\dfrac{₹1,10,000}{₹2,34,000}$ = 0.47 : 1		$\dfrac{₹80,000}{₹2,02,000}$ = 0.40 : 1

Comments:

As regards profitability, return on capital employed has largely declined in the second year in comparison with the first year, although both of them are below the normal level. The same trend is also followed by net profit to total assets, return on shareholders' fund, net profit ratio and return on ordinary share capital. The above analysis gives an impression that the management is not at all efficient and competent.

As regards Solvency, liquidity position is also not at all satisfactory since both the current ratio and liquid ratio are below the normal level of 2 : 1, and 1 : 1, respectively. In other words, the company is not able to pay its immediate maturing obligations in both the years. Both debt-equity ratios are found to be quite satisfactory. So, the short-term liquidity position is not at all favourable but long-term liquidity position (on the basis of debt-equity ratio) may be considered as sound.

As regards sales, debtors' turnover ratio and stock turnover ratio are found to be quite satisfactory since both of them are above their normal levels, although they are less favourable in the second year in comparison with the first year. But ratio of turnover to fixed assets is not so good enough.

As regards capital structure, it is more or less equal as it is revealed by capital gearing ratio. In the second year it is improved. But the ratio of long-term loan to net worth declines.

2(c)(i). The following particulars are presented by Pi Ltd. for the year 2014-15. You are asked to calculate Sales Margin Variances:

Product	Budgeted Sales			Actual Sales		
	Qty.	Selling Price	Standard Cost	Qty.	Selling Price
(Units)	(Per unit)	₹	(Per unit)	(Units)	(Per Unit)
A₁	450	10	7.5	600	12
A₂	300	7.50	5	450	6
	750			1,050	

[10]

Answer of 2(c)(i):

Before calculating the variance the following figures should be computed first:

1. Standard Margin of Standard Mix

Product	Units	Rate (₹)	Amount (₹)
A₁	450	2.50 (10 – 7.5)	1,125
A₂	300	2.50 (7.5 - 5)	750
	750		1,875

∴ Standard Margin of Standard Mix = $\dfrac{₹1,875}{750}$ = ₹ 2.50 per unit

2. Standard Mix on Actual Mix

Product	Units	Rate (₹)	Amount (₹)
A₁	600	2.50	1,500
A₂	450	2.50	1,125
	1,050		2,625

∴ Standard Margin of Actual Mix = $\dfrac{₹2,625}{1,050}$ = ₹ 2.50 per unit

3. Actual Margin on Actual Mix

Product	Units	Rate (₹)	Amount (₹)
A₁	600	4.50 (12 – 7.50)	2,700
A₂	450	1 (6 – 5)	450
	1,050		3,150

4. Standard Proportion of Mix

Product

$A_1 = 1,050 \times \dfrac{450}{750} = 630$

$A_2 = 1,050 \times \dfrac{300}{750} = 420$

Calculation of Variance:

(I) Sales Margin Variance

Sales Margin Variance = Budgeted Margin - Actual Margin
= (₹ 1,875 (i.e. 750 × 2.5[1]) - ₹ 3,150[3])
= ₹ 1,275 (Fav.)

(II) Sales Margin Price Variance

Sales Margin Price Variance = Actual Quantities Sold × (Standard Price - Actual Price)

A1 = 600 × (₹ 10 - ₹ 12) i.e., 2 = ₹ 1,200 (Fav.)
A2 = 450 × (₹ 7.5 - ₹ 6) i.e., 1.5 = ₹ 675 (Adv.)
Total 525 (Fav.)

(III) Sales Margin Volume Variance

Sales Margin Volume Variance = (Actual Sales - Budgeted Sales) × Standard margin p.u.
A1 = (600 - 450) × ₹ 2.50 = ₹ 375 (Fav.)
A2 = (450 - 300) × ₹ 2.50 = ₹ 375 (Fav.)
Total ₹ 750 (Fav.)

(d) Sales Margin Quantity Variance

Sales Margin Quantity Variance = (Standard Quantity - Actual Quantity) × Standard Margin per Unit
= (750 - 1,050) × ₹ 2.50 = ₹ 750 (Fav.)

(e) Sales Margin Mix Variance

Sales Margin Mix Variance = (Standard Proportion of Mix - Actual Mix) × Standard Margin per Unit
P1 = (630 - 600) × ₹ 2.50 = ₹ 75 (Adv.)
P2 = (420 - 450) × ₹ 2.50 = ₹ 75 (Fav.)
Total Nil

2(c)(ii). Calculate the Earnings per share (EPS) of each company assuming that profit before interest and tax is same for both Shine Ltd. and Fine Ltd. at ₹ 40,00,000. Assume corporate tax rate at 40%.

(₹)

Particulars	Shine Ltd.	Fine Ltd.
Profit before interest and tax	40,00,000	40,00,000
Less: Interest on debentures	2,25,000	3,50,000
Interest on term loans	3,60,000	---
	34,15,000	36,50,000
Less: Corporate tax @ 40%	13,66,000	14,60,000
	20,49,000	21,90,000
Less: Preference dividend	---	3,84,000
Profit available for equity shareholders	20,49,000	18,06,000
Number of equity shares	5,00,000	3,00,000

[5]

Answer of 2(c)(ii):

Profits available for equity shareholders

$$\text{Earnings per share} = \frac{\text{Profits available for equity shareholders}}{\text{No. of equity shares}}$$

$$\text{Shine Ltd.} = \frac{₹\,20,49,000}{5,00,000 \text{ shares}} = 4.10 \qquad \text{Fine Ltd.} = \frac{₹\,18,06,000}{3,00,000 \text{ shares}} = 6.02.$$

Analysis - Since the equity capital portion in the total capital of Shine Ltd., is high which has resulted in low earnings per share. But in case of Fine Ltd., its high leverage leading to the high earnings per share to equity stakeholders. Hence, in the capital structure decisions, high leverage of capital may be opted to increase the benefit for equity shareholders. But high leverage will carry the financial risk. In case of financial distress conditions, Shine Ltd. will be in trouble to meet the fixed payments of interest on debentures and term loans.

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

3. (a) Compute EVA of Swastik Ltd for 3 years from the information given –

(in ₹ Lakhs)

Year	1	2	3
Average Capital Employed	3,000.00	3,500.00	4,000.00
Operating Profit before Interest (adjusted for Tax Effect)	850.00	1250.00	1600.00
Corporate Income Taxes	80.00	70.00	120.00
Average Debt ÷ Total Capital Employed (in %)	40.00	35.00	13.00
Beta Variant	1.10	1.20	1.30
Risk Free Rate (%)	12.50	12.50	12.50
Equity Risk Premium (%)	10.00	10.00	10.00
Cost of Debt (Post Tax) (%)	19.00	19.00	20.00

[10]

Answer of 3(a):

EVA Statement of Swastik Ltd

Particulars	Year 1	Year 2	Year 3
1.Cost of Equity (K_e)= Risk Free Rate + (Beta × Equity Risk Premium)	12.5 +(1.1 × 10) = 23.50%	12.5 +(1.2 × 10) = 24.50%	12.5 +(1.3 × 10) = 25.50%
2. Cost of Debt (K_d) (given)	19.00%	19.00%	20.00%
3. Debt - Equity Ratio (Debt = given, Equity is bal. fig)	40% & 60%	35% & 65%	13% & 87%

4. WACC = [(K$_d$) × Debt % + (K$_e$) × Equity%]	21.70% (19 × 40% + 23.50 × 60%)	22.58% (19 × 35% + 24.50 × 65%)	24.79% (20 × 13% + 25.50 × 87%)
5. Average Capital Employed (given)	3,000.00	3,500.00	4,000.00
6. Capital Charge (Average Capital Employed × WACC)i.e. (4 × 5)	3,000 × 21.70% = 651.00	3,500 × 22.58% = 790.30	4,000 × 24.79% = 991.60
7. Operating Profit before Taxes & Interest	**850.00**	**1,250.00**	**1,600.00**
8. Less: Taxes Paid	80.00	70.00	120.00
9. Operating Profit after Taxes (This is the return to the Providers of Capital i.e. Debt and Equity)	770.00	1,180.00	1,480.00
10. Capital Charge (computed in 6 above)	651.00	790.30	991.60
11. Economic Value Added (9 - 10)	**119.00**	**389.70**	**488.40**
12.EVA as a % of Average Capital Employed	**3.96%**	**11.13%**	**12.21%**

3. (b) Exclusive Ltd and Common Ltd furnish you with their Balance Sheets as at 30th September-

(₹ in Crores)

Equity & Liabilities	E Ltd	C Ltd	Assets	E Ltd	C Ltd
(1) Shareholders' Funds:			**(1) Non-Current Assets:**		
(a) Share Capital			**Fixed Assets:**		
(i) Equity Share Capital (₹ 100)	500	100	(i) Tangible Assets Cost	300	1,000
(ii)12% Preference Shares		300	Less: Depreciation	250	500
(b) Reserves & Surplus	1,500	1,200	**Net Block**	50	500
(2) Non-Current Liabilities:			**(2) Current Assets (Net)**	1,950	1,500
Long Term Borrowings					
-15% Loan	-	400			
Total	**2,000**	**2,000**	**Total**	**2,000**	**2,000**

For the above year, the ratio of sale to year-end funds has been 5 times in the case of Exclusive Ltd and 50 times in the case of Common Ltd. The ratio of Net Profit before Interest to Sales has been 10% in the case of Exclusive Ltd and 5% in the case of Common Ltd. The anticipated pre-tax yield is 10% on investment in Equity Shares. You are asked to value the Equity Shares of both the Companies on yield basis. Ignore taxation.

Decide the impact of taxation of 40% on the Value per Share. [10]

Answer of 3(b):

1. **Computation of Value per Share (Market Price) (without taxation effect)**

(₹ Crores)

Particulars	Exclusive	Common
Sales (5 × ₹ 2,000 Crores, 50 × ₹ 2,000 Crores)	10,000	1,00,000
Profit before Interest at 10% of Sales, 5% of Sales	1,000	5,000
Less: Interest on Loans at 15%	---	(60)
Less: Preference Dividend at 12%	---	(36)
Residual Earnings for Equity Shareholders (without tax effect)	**1,000**	**4,904**
Number of Equity Shares = $\dfrac{\text{Equity Share Capital}}{₹100}$	5 Crores	1 Crore
Earnings Per Share = $\dfrac{\text{Equity Earnings}}{\text{Number of Equity Shares}}$	₹ 200	₹ 4,904
Value per ₹ 100 Share = $\dfrac{\text{EPS}}{\text{Anticipated Yield} 10\%}$	**₹ 2,000**	**₹ 49,040**

2. **Computation of Value per Share (Market Price) (with tax at 40%)**

(₹ Crores)

Particulars	Exclusive	Common
Sales (5 × ₹ 2,000 Crores, 50 × ₹ 2,000 Crores)	10,000	1,00,000
Profit before Interest and Tax at 10% of Sales, 5% of Sales	1,000	5,000
Less: Interest on Loans at 15%	---	(60)
Profit before Tax	1,000	4,940
Less: Tax Expense at 40%	(400)	(1,976)
Profit after Taxation	600	2,964
Less: Preference Dividend at 12%	---	(36)
Residual Earnings for Equity Shareholders	**600**	**2,928**
Number of Equity Shares = $\dfrac{\text{Equity Share Capital}}{₹100}$	5 Crores	1 Crore
Earnings Per Share = $\dfrac{\text{Equity Earnings}}{\text{Number of Equity Shares}}$	₹ 120	₹ 2,928
Value per ₹ 100 Share = $\dfrac{\text{EPS}}{\text{Anticipated Yield}}$ [10% - 40% Tax] i.e. 6%	**₹ 2,000**	**₹ 48,800**

Analysis: ROCE = $\dfrac{\text{PBIT}}{\text{Total Capital Employed}}$ of both Companies are 50% and 250% respectively, which is substantially higher than the Rate of Interest on Debt (i.e. 15%). Hence, the surplus available after meeting the fixed interest and dividend commitments, automatically accrue to the Equity Shareholders.

Conclusion: Taxation does not have an impact on value per share of Exclusive Ltd due to its unlevered position. It has a marginal impact on Common Ltd due to its leverage and its after tax cost of Debt and Preference being different from Equity Expectation.

4. (a) (i) Describe the different types of Mergers. **[5]**

Answer of 4 (a) (i):

We have identified 5 different types of mergers, e.g.

(a) Horizontal merger: The two companies which have merged are in the same industry, normally the market share of the new consolidated company would be larger and it is possible that it may move closer to being a monopoly or a near monopoly.

(b) Vertical merger: It means the merger of two companies which are in different field altogether, the coming together of two concerns may give rise to a situation similar to a monopoly.

(c) Reverse merger: Where, in order to avail benefit to carry forward of losses which are available according to tax law only to the company which had incurred them, the profit making company is merged with companies having accumulated losses.

(d) Conglomerate merger: Such mergers involved firms engaged in unrelated type of business operations. In other words, the business activities of acquirer and the target are not related to each other horizontally (i.e. producing the same or competitive products) nor vertically (having relationship of buyer and supplier).

(e) Co generic merger: In these mergers, the acquirer and the target companies are related through basic technologies, production processes or market. The acquired company represents an extension of product line, market participants or technologies of the acquirer.

4. (a) (ii) Trimurti Ltd gives the following information -
- **Profits After Tax for the period = ₹ 100 Lakhs, Expected Compound Growth Rate = 8% p.a.**
- **Cash Flows After Taxes for the period = ₹125 Lakhs, Expected Compound Growth Rate = 7% p.a.**
- **Current Market Price per Equity Share = ₹ 900, Equity Share Capital = ₹ 50,00,000 into Shares of ₹ 50 each.**

Compute the value of Trimurti Ltd by projecting its PAT / CFAT for a eight year period. Use 10% Discount Rate for your calculations. Also calculate the value of the business by capitalising the current PAT / CFAT. **[10]**

Answer of 4 (a) (ii):

1. Discounted Value of Future PAT and CFAT

(₹ Lakhs)

Year	PVIF at 10%	PAT	Discounted PAT	CFAT	Discounted CFAT
1	0.9091	100.00 + 8% = 108.00	98.18	125.00 + 7% = 133.75	121.59
2	0.8264	108.00 + 8% = 116.64	96.39	133.75 + 7% = 143.11	118.27
3	0.7513	116.64 + 8% = 125.97	94.64	143.11 + 7% = 153.13	115.04
4	0.6830	125.97 + 8% = 136.05	92.92	153.13 + 7% = 163.85	111.91
5	0.6209	136.05 + 8% = 146.93	91.23	163.85 + 7% = 175.32	108.86
6	0.5645	146.93 + 8% = 158.69	89.58	175.32 + 7% = 187.59	105.90
7	0.5132	158.69 + 8% = 171.38	87.95	187.59 + 7% = 200.72	103.01
8	0.4665	171.38 + 8% = 185.09	86.34	200.72 + 7% = 214.78	100.19
Total	**Value of Business**		**737.23**		**884.77**

2. Capitalisation of current PAT / CFAT

(₹ Lakhs)

Particulars	PAT	CFAT
(a) PAT / CFAT for the period	₹ 100 Lakhs	₹ 125 Lakhs
(b) Earnings per Share = $\dfrac{\text{PAT}}{\text{Number of Equity Shares}}$	₹ 100 per share	₹ 100 per share
(c) Market Price per Share	₹ 900 per share	₹ 900 per share
(d) P/E Ratio = $\dfrac{\text{MPS}}{\text{EPS}}$	9	9
(e) Capitalisation Rate = $\dfrac{1}{\text{PE Ratio}}$	11.11%	11.11%
(f) Value of Business = $\dfrac{\text{PAT or CFAT}}{\text{Capitalisation Rate}}$	**₹ 900.09 Lakhs**	**₹ 1,125.11 Lakhs**

3. Summary of Value of Business under different methods

Particulars	₹ Lakhs
(a) Discounted Value of future PAT of 8 years	₹ 737.23 Lakhs
(b) Discounted Value of future CFAT of 8 years	₹ 884.77 Lakhs
(c) Capitalisation of current PAT at 11.11%	₹ 900.09 Lakhs
(d) Capitalisation of current CFAT at 11.11%	₹ 1,125.11 Lakhs
(e) Simple Average of all of the above = $\dfrac{a+b+c+d}{4}$	**₹ 911.80 Lakhs**

4. (b) (i) Are brands assets? [3]

Answer:

An asset is having following characteristics;

➢ There must exist some specific right to future benefits or service potentials;

➢ Rights over asset must accrue to specific individual or firm;

➢ There must be legally enforceable claim to the right or services over the asset;

➢ Asset must arise out of past transaction or event.

Based on above characteristics, brands are considered as an asset. The sole purpose of establishing brand names are to incur future benefit increased sale to loyal customers increased sale price of the brand itself or Increases sale price of the brand itself.

The companies with valuable brand register those names and are legally entitled to sole ownership and use of them. Brands are created through marketing efforts over time. They are the result of several past transactions and events.

4. (b) (ii) Given below is the Balance Sheet as on 31st March of Khan Limited for the past three years.

(Amount in ₹ 000's)

Equity and Liabilities	2013	2014	2014	Assets	2013	2014	2015
(1) Shareholders' Funds:				(1) Non-Current Assets			
(a) Share Capital	500	600	700	Fixed Assets:			
(b) Reserves & Surplus				Gross Block	1,500	1,700	1,900
(i) General Reserve	100	150	150	Less: Depreciation	400	500	650
(ii) P&L Account	100	150	--	Net Block	1,100	1,200	1,250
(2) Non-Current Liabilities:				(2) Current Assets			
Long Term Borrowings				(a) Inventories	250	450	500
-12% Debentures	400	600	700	(b) Trade Receivable–Debtors	200	350	400
(3) Current Liabilities:				(c) Cash & Cash Equivalents	25	120	100
(a) Short Term Borrowings							
-Bank Overdraft	200	250	300				
(a) Trade Payables-Creditors	100	200	400				
(b) Short Term Provisions							
(i) Provision for Taxation	100	50	---				
(ii) Proposed Dividend	75	120	---				
Total	1,575	2,120	2,250		1,575	2,120	2,250

- The Company is going to sell its losing division for ₹ 5,00,000. This division caused Cash Loss to the extent of ₹ 1,00,000 in 2014-15.
- It has planned to buy a running factory for ₹ 7,50,000. This new addition is expected to produce 20% return before charging Depreciation and Interest.
- Excess amount required of the acquisition of the new factory will be taken at 16% p.a. from an Industrial Bank.

The Company decided to calculate Goodwill considering the following -
I. The Company decided to calculate Goodwill on the basis of excess cash earnings for 5 years.
II. 10% Discount Rate shall be used.
III. Goodwill will be calculated by taking Cash Return on Capital Employed. For this purpose, Weighted Average Cash Return may be computed for the years 2013 - 2014, 2014 - 2015 and 2015- 2016 whereas Capital Employed on 31.03.2015 may be taken up with suitable changes for replacements.
IV. The industry, to which the Company belongs, returns Cash at 4% of the Investment.   [12]

Answer of 4 (b) (ii):

1. Computation of Cash Earnings for the past years

(₹ 000's)

Particulars	2013-14	2014-15
Retained Earnings (Closing Less Opening)	50	(150)
Add: Appropriation to General Reserve (Closing Less Opening)	50	--
Proposed Dividend	120	--
Provision for Tax made during the year	50	--
Current Year Profit /(Loss)	270	(150)
Add: Depreciation (Closing Accumulated Depreciation Less Opening)	100	150
Operating Profit Before Working Capital Changes	370	--
Adjustment for Working Capital items & Taxes Paid:		
- Stock	(200)	(50)
- Sundry Debtors	(150)	(50)
- Creditors	100	200
- Previous Year Tax liability Paid in Current Year	(100)	(50)
Cash Generated from Operating Activities	**20**	**50**

2. Computation of Projected Cash Earnings

Particulars	₹ 000's
Cash Earnings for Financial Year 2014-15	50
Add: Cash Loss pertaining to Division sold	100
Add: Cash earnings from New Division (₹ 7,50,000 × 20%)	150
Less: Interest on Loan from Industrial Bank (7,50,000 - 5,00,000) × 16%	(40)
Projected Cash Earnings	**260**

3. Computation of Average Maintainable Profits

₹ 000's

Year	Cash Earnings	Weights	Product
2013-2014	20	1	20
2014-2015	50	2	100
2015-2016	260	3	780
Total		6	**900**
Weighted Average		$\frac{900}{6}$	**150**

4. Computation of Capital Employed

Particulars	₹ 000's	₹ 000's
Total Assets as at 31.03.2015	2,250	
Less: Debentures	(700)	
Bank Overdraft	(300)	

Sundry Creditors	(400)	850
Sale of Old Division:		
Sale Consideration	500	
Less: Net Assets Transferred (assumed to be taken at Book Value)	(500)	NIL
Purchase of New Division:		
Cost of Purchase	750	
Less: Cash Outflow	(500)	
Bank Borrowings	(250)	NIL
Capital Employed on Replacement		**850**

5. Computation of Excess Cash Earnings and Goodwill

Particulars	₹ 000's
Future Maintainable Cash Earnings	150
Less: Normal Rate of Cash Return at 4% of Capital Employed (₹ 850 × 4%)	34
Excess Cash Earnings (Future Maintainable Cash Earnings - NRR)	**116**
Goodwill = Excess Cash Earnings × Annuity Factor for 5 years at 10% = ₹ 116 × 3.7908	**439.73**

4. (c) (i) State Investment value. Distinction between investment value and FMV.   [2+4]

Answer of 4 (c) (i):

IGBVT defines 'Investment value' as "the value to a particular investor based on individual investment requirements and expectations". Simply stated, it gives the value of an asset or business to a specific unique investor and therefore considers the investor's specific knowledge about the business, own capabilities, expectation of risks and return and other factors. Synergies are considered to a specific purchaser. For these reasons investment value may result in higher value than FMV. Some of the factors which may cause difference between FMV and investment value are;

Estimates of future cash flows or earnings;
➢ Perception of risk
➢ Tax advantages
➢ Synergy to other products
➢ Other strategic advantages

An example makes the concept of investment value clear.
Mr. A owns 20% of a business and the balance 80% is owned by the other people. Whether, worth of Mr. 'A' will be taken as proportionate value of the business, if intrinsic value is used as standard of value. Even it can be more than the proportionate value if this 20% acquisition meets some strategic interest of the investor. The question of DOLM need not necessarily come as the investor is looking for long term strategic investment. In case of small business, the investment value should be the definition of value as only an investor with specific knowledge of the business would be interested in buying the business. Under this one values the business in the hands of specific investor.

4. (c) (ii) Company X acquires Company Y on "Share exchange" basis. The position before takeover was as under:

Particulars	Company X	Company Y
Number of Shares	10,000	5,000
Total Earnings	₹ 1,00,000	₹ 50,000
Market Price per Share (MPS)	₹20	₹15

The Shareholders of Company Y are offered 3 Shares of Company X for 4 shares Company Y.

Calculate the EPS of the Amalgamated Company vis-a-vis before takeover position of the Two Companies and Gain/Loss of the Shareholders of both the Firms consequent to amalgamation.

[2+3+4]

Answer of 4 (c) (ii):

1. Computation of Shares issued to Company Y

• **Exchange Ratio:**
  No. of Shares of X per share of Y = 3 Shares of X for 4 Shares of Y = 0.75 Share of X per Share in Y

• **Total No. of Shares Issued** = Exchange Ratio x Shares o/s in B = 0.75 x 5,000 Shares =3,750 Shares in X

2. Evaluation of EPS

(a) Computation of Pre-Merger EPS

Particulars	X Ltd	Y Ltd
Total Earnings [EAT]	₹ 1,00,000	₹ 50,000
No. of Equity Shares Outstanding [Shares]	10,000	5,000
Earnings Per Share [Earnings ÷ No. of Shares]	₹10	₹10

(b) Computation of Post Merger EPS

Particulars	Result
(a) Total Earnings of Merged Entity = X ₹ 1,00,000 + Y ₹ 50,000 =	₹ 1,50,000
No. of Shares in X Ltd before Merger	10,000
Add: Shares issued to Y Ltd for merger	3,750
(b) Shares Outstanding in X after Merger = Present 10,000 + Now issued 3750 =	13,750
(c) Post Merger EPS (a ÷ b)	₹ 10.91

(c) Evaluation of Change in EPS

Particulars	X	Y
Post Merger EPS	₹ 10.91	₹ 10.91
Less: Equivalent Pre-Merger EPS [Proportion to present holding] [For Y Ltd = Old EPS ÷ Exchange Ratio]	₹ 10.00	₹ 13.33 [₹ 10 ÷ 0.75]
Change in Value	₹ 0.91	(₹ 2.42)
Effect on EPS for Shareholders	Increase	Decrease
Extent of Change [Change ÷ Pre-Merger EPS]	9.1%	(18.15%)

Observation: Shareholders of X Ltd stand to gain by 9.1% on EPS. This exchange may not find favour with Shareholders of Y Ltd, as their earnings diminish. However, if Wealth Maximization is the objective of the Shareholders, then expected Market Price based on post merger PE Multiple should be evaluated.