Paper – 20: Financial Analysis & Business Valuation

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

Group-A
(Answer Question 1 and 2 which are compulsory and any two from the rest)

Question 1.

One impetus to the development of the common-size statements came from the problems in comparing the financial statements of firms that differ in size. Hawk Ltd. has long-term debt of ₹95.719 million and that Pablo Ltd. have long-term debt of ₹76.810 million. Due to possible size differences between the two companies, it would be misleading to always infer that Hawk Ltd. was more highly leveraged than Pablo Ltd. One way of controlling for size differences is to express the components of the balance sheet as a percentage of total assets (liabilities + equity) and the components of the income statement as a percentage of total revenues. The derived statements are termed common- size statements. For instance, in 2012-13 Hawk Ltd. had total assets (liabilities and equities) of ₹530.301 million, while Pablo Ltd. had total assets (liabilities and equities) of ₹243.915 million. Their respective common – size balance sheets show —

Hawk Ltd.: Long-term debt of 18.0% (₹95.719/₹530.301)

Pablo Ltd.: Long-term debt of 31.05% (₹76.810/₹243.915)

Table 1 Common-size financial statements

A. Common size Balance Sheet, 2012-13

Particulars	Hawk Ltd.	Bedant Ltd.	Colours Ltd.	Pablo Ltd.
Assets				
Cash and marketable securities	4.0%	5.0%	10.2%	2.3%
Accounts receivables	7.1%	6.6%	6.3%	10.0%
Inventories	21.3%	6.9%	11.2%	26.2%
Other current assets	1.2%	2.2%	3.7%	1.2%
Properties plant and equipment	64.2%	74.0%	67.7%	56.1%
Other assets	2.2%	5.3%	0.9%	4.2%
	100.0%	100.0%	100.0%	100.0%
Liabilities + Equity				
Accounts payable	15.9%	7.6%	5.4%	22.2%
Other current liabilities	10.0%	9.1%	9.7%	20.6%
Long – term debt	18.0%	22.2%	0.0	31.5%
Capital leases	0.0	0.0	0.0	1.3%
Other long-term liabilities	0.0	0.0	0.9%	2.0%
Deferred credits	11.0%	13.2%	9.6%	7.2%
Minority preferred shareholders	0.0	7.1%	0.0	0.0
Shareholders' equity	45.1%	40.8%	74.4%	15.2%
	100.0%	100.0%	100.0%	100.0%

B. Common size Balance Sheet, 2012-13

Particulars	Hawk Ltd.	Bedant Ltd.	Colours Ltd.	Pablo Ltd.
Revenues				
Sales	**99.4%**	**99.8%**	**99.1%**	**99.6%**
Other revenues	**0.6%**	**0.2%**	**0.9%**	**0.4%**
	100.0%	**100.0%**	**100.0%**	**100.0%**
Expenses and Net Income				
Excise taxes	**13.1%**	**9.3%**	**10.5%**	**14.1%**
Cost of goods sold	**61.7%**	**61.7%**	**57.5%**	**67.7%**
Marketing, general, and administrative	**16.5%**	**18.3%**	**17.7%**	**16.1%**
Interest expense	**0.7%**	**1.2%**	**0.1%**	**1.2%**
Other expense	**0.0%**	**0.3%**	**1.8%**	**0.1%**
Taxation, current	**2.2%**	**2.0%**	**4.0%**	**(0.3) %**
Taxation, deferred	**1.5%**	**2.0%**	**1.3%**	**0.7%**
Net income	**4.3%**	**5.2%**	**7.1%**	**0.4%**
	100.0%	**100.0%**	**100.0%**	**100.0%**
Total assets (₹ million)	**₹530**	**₹4,330**	**₹1,156**	**₹244**
Total revenues (₹ million)	**₹1,334**	**₹6,671**	**₹1,254**	**₹804**

(a) Make a comparative analysis among the four firms from the Balance Sheet as well as the Income Statement perspectives.

(b) If the percentage in shareholder's equity has been reduced from 74.4% to 40.45% for Colours Ltd., what does it imply?

(c) The short term and long term borrowing element in the capital structure is too high in the case of Pablo Ltd. Analyse it from leverage point of view.

(d) If it is assumed that the percentage of net income was 3.2% in the previous year (2011-12) for Hawk Ltd., then what are the possible causes for such increment in profit?

[5+3+3+4]

Answer:

(a) All the four companies, viz Hawk Ltd., Bedant Ltd., Colours Ltd. and Pablo Ltd. have their revenue from ordinary course of activity as well they have revenues from incidental activities also. The cost of goods sold almost equal for every firm except Pablo Ltd. which has cost of goods sold 67.7% which is highest.

The interest expenses are below one percent in the case of Hawk Ltd. and Colours Ltd. It is just 0.1%, as the debt element is too small in the capital structure of Colours Ltd. The marketing, general and administrative expenses are varied from 16.1% to 18.3% among the four firms. As per the Common-size Balance Sheet the most profitable company according to the net income is Colours Ltd. (7.1%). But in the case of Pablo Ltd. the net income element is too small, i.e. 0.4% of the total revenue.

Several inferences can be drawn from Table 1 (both Part A and Part B). Colours Ltd. has (1) the highest percent in cash related assets (10.2%) and (2) the lowest percent of long-term debt (0.0%). In contrast, Pablo Ltd. has (1) the lowest percent of cash related assets (2.3%) and (2) the highest percent of long-term debt (31.5%). Both Hawk Ltd. and Bedant

Ltd. fall between the extremes of Colours Ltd. and Pablo Ltd. on each of these two factors.

The percentage in Table 1 will reflect accounting method-induced (historical cost) differences as well as financing-investment-operating differences across the four companies. For instance, one explanation for the percentage of Bedant Ltd.'s total assets in property, plant and equipment (74%) being higher than Hawk Ltd. (64.2%) is that Bedant Ltd. has a higher proportion of plant that has been built at more recent construction costs.

(b) At present, the equity proportion in the capital structure of Colours Ltd. is 74.4%. On the other hand, the debt element (rest 25.6%) is consisting of accounts payable (5.4%), other current liabilities (9.7%), other long-term liabilities (0.9%) and deferred credits (9.6%). The debt-equity ratio is comes at 0.34:1. But if the shareholder's equity has been reduced to 40.45%, the short-term and long-term debt proportion will come at 59.55%. It means the revised debt-equity ratio will be 1.47:1.

In case of debt-equity ratio, generally, the greater is the possibility of increasing the rate of return to the equity, as long as the cost of debt is lower than the rate of return from the investment. But there is a financial risk as the financing from debt increases the risk of shareholders. Normally the cost of debt capital is lower than that of the equity. So if the Colours Ltd. is able to make a higher rate of return from investment than the cost of capital in the revised scenario, it may be profitable.

(c) As per the Common-size Balance Sheet of Pablo Ltd. for the year 2012-13, the capital structure is mainly based on debt element which is 84.8%, consist of accounts payable (22.2%), other current liabilities (20.6%), long-term debt (31.5%), capital leases (1.3%), other long-term liabilities (2.0%) and deferred credits (7.2%).

Financial leverage refers to the use of fixed income securities — preference share capital and debt capital. The former consist of long-term debt including debentures for which a contractual fixed rate of interest is payable. Dividend payable to preference shareholders is also payable at a fixed rate before distribution of equity dividend. The main object of selecting a proper mix of debt-equity is to increase the earnings per share (EPS). The fixed financial charges do not vary with the firm's earnings before interest and taxes (EBIT). Financial leverage indicates the effect on earnings created by the use of fixed-charge securities in the capitalisation plan. The higher the degree of financial leverage, the greater is the financial risk associated and vice versa. The greater the amount of fixed financial charges, the larger is the EBIT required to cover them.

As the debt element is too high in the capital structure of Pablo Ltd., it is highly geared capital structure. So if the company is able to make a sufficient profit, after covering the fixed contractual obligations, the company will be able to make a profit for the ordinary shareholders and in such case, the earnings per share (EPS) will also increase. Under favourable market condition, as Pablo Ltd. having a high degree of financial leverage will be in a better position to increase the return on equity or EPS.

(d) The net income of Hawk Ltd. is 4.3% of the total revenue for the year 2012-13 as against 3.2% in the previous year 2011-12. It clearly indicates that the increment in profit is 1.1%. There are several reasons for such increment in profit, such as :

(i) Selling price: a decline in selling price can improve the sales volumes which ultimately cause an increment in gross profit margin. But a decrease in selling price per unit of goods sold must be accompanied by the reduced cost of goods sold. If there is any existence of competition in the market, the selling price of a product should be lower to capture a large market.

(ii) Sales volume: an increment in profit margin can be possible by selling a large quantity. An increase in sales typically translates to an increase in cost of goods sold. However, the ratio at which the cost of goods sold increases might not be proportional to the increase in sales due to certain fixed costs. For example, fixed manufacturing costs are not affected by a decrease in the quantity of units manufactured, which is why cost of goods sold per unit increases when fewer units are manufactured. An increase in cost of goods sold not accompanied by a corresponding increase in selling prices can drive the gross profit margin down.

(iii) Cost of goods sold: With all other factors being equal, a decrease in cost of goods sold will result in an increase in gross profit. In such a situation, a higher gross profit will yield a higher gross profit margin. Cost of goods sold can increase due to higher prices of raw materials as well as higher labor costs.

(iv) Operating expenses: there are various operating expenses that a company needs to operate its day-to-day business activity. Overhead includes the cost of maintaining the workforce, providing the equipment to create products and such incidental costs as electricity and water, Internet access and the phone lines used to communicate with employees and customers alike. Repair and maintenance costs affect the profits as well.

Question 2.

Financial Highlights Roombit Industries Ltd.

Particulars	2012-13	2011-12	2010-11	2009-10	2008-09	2007-08	2006-07
Turn Over	1,39,269	1,18,354	89,124	73,164	56,247	50,096	45,404
Total income	1,44,898	1,18,832	89,807	74,614	57,385	51,097	46,186
EBIDT	28,935	20,525	14,982	14,261	10,983	9,366	8,658
Depreciation	4,847	4,815	3,401	3,724	3,247	2,837	2,816
Profit after tax	19,458	11,943	9,069	7,572	5,160	4,104	3,243
Equity dividend (%)	130	110	100	75	52.5	50	47.5
Dividend payout	1,631	1,440	1,393	1,045	733	698	663
Equity share capital	1,454	1,393	1,393	1,393	1,396	1,396	1,054
Equity Share suspense	-	60	-	-	-	-	342
Equity Share warrants	1,682	-	-	-	-	-	-
Reserves and surplus	78,313	62,514	48,411	39,010	33,057	28,931	26,416
Net worth	81,449	63,967	49,804	40,403	34,453	30,327	27,812
Gross fixed assets	1,27,235	1,07,061	91,928	59,955	56,860	52,547	48,261
Net fixed assets	84,889	71,189	62,675	35,082	35,146	34,086	33,184

Total assets	**1,49,792**	**1,17,353**	**93,095**	**80,586**	**71,157**	**63,737**	**56,485**
Market capitalization	**3,29,179**	**1,98,905**	**1,10,958**	**76,079**	**75,132**	**38,603**	**41,989**
No. of employees	**25,487**	**24,696**	**12,540**	**12,113**	**11,358**	**12,915**	**12,864**
Contribution to							
National exchequer	**13,696**	**15,344**	**15,950**	**13,972**	**12,903**	**13,210**	**10,470**
Earnings per share (₹)	**133.90**	**82.20**	**65.10**	**54.20**	**36.8**	**29.3**	**23.4**
Turnover per share (₹)	**958.10**	**814.20**	**639.60**	**525.0**	**402.08**	**358.8**	**325.2**
Book value per share (₹)	**560.3**	**440.0**	**357.4**	**289.9**	**246.7**	**217.2**	**199.2**
Debt: Equity ratio	**0.45:1**	**0.44:1**	**0.44:1**	**0.46:1**	**0.56:1**	**0.60:1**	**0.64:1**
EBDIT/ Gross turnover (%)	**20.8**	**17.3**	**16.8**	**19.5**	**19.5**	**18.7**	**19.1**
Net profit margin (%)	**14.0**	**10.1**	**10.2**	**10.3**	**9.2**	**8.2**	**7.1**
RONW(%)	**28.8**	**23.5**	**22.7**	**21.9**	**17.0**	**14.8**	**16.1**
ROCE (%)	**20.3**	**20.5**	**20.5**	**21.3**	**14.0**	**13.2**	**15.3**

(a) Calculate the capital employed for the last three years based on the above data.

(b) What is debt-service coverage ratio? If the amount of depreciation was ₹3,587 crore in the year 2012-13, then what will be the revised debt-service coverage ratio?

(c) If the company wants to change its price-earnings ratio to 16.87 in 2012-13 how much increment in EPS is needed? (assume the current market price of equity share is same)

(d) How defensive-interval ratio is calculated? Compute this ratio for the last two years.

[6+4+1+4]

Answer:

(a) Calculation of Capital Employed (₹ in crores)

	31.03.2011	**31.03.2012**	**31.03.2013**
Share Capital	1,393	1393	1,454
Equity Share Suspense	—	60	—
Equity Share Warrants	—	—	1,682
Reserve & Surplus	48,411	62,514	78,313
Debt Capital	21,914	28,145	36,652
Capital Employed	71,718	92,112	1,18,101

Note:

(1) As debt-equity ratio for year 2010-11 is 0.44:1,
Debt capital = ₹49,804 × 0.44 = ₹21,914 crores

(2) As debt-equity ratio for year 2011-12 is 0.44:1,
Debt capital = ₹63,967 × 0.44 = ₹28,145 crores

(3) As debt-equity ratio for year 2012-13 is 0.45:1,
Debt capital = ₹81,449 crores × 0.45 = ₹36,652 crores

(b) In corporate finance, Debt-service coverage ratio is the amount of cash flow available to meet annual interest and principal payments on debt, including sinking fund payments.

In government finance, it is the amount of export earnings needed to meet annual interest and principal payments on a country's external debts.

In personal finance, it is a ratio used by bank loan officers in determining income property loans. This ratio should ideally be over 1. That would mean the property is generating enough income to pay its debt obligations.

This ratio is the key indicator to the lender to assess the extent of ability of the borrower to service the loan in regard to timely payment of interest and repayment of loan installment. It indicates whether the business is earning sufficient profits to pay not only the interest charges, but also the installments due of the principal amount. This ratio is calculated as follows:

$$\text{Debt - service coverage ratio} = \frac{\text{Net operating income}}{\text{Debt service}}$$

Debt-service coverage ratio for the year 2012-13 if the amount of depreciation was ₹3,587 crore: (here it is assumed that there will be 10% of loan is repaid)

$$\text{Debt - service coverage ratio at } 31.03.2013 = \frac{\text{EBIDT - Depreciation}}{\text{10\% of debt}}$$

$$= \frac{₹(28,935 - 3,587) \text{ crores}}{\text{10\% of } ₹36,652 \text{ crores}} = \frac{₹25,348 \text{ crores}}{₹3,665 \text{ crores}}$$

$$= 6.92$$

(c) Profit after tax for the year 2012-13 = ₹19,458 crores
EPS for the year 2012-13 = ₹133.90
Therefore, number of shares = ₹19,458 crores/₹133.90 = 145.32 crores
Market value of shares = Market capitalisation/Number of shares (for 2012-13)
= ₹3,29,179 crores/145.32 crores = ₹2,265.20

If the price-earnings ratio would be 16.87 9 (for 2012-13) then EPS should be—
EPS = Current market price of equity share/Price-earnings ratio
EPS = ₹2,265.20/16.87 = ₹134.27
Therefore, increase in EPS = ₹(134.27 – 133.90) = ₹0.37 is needed.

(d) Defensive-interval ratio is based on the firm's ability to meet current financial obligation is dependent on the ability to generate daily cash requirement of the firm. The defensive internal ratio is a measure of liquidity by comparing the current assets against projected daily cash requirement. The DIR is thought by many people to be a better liquidity measure than the quick and current ratios.

Defensive-interval ratio is an efficiency ratio that measures how many days a company can operate without having to access non-current (long-term) assets.

The defensive interval ratio (DIR) is calculated as:

$$\text{Defensive - interval ratio} = \frac{\text{Current Assets}}{\text{Daily Operational Expenses}}$$

Or this ratio can be calculated as follows also:

$$\text{Defensive - interval ratio} = \frac{\text{Liquid Assets}}{\text{Daily Operational Expenses}}$$

In the case of Roombit Industries Ltd., in absence of the information regarding liquid assets, current assets are considered.

Daily operational expenses include all estimated cash expenses excluding depreciation. The higher the ratio, more safety of short-term liquidity.

Current Assets for 2012-13 will be = ₹(1,49,792 – 84,889) crores = ₹64,903 crores
Current Assets for 2011-12 will be = ₹(1,17,353 – 71,189) crores = ₹46,164 crores
Daily operational expenses for 2012-13 = ₹(1,44,898 – 28,935) crores/365
= ₹1,15,963 crores/365 = ₹317.71 crores
Daily operational expenses for 2011-12 = ₹(1,18,832 – 20,525) crores/365
= ₹98,307 crores/365 = ₹269.33 crores

For Roombit Industries Ltd., defensive interval ratio will be as follows:
For the year 2012-13,
Defensive interval ratio = ₹64,903 crores/ ₹317.71 crores = 204.28
For the year 2011-12,
Defensive interval ratio = ₹46,164 crores/ ₹269.33 crores = 171.40

Question 3.

(a) The following informations are related to financial position of Rungta Ltd for 3 years which ended on 31st March every year:

Particulars	2011 (₹)	2012 (₹)	2013 (₹)
Share capital	1,65,000	1,90,000	1,85,000
Current Liabilities	35,000	?	?
Working Capital	95,000	60,000	1,20,000
Long-term Loan	1,25,000	?	1,41,000
Fixed assets	2,25,000	2,60,000	2,15,000
Net Worth	3,00,000	2,10,000	2,45,000
Current Assets	?	1,30,000	1,80,000
Capital Employed	3,50,000	?	?
Reserves & Surplus	?	45,000	75,000

You are required to prepare a Vertical Trend Balance Sheet taking 2011 as the base.

(b) State the usefulness of the trend ratios.

[8+2]

Answer:

(a) **Vertical Trend Balance Sheet**
(Base Year 2010-2011)

	2010-11		2011-12		2012-13	
	Amount (₹)	**Trend %**	**Amount (₹)**	**Trend %**	**Amount (₹)**	**Trend %**
Capital & Liabilities:						
Share Capital	1,65,000	100	1,90,000	115.15	1,85,000	112.12
Reserve & Surplus	1,35,000	100	45,000	33.33	75,000	55.56
Net Worth	3,00,000	100	2,35,000	78.33	2,60,000	86.67
Long-term Loan	1,25,000	100	1,10,000	88.00	1,41,000	112.80
Capital Employed	4,25,000	100	3,45,000	81.18	4,01,000	94.35
Current Liabilities	35,000	100	70,000	200.00	60,000	171.43
Total Liabilities	**4,60,000**	**100**	**4,15,000**	**90.22**	**4,61,000**	**100.22**
Assets:						
Fixed Assets	2,25,000	100	2,60,000	115.56	2,15,000	95.56
Capital Work-in-progress	1,05,000	100	25,000	23.81	66,000	62.86
Current Assets	1,30,000	100	1,30,000	100	1,80,000	138.46
Total Assets	**4,60,000**	**100**	**4,15,000**	**90.22**	**4,61,000**	**100.22**

Notes:

(i) Computation of Missing Figures for 31st March, 2011:
Reserve & Surplus: Net Worth – Share Capital = ₹3,00,000 - ₹1,65,000 = ₹1,35,000
Current Assets = Working Capital + Current Liabilities = ₹95,000 + ₹35,000 = ₹1,30,000
Capital Work-in-progress = Total Capital & Liabilities – Total Assets = ₹4,60,000 - ₹3,55,000 = ₹1,05,000.

(ii) Computation of Missing Figures for 31st March, 2012:
Current Liabilities = Current Assets – Working Capital = ₹1,30,000 - ₹60,000 = ₹70,000
Capital Employed = Fixed Assets + Working Capital = ₹2,60,000 + ₹60,000 = ₹3,20,000
Again, Capital Employed = Net Worth + Long-term Loan
Long-term Loan = Capital Employed - Net Worth = ₹3,20,000 - ₹2,10,000 = ₹1,10,000
Capital Work-in-progress = Total Capital & Liabilities – Total Assets = ₹4,15,000 - ₹3,90,000 = ₹25,000

(iii) Computation of Missing Figures for 31st March, 2013:
Current Liabilities = Current Assets – Working Capital = ₹1,80,000 - ₹1,20,000 = ₹60,000
Capital Employed = Net Worth + Long-term Loan = ₹2,45,000 + ₹1,41,000 = ₹3,86,000
Capital Work-in-progress = Total Capital & Liabilities – Total Assets = ₹4,61,000 - ₹3,95,000 = ₹66,000.

(b) Usefulness of Trend Ratios:

(i) It shows the trend of items with passage of time.

(ii) It shows the nature and rate of movement of various financial factors.

(iii) It shows horizontal and vertical analysis to reflect the behaviour of various financial items with passage of time.

(iv) It helps in estimating the financial factor in future.

Question 4.

(a) From the following particulars of Teen Ltd. compute the value of Z and comment on the sickness of the company:
Share capital (consisting of 10,000 shares of ₹10 each) — ₹1,00,000.
Reserve & Surplus — ₹50,000
Outstanding expenses — ₹65,000
Sundry creditors — ₹85,000
8% Debenture — ₹2,60,000
Fixed assets — ₹4,10,000
Inventory — ₹40,000
Book debts — ₹60,000
Cash at bank — ₹50,000
Market value per share — ₹13.50
EBIT — ₹1,50,000

(b) Which factors are responsible for changes in income?

[7+3]

Answer:

(a) 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 $= \frac{0}{5,60,000} = 0$

X_2 = Retained Earnings to Total Assets $= \frac{₹50,000}{₹5,60,000} = 0.089$

X_3 = EBIT to Total Assets $= \frac{₹1,50,000}{₹5,60,000} = 0.268$

X_4 = Market Value of Equity and Preference Shares to Book Value of Total Debt

$= \frac{₹1,35,000}{₹4,10,000} = 0.329$

X_5 = Sales to Total Assets $= \frac{₹7,50,000}{₹5,60,000} = 1.339$

Hence, Z-score = (1.2 × 0) + (1.4 × 0.089) + (3.3 × 0.268) + (0.6 × 0.329) + (1 × 1.339)
= 0 + 0.1246 + 0.8844 + 0.1974 + 1.339 = 2.5454

Notes:

1. **Calculation of Working Capital**
   Working Capital = Current Assets - Current Liabilities
   Here, Working Capital = (Inventory + Book Debts + Cash at Bank) - (Sundry Creditors + Outstanding Expenses)

= ₹ [(40,000 + 60,000 + 50,000) - (85,000 + 65,000)]
= 0.

2. Calculation of Total Assets
Total Assets = Fixed Assets + Current Assets
Here, Total Assets = ₹ [4,10,000 + (40,000 + 60,000 + 50,000)] = ₹ 5,60,000

3. Calculation of Retained Earnings
Retained Earnings = Reserves & Surplus = ₹ 50,000

4. Calculation of Market Value of Equity
Market Value of Equity Shares = 10,000 shares x ₹13.50 = ₹1,35,000

5. Calculation of Book Value of Total Debts
Book Value of Total Debts = Long-term Debts + Current Liabilities
Here, Book Value of Total Debts = 8% Debentures + (Sundry Creditors + Outstanding Expenses)
= ₹ [2,60,000 + (85,000 + 65,000)] = ₹4,10,000

6. Calculation of Sales
As the question is silent about the rate of percentage of profit on sales, we assume it as 20% on sales; otherwise it would be followed as per the question.
EBIT = Operating Profit = ₹1,50,000
Here, Operating Profit = 20% on Sales = ₹ 1,50,000
Hence, Sales = 100/20 × ₹ 1,50,000 = ₹ 7,50,000

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.

(b) For any or all of the following factors, income/profit of a firm changes:

A. Factors responsible for increase in income/profit are:
   i. Increase in sales volume
   ii. Increase in unit selling price
   iii. Decrease in unit cost price

B. Factors responsible for decrease in income/profit are:
   i. Decrease in sales volume
   ii. Decrease in unit selling price
   iii. Increase in unit cost price

Question 5.
Write a short on any two of the following:
(a) Du Pont Analysis
(b) Financial Modeling
(c) Quality of Earnings

[5+5]

Answer:

(a) Du Pont Analysis is a method of performance measurement that was started by the DuPont Corporation. The Du Pont analysis breaks down Return on Equity (that is, the returns that investors receive from the firm) into three distinct elements. This analysis enables the analyst to understand the source of superior (or inferior) return by comparison with companies in similar industries (or between industries). The Du Pont identity is less useful for industries, such as investment banking, in which the underlying elements are not meaningful. The company's return on assets, ROA (=net income/assets), can be expressed as:

ROA = (Net Income/Revenue) × (Revenue/Assets) = Profit Margin × Asset Turnover
And the company's return on equity, ROE (=net income/equity), can be expressed as
ROE = (Net Income/Revenue) × (Revenue/Assets) × (Assets/Equity) = ROA × Equity Multiplier

Both the company's profitability (as measured in terms of profit margin) and efficiency (as measured in terms of asset turnover) determine its ROA. This ROA, along with the company's financial leverage (as measured in terms of its equity multiplier), contributes to its ROE. The changes in the company's ROE are to be noted and explained through its profit margin, asset turnover, and equity multiplier over time. The objective is to identify the company's strong area that can be capitalized upon and/or its weak area that must be improved upon.

(b) Financial modeling is the task of building an abstract representation of a real world financial situation. This is a mathematical model designed to represent the performance of a financial asset or portfolio of a business, project or any other investment. This is the process by which a firm constructs a financial representation of some, or all, aspects of the firm or given security. The model is usually characterized by performing calculations, and makes recommendations based on that information. The model may also summarize particular events for the end user and provide direction regarding possible actions or alternatives.

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 models are not limited to profit making entities. Non-profits, governments, personal finances – all can be represented by financial models.

Attributes of a Good Model: A model is considered to be good if it has the following attributes—

(i) Realistic - Assumptions, relationships, and inputs must be realistic so that the outputs are useable.

(ii) Error Free - harder than it looks.

(iii) Flexible - This is a two edged sword. Develop the model to be easy and error free, then add elements of flexibility. Experience will tell you when a model gets too complicated and should be segregated into separate models for separate purposes.

(iv) Easy to use - Use clear labels and descriptions.

(v) Easy to understand - A financial model is only as good as the analyst using it.

Uses of Financial Modeling:

Financial modeling is used to do historical analysis of a company's performance, and to do projections of its financial performance into the future. Project finance is another area that lends itself to financial models. A project (such as a real estate investment or a new factory) can be analyzed using a financial model. It does not have to be complete business.

Financial Modeling is not just for the Accountant or Financial Consultant, who are called upon to develop financial projections, but also for business owners and managers. With improved user interfaces and heavy use of graphics, it is now feasible for non-technical people to use a financial model to test options and make decisions based on the projected impact on profits and cash flow.

(c) Quality of Earnings means the amount of earnings attributable to higher sales or lower costs rather than artificial profits created by accounting anomalies such as inflation of inventory. Quality of earnings is considered poor during times of high inflation. Also, earnings that are calculated conservatively are considered to have higher quality than those calculated by aggressive accounting policies.

It is to mean the degree to which management's choices of accounting estimates can affect reported income (these choices occur every period). For example: those who use the term in this manner judge an insurance company's earnings to be of low quality. The company's management must re-estimate its future payments to the insured, by period — and the estimates are made about long term imponderables, such as how long a person will live or future earnings on investments. Such estimates are difficult to quantify, which gives the company the opportunity to report a wide range of periodic earnings.

In the long run, net income should be about equal to cash flows because a company is normally in business in order to earn cash. The timing may be slightly different. That is, a company may get cash and subsequently do something to earn it or the company may earn revenues by delivering services or products and then later receive the cash. The closer the amount of net earnings is to the amount of cash flow in the short run, the higher the perception of the quality of earnings.

Another issue is the sustainability of earnings. Earnings are higher quality if they will be ongoing rather than just a blip on the screen. For example, a company may convince customers at year end to go on and stock up on their product. There may also be included the implied promise or assumption that the company will buy back the product some time after year end if necessary. The result is a surge in sales at year end that will likely not be repeated for quite a while. So earnings in the current year may be greater than earnings in the following year.

In addition to managing the timing of revenues and expenses, companies can engage in questionable transactions or poor business practices to boost revenues. Managers may extend credit to poor credit risks in order to boost sales; or they may postpone the write-down of obsolete inventory in order to avoid the charge against earnings; or they may engage in swaps of a product or service in order to increase revenue from sale of a product to another company and increase assets from purchase of the same product from the other party.

Section B – Business Valuation

(Full Marks: 50)

Answer Question no.6 and 7 and any two from the rest in this section.

6. The balance sheet of Ramana Ltd. for the years ended on 31.03.2010, 31.03.2011 and 31.03.2012 are as follows:

₹

Liabilities	31.03.2010	31.03.2011	31.03.2012
3,20,000 equity shares of ₹ 10 each fully paid	32,00,000	32,00,000	32,00,000
General Reserves	24,00,000	28,00,000	32,00,000
Profit and Loss account	2,80,000	3,20,000	4,80,000
Creditors	12,00,000	16,00,000	20,00,000
Total	**70,80,000**	**79,20,000**	**88,80,000**

₹

Assets	31.03.2010	31.03.2011	31.03.2012
Goodwill	20,00,000	16,00,000	12,00,000
Building and Machinery (Less: Depreciation)	28,00,000	32,00,000	32,00,000
Stock	20,00,000	24,00,000	28,00,000
Debtors	40,000	3,20,000	8,80,000
Bank Balance	2,40,000	4,00,000	8,00,000
Total	**70,80,000**	**79,20,000**	**88,80,000**

Actual valuations were as under:

₹

	31.03.2010	31.03.2011	31.03.2012
Building and Machinery	36,00,000	40,00,000	44,00,000
Stock	24,00,000	28,00,000	32,00,000
Net profit (including opening balance) After writing off depreciation and goodwill, tax provision and transfer to general reserve	8,40,000	12,40,000	16,40,000

Capital employed in the business at market values at the beginning of 2009-2010 was ₹ 73,20,000, which included the cost of goodwill. The normal annual return on average capital employed in the line of business engaged by Ramana Ltd. is 12.5%.

The balance in the general reserve account on 1st April, 2009 was ₹ 20 lakhs.

The goodwill shown on 31.3.2010 was purchased on 1.4.2009 for ₹ 20,00,000, on which date the balance in the profit and loss account was ₹ 2,40,000. Find out the average capital employed each year.

Goodwill is to be valued at 5 years purchase of super profits (simple average method)

Also find out the total value of the business as on 31.03.2012 **[15]**

Answer: **Valuation of Business**

Particulars	₹
a. Net assets as on 31.03.2002 excluding goodwill [₹ 84,80,000 (WN #1(i) - ₹ 12,00,000]	72,80,000
b. Add: Goodwill (WN # 2)	41,12,500
c. **Value of Business(a+b)**	1,13,92,500

Working Notes:

WN # 1: Computation of average capital employed ₹

Particulars	31.03.2010	31.03.2011	31.03.2012
A. Assets			
a. Goodwill	20,00,000	16,00,000	12,00,000
b. Building and Machinery (revalued)	36,00,000	40,00,000	44,00,000
c. Stock (revalued)	24,00,000	28,00,000	32,00,000
d. Debtors	40,000	3,20,000	8,80,000
e. Bank balance	2,40,000	4,00,000	8,00,000
f. Total assets	82,80,000	91,20,000	1,04,80,000
B. Liabilities			
Less: Creditors	(12,00,000)	(16,00,000)	(20,00,000)
C. Closing Capital Employed	70,80,000	75,20,000	84,80,000
D. Opening Capital Employed	73,20,000	70,80,000	75,20,000
E. Average capital employed [(C+D)/2]	72,00,000	73,00,000	80,00,000

WN # 2: Computation of Goodwill

₹

Particulars	31.03.2010	31.03.2011	31.03.2012
i. Net profit as given	8,40,000	12,40,000	16,40,000
ii. Less: Opening balance	2,40,000	2,80,000	3,20,000
Adjustment for valuation in opening stock	-	4,00,000	4,00,000
	6,00,000	5,60,000	9,20,000
iii. Add: Under Valuation of closing stock	4,00,000	4,00,000	4,00,000

	Goodwill written off	-	4,00,000	4,00,000
	Transfer to reserves	4,00,000	4,00,000	4,00,000
iv.	Future maintainable profit	14,00,000	17,60,000	21,20,000
v.	Normal profit (12.5% NRR on capital employed)	9,00,000	9,12,500	10,00,000
vi.	Super Profit(d-e)	5,00,000	8,47,500	11,20,000
vii.	Average super profit		8,22,500	
viii.	Number of years of purchase		5 Years	
ix.	Goodwill(f×g)		41,12,500	

7. The Balance Sheet of Sajjan Private Ltd. discloses the following position on 31st December, 2012.

Liabilities	₹	Assets	₹
Share Capital:		Land and Buildings	3,00,000
Subscribed		Plant and Machinery	4,00,000
20,000 5% preference shares		Stock	2,00,000
of ₹10each fully paid	2,00,000	Sundry debtors	2,00,000
30,000 ordinary shares of ₹ 10		Cash at bank	1,00,000
each fully paid	3,00,000		
	5,00,000		
General Reserve	2,00,000		
Profit and Loss	50,000		
Trade Creditors	4,50,000		
	12,00,000		**12,00,000**

It is proposed to convert Sajjan Private Ltd. into a public limited company and for this purpose you are asked to value the goodwill of Sajjan Private Ltd.

The following additional information is supplied to you.

a) Sajjan Private Ltd. was incorporated on 1st January, 1994 and its first accounts were made upto 31st December, 2004.
b) It manufactures abrasive materials involving technical skill and it has engaged two foreign consultants since 2004.
c) No provision for taxation is required.
d) The fixed assets of the company have been adequately depreciated.
e) The present market value of its land and building is ₹ 5,00,000 and of plant and machinery ₹ 6,00,000.
f) The profits and losses of the company for the last 3 years after charging depreciation and taxation have been as follows.

Year	₹
2010	1,01,000
2011	1,50,000
2012	1,69,000

g) The sales of the company during last 3 years were ₹ 12,99,000, ₹13,77,000 and ₹ 18,22,000.

The reasonable return on capital invested in the class of business carried on by Sajjan Private Ltd. is 10 percent.

It may be assumed that the company will be able to maintain its profits for the next few years on the same level as in the past. Wherever appropriate, you may make further suitable assumption. **[15]**

Answer: **Valuation of goodwill – Capitalisation method**

Particulars	₹
a. Future maintainable profit [WN # 2(d)]	1,40,000
b. Normal rate of return	10%
c. Normal capital employed – capitalization of future maintainable profit $\left(1{,}40{,}000 \times \frac{100}{10}\right)$	14,00,000 11,50,000
d. Capital employed (WN #1)	**2,50,000**
e. Goodwill (c-d)	

Working Notes:

WN # 1: Computation of capital employed

Particulars	₹	₹
a. Assets		
i. Land and buildings	5,00,000	
ii. Plant and Machinery	6,00,000	
iii. Stock	2,00,000	
iv. Sundry debtors	2,00,000	
v. Bank balance	1,00,000	16,00,000
b. Less : Liabilities		
i. Trade creditors		(4,50,000)
c. Capital employed (a-b)		11,50,000

WN # 2: Computation of future maintainable profits

Particulars	2010 ₹	2010 ₹	2012 ₹
a. Profits	1,01,000	1,50,000	1,69,000
b. Sales	12,99,000	13,77,000	18,22,000
c. Percentage of profit on sale $\left(\text{i.e.}\ \frac{a}{b} \times 100\right)$	7.78%	10.89%	9.28%

Profit as a percentage of sales shows oscillating trend over the years. So, simple average of the last three year's profits should be taken as future maintainable profit.

The annual average profits of the company (after charging depreciation and taxation) for the past 3 years amount to ₹ 1,40,000.
[(1,01,000+1,50,000+1,69,000)÷3]

8. Following are the information of two companies for the year ended 31st March, 2013.

₹

Particulars	Company X	Company Y
Equity shares of ₹ 10 each	8,00,000	10,00,000
10% Preference shares of ₹ 10 each	6,00,000	4,00,000
Profit after tax	3,00,000	3,00,000

Assume that the market expectation is 18% and 80% of the profits are distributed

i. What is the rate you would pay to the equity shares of each company?
   a. If you are buing a small lot.
   b. If you are buying controlling interest shares.

ii. If you plan to invest only in preference shares, which company's preference shares would you invest?

iii. Would your rates be different for buying small lot, if the company 'X' retains 30% and company 'Y' 10% of the profits? **[4+3+3=10]**

Answer:

(A) In Case of Valuation of Small Investments:

Where future dividend receivable is the major consideration, the appropriate method is "Dividend Capitalization Approach"

1. Ascertainment of equity dividend amount per share.

₹

Particulars	Company X	Company Y
a. Profit after tax	3,00,000	3,00,000
b. Less: Prefence dividend	(60,000)	(40,000)
c. Profit available to equity shareholders	2,40,000	2,60,000
d. % of profits distributed	80%	80%
e. Dividend distributed	1,92,000	2,08,000
f. Number of equity shares	80,000	1,00,000
g. Dividend per share of ₹ 10 each (e/f)	2.40	2.08

2. Determination of Normal Rate of Return:

Normal Rate of Return = 18%
(Refer Note 1)

3. Value of Share

₹

Particulars	Company X	Company Y
a. Dividend per share	2.40	2.08
b. Normal Rate of Return	18%	18%
c. Amount payable for each share	13.33	11.56

(B) If you are Buying Controlling Interest

The relevant method for determining the value payable for each company is "Earnings Capitalisation Approach"

₹

Particulars	Company X	Company Y
a. Profit available to equity shareholders	2,40,000	2,60,000
b. Number of shares outstanding	80,000	1,00,000
c. Earnings per share	3.00	2.60
d. Normal rate of return (Refer Note)	18%	18%
e. Amount payable per share	16.67	14.44

Note: In the absence of market information, expectation has been assumed to be the NRR.

(C) Investment in Preference Shares

The decision to invest should be based on preference dividend coverage ratio.

₹

Particulars	Company X	Company Y
a. Profit after tax	3,00,000	3,00,000
b. Preference dividend	60,000	40,000
c. Coverage ratio (A/B)	5 times	7.5 times

Company Y has better coverage than company X and hence investment can be made in Company Y.

(D) Value of Equity Share

If the retention ratio differs

The rate for purchase of small lots is driven by the retention ratio of the company. Hence any change in retention ratio would have an impact on the rate offered.

₹

Particulars	Company X	Company Y
a. Profit available to equity shareholders	2,40,000	2,60,000
b. % of profits retained	30%	10%
c. Dividend distributed [(2,40,000×70%); (2,60,000 × 90%)	1,68,000	2,34,000
d. Number of shares outstanding	80,000	1,00,000
e. Dividend per share (c/d)	2.10	2.34
f. Normal rate of return	18%	18%
g. Rate can be offered	11.67	13.00

Note: **1.** The normal rate of return for dividend capitalization method and equity capitalization method will not be the same unless 100% of profits are distributed.

2. Due to non-availability of information regarding market value of assets, the same normal rate of return has been adopted for both methods.

9. **(a)** "There may be cases where Cash Flow Return on Investment increases while reducing Firm Value."
Discuss this statement, giving two examples.

(b) Explain the difference between financial and operating synergy? **[5+5=10]**

Answer:

(a)

Simultaneous increase in CFROI and decrease in Firm Value:

Managers of a firm can take actions that increase cash flow return on investment (CFROI) while reducing firm value. Actions that underlie such a situation include:

1. **Reduce Gross Investment:** If the gross investment in existing assets is reduced, the CFROI may be increased. Since it is the product of CFROI and Gross Investment that determined value, it is possible for a firm to increase CFROI and end up with a lower value.
2. **Sacrifice Future Growth:** CFROI is focused on existing assets (in fact, it is more than EVA) and does not look at future growth. To the extent that managers increase CFROI at the expense of future growth, the value effect of having a higher cost of capital dominates the higher CFROI.
3. **The Risk Tradeoff:** While the CFROI is compared to the real cost of capital to pass judgment on whether a firm is creating or destroying value, it represents only a partial correction for risk. The value of a firm is still the present value of expected future cash flows. Thus, a firm can increase its spread between the CFROI and the cost of capital but still end up losing value if the present value effect of having a higher cost of capital dominates the higher CFROI.

In general, then, an increase in CFROI does not, by itself, indicate that the firm value has increased since it might have come at the expense of lower growth and/or higher risk.

(b)

Financial Synergy- It refers to

(i) Better use of excess cash,
(ii) A greater tax benefit from accumulated loss,
(iii) Tax deductions, and
(iv) An increase in debt-equity with scope for increase in firm's value.

Operating Synergy- This is the increase in the value that accrues to a combined firm either from economies of scale or from increased sales /

profits and from some exploitable opportunities like raising prices, cutting corporate overhead and eliminating waste.

10. Halfway online, an interest service provider has 1million existing subscribers. Each subscriber is expected to remain for 3 years. Halfway experts to generate ₹ 100 net after-tax cash flow (subscription revenue minus costs of providing service) per subscriber each year. Halfway has a cost of capital of 15%. Furthermore, assume that Halfway expects to add 1,00,000 subscribers each year for the next 10 years and that the value added by each subscriber will grow from the current level at the inflation rate of 3% every year. The cost of adding a new subscriber is ₹ 100 currently, assumed to be growing at the inflation rate.

Based on the information given, find out the value of the firm and the value per existing subscriber.

(Note: ₹ 1 million = ₹ 10,00,000) **[10]**

Answer:

$$\text{Value per subscriber} = 100 \times \left[\frac{1-(.15)^{-3}}{0.15}\right]$$

$$= 100 \times 2.2832 = ₹\ 228.32$$

Value of existing subscriber base = 1m × ₹ 228.32
= ₹228.32 million

Year	Value added per subscriber ₹	Cost of acquiring subscriber ₹	Net value added ₹	Number of subscribers added	PV at 15% ₹
(i)	(ii)	(iii)	(iv)= (ii)-(iii)	(v)	(vi)= {(iv)×(v)} ×PV at 15%
1	235.17	103.00	132.17	1,00,000	11,493,043
2	242.23	106.09	136.14	1,00,000	10,294,144
3	249.49	109.27	140.22	1,00,000	9,219,689
4	256.98	112.55	144.43	1,00,000	8,257,829
5	264.69	115.93	148.76	1,00,000	7,396,005
6	272.63	119.41	153.22	1,00,000	6,624,130
7	280.81	122.99	157.82	1,00,000	5,933,038
8	289.23	126.68	162.55	1,00,000	5,313,760
9	297.91	130.48	167.43	1,00,000	4,759,399
10	306.85	134.39	172.46	1,00,000	4,262,953
					73,553,989

The cumulative value added by new subscribers is ₹ 73.55 million.

Value of Firm = Value of existing subscribers base + value added by new customers
= ₹ 228.32 m +₹ 73.55 m = ₹301.87 million

Value per existing subscriber = Value of firm/number of subscribers
= ₹ 301.87 million/ 1million
= ₹301.87 per subscriber.

Working notes:

1. Value added per subscriber at end of yea
= ₹228.32 + 3% of ₹228.32 = ₹ 235.17 [and so on for later yrs]

2. PV at 15% to be worked out from present value tables. i.e.

Year	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
PV at 15%	0.869565	0.756144	0.657516	0.571753	0.497177	0.432328	0.375937	0.326900	0.284262	0.247185