STRATEGIC PERFORMANCE MANAGEMENT AND BUSINESS VALUATION

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

The figures in the margin on the right side indicate full marks.

SECTION – A (Compulsory)

1. Choose the correct option: **[15 x 2 = 30]**

(i) **According to Altman's z-score model (1968), calculate the value of X_5 from the following information:**
Total assets – 10,00,000
Retained earnings – 4,00,000
Sales – 12,00,000
Working capital – 10,00,000.
(a) 1
(b) 1.2
(c) 0.4
(d) 0.83

(ii) **Given the following information for a business:**
Asset turnover = 3.50
Equity multiplier = 1.00
Return on equity = 30%
Using the DuPont analysis, the net profit margin is ___________
(a) 8.57%
(b) 5.87%
(c) 7.65%
(d) 6.75%

(iii) **Which one of the following is not a measure related to Balanced Score Card?**
(a) Financial
(b) Customer Satisfaction
(c) Internal Processes
(d) Gap Analysis

(iv) **The Cost function of a firm is given by $C = x^3 - 4x^2 + 7x$. Find at what level of output the average cost is minimum and what would be the minimum average cost.**
(a) 2,3

(b) 4,5
(c) 1,4
(d) None of the above

(v) In which discipline supply chain concept was originated?
(a) Production
(b) Operation
(c) Marketing
(d) Logistics

(vi) Small/Mid-sized Six Sigma projects are executed by professionals titled as:
(a) Champion
(b) Green Belt
(c) Black Belt
(d) Site Champion

(vii) Unique risk is also referred as:
(a) Systematic risk
(b) Operational risk
(c) Default risk
(d) Non-systematic risk

(viii) Assume that the following details are given for a company: Sales- ₹ 1,00,000; Costs - ₹ 75,000; Depreciation- ₹ 20,000; Tax- 35%; Change in Net Working Capital- ₹1,000; Change in Capital Spending- ₹ 10,000. The Free Cash Flow to Firm (FCFF) for the given data would be:
(a) ₹ 10,000
(b) ₹ 12,250
(c) ₹ 13,500
(d) ₹ 15,000

(ix) X Ltd.'s share beta factor is 1.40. The risk free rate of interest on government securities is 9%. The expected rate of return on the company equity shares is 16%. The cost of equity capital based on CAPM is:
(a) 15.8%
(b) 16%
(c) 18.8%
(d) 9%

(x) If a company has a P/E ratio of 12 and a Market to Book Value Ratio 2.10, then its Return on Equity will be:

(a) 14.10%
(b) 17.50%
(c) 25.20%
(d) None of the above

(xi) A firm current assets and current liabilities are ₹ 1,600 and ₹ 1,000 respectively. How much can it borrow on a short-term basis without reducing the current ratio below 1.25?

(a) ₹ 1,000
(b) ₹ 1,200
(c) ₹ 1,400
(d) ₹ 1,600

(xii) Which Act is responsible for entrusting the Asset Reconstruction Companies (ARCs) for raising funds by issuing security receipts to the set of qualified buyers?

(a) SARFAESI Act
(b) Banking regulation act 1949
(c) SEBI Act 1992
(d) Companies Act 2013

(xiii) Which of the followings is not the core principle of valuation?

(a) Ethics
(b) Perception
(c) Compliance
(d) Data

(xiv) 8% bond of Face Value ₹ 100 is selling for ₹ 96. What would be its Current Yield?

(a) 8%
(b) 12%
(c) 8.33%
(d) None of the above

(xv) If the Value of target Co. is ₹ 500 Million and the value of acquiring company is ₹800 Million. Present value of cost savings if the two companies are merged together is ₹ 100 million. Acquiring company expects the cost of integration as ₹80 million and the shareholders of Target Co. are expecting a deal premium

to be paid of 15 percent over their company's value. What is the value of Combined entity?

(a) ₹ 1400 million

(b) ₹ 1345 million

(c) ₹ 1445 million

(d) ₹ 1540 million

Answer:

(i) (b)
(ii) (a)
(iii) (d)
(iv) (a)
(v) (c)
(vi) (b)
(vii) (d)
(viii) (b)
(ix) (c)
(x) (b)
(xi) (b)
(xii) (a)
(xiii) (b)
(xiv) (c)
(xv) (a)

SECTION – B

(Answer any five questions out of seven questions given. Each question carries 14 Marks.)

2. (a) Describe Customer Relationship Management (CRM). List the advantages and benefits of 'Customer Relationship Management'. [7]

(b) "In order to encompass new drivers of future financial performance, BSC introduces customer, internal-business-process, and learning and growth perspectives for translation of the organization's strategy into tangible objectives and measures." — Explain the four perspectives of Balanced Scorecard (BSC). [7]

Answer:

(a) Customer Relationship Management (CRM): It is a business strategy comprised of process, organizational and technical change whereby a company seeks to better manage its enterprise around its customer behaviours. It entails acquiring and deploying knowledge about customers and using this information across the various customers touch points to increase revenue and achieve cost reduction through operational efficiencies.

The adoption of CRM is being fuelled by recognition that long-term relationships with customers are one of the most important assets of an organization. CRM entails all aspects of interaction that a company has with its customer, whether it is sales or service related.

CRM is often thought of as business strategy that enables businesses to:

- Understand the customer
- Retain customers through better customer experience
- Attract new customer
- Win new clients and contracts
- Increase profitability
- Decrease customer management costs

CRM is an integrated approach to identifying, acquiring and retaining customers. By enabling organizations to manage and coordinate customer interactions across multiple channels, departments, lines of business and geographies, CRM helps organizations maximize the value of every customer interaction and drive superior corporate performance.

Advantages and benefits of CRM: The following are some of the advantages and benefits of CRM:

- satisfied customer does not consider leaving
- Product Development can be defined according to current customer needs
- a rapid increase in quality of products and services.
- the ability to sell more products
- optimization of communication costs
- trouble-free run of business processes
- fast and reliable predictions
- increase effectiveness of team work
- increase in staff motivation
- real time access to information
- more time for customers
- better communication between Marketing, Sales and Services.

(b) The Balanced Scorecard (BSC) model embraces four perspectives for measurement of organizational performance which are (1) Financial, (2) Customers, (3) Internal Business Process, and (4) Learning and Growth. The four perspectives are presented as follows:

1. Financial: The financial perspective serves as the focus for the objectives and measures for the objectives and measures in the other scorecard perspectives. This perspective is concerned for profit of the enterprises. Under this perspective the focus will be on financial measures like operating profit, ROI, residual income, economic value added concept, revenue growth, cost reduction, asset utilization etc. These financial measures

will provide feedback on whether improved operational performance is being translated into improved financial performance.

2. Customer: This perspective captures the ability of the organization to provide quality goods and services, the effectiveness of their delivery, and overall customer service and satisfaction. Needs and desires of customers have to be attended properly because customer pay for the organization's cost and provided for its profits. This perspective typically includes several core or genetic measures that relate to customer loyalty and the result of the strategy in the targeted segment. They include market share, customer retention, new customer acquisition, customer satisfaction and customer profitability.

3. Internal Business Processes: This perspective focuses on the internal business results that lead to financial success and satisfied customer. To meet organizational objectives and customers' expectations, organizations must identify the key business processes at which they must excel. Key processes are monitored to ensure that outcomes will be satisfactory. The principal internal business processes include the following: (a) Innovation processes for exploring the needs of the customers. (b) Operation processes with a view to providing efficient, consistent and timely delivery of product/ service. (c) Post service sales processes.

4. Learning and Growth: This perspective looks at the ability of employees, the quality of information systems, and the effects of organizational alignment in supporting accomplishment of organizational goals. Processes will only succeed if adequately skilled and motivated employees, supplied with accurate and timely information, are driving them. In order to meet changing requirements and customer expectations, employees may be asked to take on dramatically new responsibilities, and may require skills, capabilities, technologies, and organizational designs that were not available before. The learning and growth perspective identifies the infrastructure that the business must build to create long-term growth and improvement. There will be focus on factors like employee capability, employee productivity, employee satisfaction, employee retention.

3. (a) A manufacturer can sell 'Q' items ($Q > 0$) at a price of ($330 – Q$) each; the cost of producing Q items is TC (Q) = $Q^2 + 10Q + 12$. Compute how many items should he sell to make the profit maximum? Also determine the maximum profit. [7]

(b) Interpret the essence of Enterprise Risk Management (ERM). Summarize the actual need for implementing ERM. [7]

Answer:

(a) Given, Price (P) = 330 – Q and Cost (c) = Q^2 + 10Q +12 and Q ≥ 0

Revenue (R) = P × Q = 330Q – Q2

Profit (π) = R – C = 330Q – Q^2 – (Q^2 + 10Q +12)

π = 330Q – Q2 – Q2 - 10Q -12

π = 320Q – $2Q^2$ -12

In order to maximize the profit, the two steps are followed:

$\frac{d\pi}{dQ}$ = 320 - 4Q = 0 (setting the first order derivative equal to zero).

Thus, at Q = $\frac{320}{4}$ = 80, which is the critical point of the profit function. Thus the second order condition is taken up.

= $\frac{d^2\pi}{dQ^2}$ = - 4 which is negative

Therefore, the profit is maximum at Q = 80 and the maximum profit is calculated as;

π = 320Q – $2Q^2$ -12

π = 320 (80) – $2(80)^2$ -12

π = 12788.

(b) The Enterprise Risk Management (ERM) is defined as "a process, affected by an entity's Board of Directors, management and other personnel, applied in strategy setting and across the enterprise, designed to identify potential events that may affect the entity and manage risk to be within its risk appetite, to provide reasonable assurance regarding the achievement of entity objectives". It is a structured and embedded approach that supports the alignment of strategy, processes, people, technology, and knowledge with the purpose of evaluating and managing the uncertainties an organization faces as it creates value. In so doing equip the organization with quality management information to make decisions more effectively and with more confidence."

The essence of ERM is built around the pragmatic use of risk management as an effective management tool and to be a significant driver of value. In today's economic climate, the demand for a more comprehensive approach to risk management to ensure that risks and opportunities are systematically identified and the risk responses are developed has never been more critical.

ERM is about designing and implementing capabilities for managing the risks that matter. The greater the gaps in the current state and the desired future state of the organizations risk management capabilities, the greater the need for ERM infrastructure to facilitate the advancement of risk management capabilities over time. ERM is about establishing the oversight, control and discipline to drive continuous improvement of an entity's risk management capabilities in a changing operating environment.

ERM deals with risk and opportunities affecting value creation or preservation. ERM is a comprehensive and integrated approach to addressing corporate risk. ERM enables management to effectively deal with uncertainty and associated risk and opportunity, enhancing the capacity to build value.

Need for Implementation of ERM:
ERM needs to be implemented for the following reasons:
(1) Reduce unacceptable performance variability.
(2) Align and integrate varying views of risk management.
(3) Build confidence of investment community and stakeholders.
(4) Enhance corporate governance.
(5) Successfully respond to a changing business environment.
(6) Align strategy and corporate culture.

Traditional risk management approaches are focused on protecting the tangible assets reported on a company's Balance Sheet and the related contractual rights and obligations. The emphasis of ERM, however, is on enhancing business strategy. The scope and application of ERM is much broader than protecting physical and financial assets. With an ERM approach, the scope of risk management is enterprise-wide and the application of risk management is targeted to enhancing as well as protecting the unique combination of tangible and intangible assets comprising the organization's business model.

4. (a) Describe (with formula) the Five Component DuPont Analysis. [7]

(b) Using Altman's Model (1968) of Corporate Distress Prediction, calculate the Z-score of S & Co. Ltd., whose five accounting ratios are given as below and comment on its financial position. The five variables are:
(i) Working Capital to Total Assets = 25%
(ii) Retained Earnings to Total Assets = 30%
(iii) EBIT to Total Assets = 15%
(iv) Market Value of Equity Shares to Book Value of Total Debt =150%
(v) Sales to Total Assets = 2 times. [7]

Answer:

(a) The 5 –component DuPont analysis is an extension of the original model of DuPont Analysis. In this case, the ROE is segregated into five components which provide information on five aspects of profitability.

The identity is presented as;

ROE = Operational Efficiency × Interest Burden on Earnings × Tax burden on earnings × Asset Utilization × equity multiplier (Financial leverage).

The impact of operational efficiency (measured in terms of net margin), asset utilization (measured in terms of asset turnover) and financial leverage (measured in terms of the equity multiplier) is comprehended in 3 component analysis. Two additional aspects; the effect of interest on earning and the effect of tax on earnings, which are also the components of ROE, are deliberated in the 5 –component analysis.

The above identity is represented through five ratios, given below:

$$ROE = \frac{EBIT}{Sales} \times \frac{EBT}{EBIT} \times \frac{EAT}{EBT} \times \frac{Sales}{TotalAssets} \times \frac{TotalAssets}{Equity}$$

- (EBIT ÷ Sales) - this is approximation of the net margin. Here earnings before interest and taxed (EBIT) is used as an approximation of the net profit. EBIT is calculated by adjusting net profit. This shows the operational efficiency of the firm.
- (EBT÷EBIT) – this component is an addition in the 5 – component framework as compared to 3 component analysis. Earnings before Taxes (EBT) is mapped against the EBIT. This component shows the impact of interest burden on the earnings of the firm. If this ratio is one, it implies zero interest burden which further implies that there is no debt in the capital structure (all equity firm).
- (EAT÷EBT) –this is the third component in the 5 – component framework. Earnings after taxes (EAT) is mapped against EBT. This component shows the impact of tax burden on the earnings of the firm.
- (Sales ÷ Total Assets) - The asset turnover is a measure of productivity which measures how efficiently a company uses its assets to generate sales. The ratio of asset turnover measures the sales generated in terms of the asset base of the company. The issue of asset utilization is addressed in this ratio.
- (Total Assets ÷ Equity) – This ratio is referred as the equity multiplier and is an approximation of the financial leverage. If the ratio is one, it implies that all of the assets is sourced from equity and there is no debt component.

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

$Z = 1.2\ x_1 + 1.4x_2 + 3.3\ x_3 + 0.6x_4 + 1.0\ x_5$

Given 5 variables are:

x_1 = Working Capital to Total Assets = 25%

x_2 = Retained earnings to total Assets = 30%

x_3 = EBIT to Total Assets = 15%
x_4 = Market Value of Equity Shares to Book Value of Total Debts = 150%
x_5 = Sales to Total Assets = 2 times
Hence, Z -score = (1.2 × 25%) + (1.4 × 30%) + (3.3 ×15%) + (0.6 ×150%) + (1×2)
= 0.30 + 0.42 + 0.495 + 0.90 + 2.00 = 4.115.

Comments on the Financial position: As the calculated value of Z-score is much higher than 2.99, it can be strongly predicted that the company is a non-bankrupt company.

5. (a) Umang Ltd. has announced issue of warrants on 1:1 basis for its equity shareholders. The current price of the stock ₹ 10 and warrants are convertible at an exercise price of ₹ 11.71 per share. Warrants are detachable and are trading at ₹3. Compute the minimum price of the warrant and the warrant premium.
Now had the current price been ₹ 16.375, calculate the minimum price and warrant premium? (Consider warrants are tradable at ₹ 9.75). [7]

(b) There is a privately held company XYZ Pvt. Ltd. that is operating into the retail space, and is now scouting for angel investors. The details pertinent to valuing XYZ Pvt. Ltd. are as follows:

The company has achieved break even this year and has an EBITDA of ₹ 90 crores. The beta based on the industry in which it operates is 1.8, and the average debt to equity ratio is hovering at 40:60. The rate of return provided by liquid bonds is 5%. The EV is to be taken at a multiple of 5 on EBITDA. The accountant has informed that the EBITDA of ₹ 90 crore includes an extraordinary gain of ₹ 10 crore for the year, and a potential write off of preliminary sales promotion costs of ₹ 20 crore are still pending. The internal assessment of rate of market return for the industry is 11%. The FCFs for the next 3 years are as follows:

	Y1	Y2	Y3
Future cash flows (₹ In Crore)	**100**	**120**	**150**

The cost of debt will be 12%. Assume a tax regime of 30%. Calculate the potential value to be placed on XYZ Pvt. Ltd. [7]

Answer:

(a) Minimum Price= (Market Price of Common Stock- Exercise Price) × Exchange Ratio

= ₹ (10.00 – 11.71) × 1.0 = ₹1.71

Thus, the minimum price on this warrant is considered to be zero, because things simply do not sell for negative prices.

Warrant premium = Market price of warrant- Minimum price of warrant = ₹ 3 – 0 = ₹3.

Minimum price = (Market price of common stock- Exercise price) × (Exercise ratio)

= ₹(16.375- 11.71) × 1.0

= ₹4.665

Warrant premium= Market price of warrant- Minimum price of warrant

= ₹(9.75- 4.665) = ₹5.085.

(b) The beta is 1.8.

The adjusted EBITDA would be ₹ (90 -10 – 20) crores = ₹60 crores.

The EV will be multiple of 5 of ₹60 crores obtained above = ₹300 crore.

The Cost of equity in accordance with CAPM = $R_f + \beta(R_m - R_f)$

= 0.05 + 1.8 (0.11 – 0.05) = 0.158 or 15.8%

The WACC = Cost of Equity + Cost of Debt

= 15.8 (60/100) +12.0 (1-0.3) (40/100)

= 12.84%.

Finally, the future cash flows can be discounted at the WACC obtained above as under-

(₹ in crores)

	Y1	Y2	Y3
Future Cash flows	100	120	150
Discount factor	0.89	0.79	0.70
PVs of cash flows	89	95	105
Value of the Firm			289

Discount factor, Year 1 = (100/112.84) = 0.89

Year 2 = $(100/112.84)^2$ = 0.79

Year 3 = $(100/112.84)^3$ = 0.70.

6. (a) PS Combines Ltd. furnishes the following information relating to the previous three years, and requests you to compute the value of the brand of the Company —

(₹ in Lakhs)

Particulars	**2020**	**2021**	**2022**
Profits Before Interest and Tax	**75.00**	**85.25**	**150.00**

Loss on Sale of Assets	3.00	---	18.00
Non-Operating Income	12.00	7.25	8.00

Inflation was 9% for 2020 and 15% for 2021. If the capitalization factor considering internal and external value drivers to the brand is 14, determine the brand value. Assume an all-inclusive future tax rate of 35%. [7]

(b) From the following information concerning Nebula Ltd., compute EVA for the year ended 31st March 2023:

Summarized Profit and Loss Account for the year ended 31st March 2023

Particulars	Amount (₹)	Amount (₹)
Sales		20,00,000
Cost of goods sold		12,00,000
Gross Profit		8,00,000
Expenses:		
General	2,00,000	
Office and administration	2,50,000	
Selling and distribution	64,000	5,14,000
Profit before interest and tax (PBIT)		2,86,000
Interest	36,000	36,000
Profit before tax (PBT)		2,50,000
Tax 40%		1,00,000
Profit after tax		1,50,000

Summarized Balance Sheet as on 31st March 2023

Particulars	2023 (₹)
Equity and Liabilities:	
Shareholders' Funds:	
Share Capital	2,40,000
Reserves and Surplus	1,60,000
	4,00,000
Non-Current Liabilities:	
Long-Term Borrowings	2,40,000
	2,40,000
Current Liabilities	
Trade payables	1,60,000
	1,60,000

Total	**8,00,000**
Assets:	
Non-Current Assets	
Fixed Assets:	
Tangible Assets	**6,00,000**
	6,00,000
Current Assets	
Inventories	**1,20,000**
Trade Receivables	**60,000**
Cash and Bank Balances	**20,000**
	2,00,000
Total	**8,00,000**

Other particulars:

(i) Cost of goods includes depreciation expenses of ₹ 60,000.

(ii) The expectation return of shareholders is 12%. **[7]**

Answer:

(a) (₹in Lakhs)

Particulars	2020	2021	2022
Profits Before Interest and Tax	75.00	85.25	150.00
Add: Loss on Sale of Assets	3.00	---	18.00
Less: Non-Operating Income	(12.00)	(7.25)	(8.00)
Branded Earnings	66.00	78.00	160.00
Inflation Adjustment Factor	1.09 × 1.15 = 1.25	1.15	1.00
Inflation Adjusted Earnings as at 31.12.2022	82.50	89.70	160.00
Weights	1	2	3
Product	82.50	179.40	480.00
Weighted Average Earnings Before Tax [(82.50 + 179.40 +480)/(1+2+3)]			123.65
Less: Taxes at 35%			(43.28)
Weighted Average Brand Earnings After Tax			80.37
Capitalization Factor			14

Brand Value	₹1125.18 Lakhs

(b)

	₹
EBIT	2,86,000
Less: Tax (40%)	1,14,400
NOPAT	1,71,600
Calculation of Operating Capital	
Equity Share Capital	2,40,000
+ Reserve & Surplus	1,60,000
+ Term Loans	2,40,000
Operating Capital	6,40,000

$$\text{ROOC} = \frac{1,71,600}{6,40,000} \times 100 = 26.81\%$$

Calculation of WACC:

$$K_d = \frac{36,000}{6,40,000} \times (1 - 0.40) = 3.38\%$$

$$K_e = \frac{12\%}{6,40,000} \times 4,00,000 = 7.50\%$$

WACC = (3.38 + 7.50%) = 10.88%

EVA = (26.81% - 10.88%) × 6,40,000 = ₹1,01,952.

7. (a) Pure Drugs Limited is in the Pharmaceutical Industry and has a business strategy of growing inorganically. It is contemplating to acquire Solid Drugs Limited which has a strong hold in cardiac segment. Pure Drugs Limited has 30 crore shares outstanding which are trading on an average price of ₹ 300 while Solid Drugs Limited has outstanding shares 20 crore and are selling at an average price of ₹ 200 per share. The EPS are of ₹ 12 and ₹ 6 for Pure Drugs Limited and Solid Drugs Limited respectively. Recently, the management of both the companies had a meeting wherein number of alternative proposals was considered for exchange of shares. They are —

(i) Exchange Ratio should be in proportion to the relative EPS of two companies.

(ii) Exchange Ratio should be in proportion to the relative share prices of two companies.

(iii) Exchange Ratio should be 3 shares of Pure Drugs Limited for every 5 shares of Solid Drugs Limited.

You are required to calculate EPS and Market Price under the three options, assuming the P/E of Pure Drugs Limited after merger will remain unchanged. Assume that there will not be any synergy gains due the said merger. [7]

(b) X Ltd. is considering a takeover of Y Ltd. The particulars of the two companies are given below:

Particulars	X Ltd.	Y Ltd.
Earnings after Tax (EAT) (in ₹)	20,00,000	10,00,000
Equity Shares (Nos.)	10,00,000	10,00,000
EPS	2	1
P/E Ratio (times)	10	5

Required:

(i) Compute the market value of each company before merger.

(ii) Assuming that the management of X Ltd. estimates that the shareholders of Y Ltd. will accept an offer of one share of X Ltd. for four shares of Y Ltd. If there are no synergic effects, compute the market value of the Post-merger X Ltd. Are the shareholders of X Ltd. better off than they were before the merger?

(iii) Due to synergic effects, the management of X Ltd. estimates that the earnings will increase by 20%. Calculate the new Post-merger EPS and the Price per Share. Will the shareholders be better-off or worse-off? [7]

Answer:

(a)

	Pure Drugs Limited	Solid Drugs Limited
EPS (₹)	12	6
No. of Outstanding Shares (in crores)	30	20
Net Profit (in ₹ crores)	360	120

Net Profit (in ₹ crores) after Acquisition	480	
Price of Share	300	200
P/E Ratio	25.00	33.33

	Alternative-I (Basis-EPS)	Alternative-II (Basis-Prices)	Alternative-III (Basis-3 shares for 5 shares)
Exchange Ratio (No. of Shares of Pure Drugs Limited for each share of Solid Drugs Limited)	0.50	0.67	0.60
New Shares to be issued (in Crores)	10	13.40	12
Total No. of Shares after Acquisition (in crores)	40 (30+10)	43.40 (30+13.40)	42 (30+12)
EPS (in ₹) after Acquisition Given ₹ 480 crores of Profit Acquisition	12.00	11.06	11.43
Given the P/E Ratio of 25, the Share Price of Pure Drugs Limited will be - (in ₹)	300.00	276.50	285.71

(b) (i) Market Value of Companies before merger:

	X Ltd.,	Y Ltd.,
EPS (₹)	2	1
P/E Ratio	10	5
Market Price/Share (₹)	20	5
Equity Shares	10,00,000	10,00,000
Total Market Value	2,00,00,000	50,00,000

(ii) Post-merger effect on X Ltd.

Post-merger earnings ₹ (20,00,000+10,00,000)	₹ 30,00,000

Equity Shares (10,00,000+10,00,000×1/4) [As the exchange ratio is 1:4]	12,50,000
EPS: 30,00,000/12,50,000	₹ 2.4
P/E Ratio	10.00
Market Value : 10 × ₹ 2.4 (P/Ex EPS)	₹ 24
Total Value (12,50,000 × ₹ 24)	₹ 3,00,00,000

Gains from Merger:

Post merger market value of the firm	₹ 3,00,00,000
Less: Pre-merger market value X Ltd., 2,00,00,000 Y Ltd., 50,00,000	₹ 2,50,00,000
	₹ 50,00,000

Apportionment of gains between Shareholders:

	X Ltd.	Y Ltd.
Post-merger market value		
10,00,000×₹ 24	₹ 2,40,00,000	
2,50,000×₹ 24		₹ 60,00,000
Less: Pre-merger market value	₹ 2,00,00,000	₹ 50,00,000
	₹ 40,00,000	₹ 10,00,000

Thus the shareholders of both the companies have gained from the merger.

(iii) Post-merger Earnings:

Increase in earnings by 20%

New earnings: ₹ 30,00,000 × 120% = ₹ 36,00,000

No. of Equity Shares = 12,50,000

EPS = ₹ 36,00,000/12,50,000 = ₹ 2.88

P/E Ratio = 10

Market Price/Share = ₹ 2.88 × 10 = ₹ 28.80

Therefore, shareholders will be better-off.

8. (a) The Balance Sheets of Maras Ltd. for the years ended on 31.03.2022 and 31.03.2023 are as follows:

Amount in ₹ Lakh)

	As at 31.03.22	As at 31.03.23
Equity & Liabilities		
Shareholder's Fund:		
Share capital	696.60	726.70
Equity Share suspense	30.07	—
Equity Share warrants	—	841.20
Reserve & Surplus	31,256.89	39,156.40
Non-Current Liabilities:		
Secured Loans	4,784.56	3,300.09
Unsecured Loans	9,128.31	14,939.75
Deferred Tax liabilities	3,491.00	3,936.27
Current Liabilities:		
Other current liabilities	8,432.77	10,522.73
Provisions	856.44	1,496.31
	58,676.64	74,919.45
Assets		
Non-current assets	—	—
Fixed Assets (Net)	31,830.23	30,941.81
Capital work in progress	3,764.07	11,502.92
Non-Current Investment:		
Investment	8,125.67	11,031.80
Current Assets:		
Inventories	6,068.25	7,123.77
Trade receivables	1,866.21	3,113.79
Cash and bank balance	917.68	2,140.03
Other current assets	1.53	36.27
Loans and advances	6,103.00	9,029.06
	58,676.64	74,919.45

(i) How would you prepare the Common-Size Balance Sheet of Maras Ltd.?

(ii) Interpret your observations on the common-size Balance Sheet. [7]

(b) ABC Ltd. run and managed by an efficient team that insists on reinvesting 60% of its earnings in projects that provide an ROE (return of equity) of 10%, despite the fact that the firm's capitalization rate (K) is 15%. The firm's current year's earning is ₹ 10 per share.

Recommend at what price the stock of ABC Ltd. Sell. Calculate the present value of growth opportunities. Justify why would such a firm be a takeover target? [7]

Answer:

(a)

(i) Common Size Balance Sheet of Maras Ltd. (₹ in lakhs)

	As at 31.03.2022	% of Total	As at 31.03.2023	% of Total
Equity & Liabilities				
Shareholders' Fund:				
Share Capital	696.60	1.187	726.70	0.970
Equity share suspense	30.07	0.051	-	-
Equity share warrants	-	-	841.20	1.123
Reserve and surplus	31256.89	53.270	39156.40	52.265
Non-current liabilities:				
Secured loans	4784.56	8.154	3300.09	4.405
Unsecured loans	9128.31	15.557	14939.75	19.941
Deferred tax liabilities	3491.00	5.950	3936.27	5.254
Current Liabilities:				
Other current liabilities	8432.77	14.372	10522.73	14.045
Provisions	856.44	1.460	1496.31	1.997
	58676.64	100.00	74919.45	100.00
Assets:				
Non-current Assets:				
Fixed assets (Net)	31830.23	54.247	30941.81	41.300
Capital work in progress	3764.07	6.415	11502.92	15.354
Investments	8125.67	13.848	11031.80	14.725
Current assets:				
Inventories	6068.25	10.342	7123.77	9.509

Trade Receivables	1866.21	3.180	3113.79	4.156
Cash and bank balance	917.68	1.564	2140.03	2.856
Other current assets	1.53	0.003	36.27	0.048
Loan and advances	6103.00	10.401	9029.06	12.052
	58676.64	100.00	74919.45	100.00

(ii) Analysis and presentation of observations:

1. The proportion of unsecured loans to total of balance sheet has increased from 15.56% to 19.94%.
2. The proportion of secured loans to total of balance sheet has fallen from 8.15% to 4.405% due to redemption of non-convertible debentures and repayment of term loans.
3. The reserves and surplus have stayed nearly flat having marginally reduced from 53.27% at the end of year 31/03/2022 to 52.27% at end of year 31/03/2023.
4. Although the proportion of current liabilities in total share capital and liabilities has decreased from 14.37% to 14.05% but provisions have slightly increased from 1.46% to 2.00%
5. The deferred tax liabilities have decreased from 5.95% to 5.25%
6. The proportion of net fixed assets have fallen from 54.25% to 41.3%
7. The capital work-in-progress has increased from 6.42% to 15.35%.
8. The investments have increased by nearly 1% over the previous accounting year.
9. The current assets other than loans and advances, have increased from 15.09% to 16.57.
10. The loans and advances have increased from 10.4% to 12.05%.

(b) Dividend growth rate G = ROE × b

Where, b = 1 – payout ratio

G = 10% × 0.60 = 6%

Stock price of ABC Ltd. = $\frac{10 \times 0.4}{0.15 - 0.06} = \frac{4}{0.09} =$ ₹ 44.44

Present value of growth opportunities (PVGO)

= market price per share – No growth value per share

$= ₹\ 44.44 - \left(\frac{10}{0.15}\right)$

= ₹ 44.44 – 66.66

= ₹ (–22.22) i.e., negative PVGO

Reasons for takeover target – Negative PVGO implies that the net present value of the firm's projects is negative; the rate of return on those assets is less than the opportunity cost of capital. Such a firm would be subject to takeover target because another firm could buy the firm for the market price of ₹ 44.44 per share and increase the value of the firm by changing its investment policy. For example, if the new management simply paid out all earning as dividend, the value of the firm would increase up to its no growth value of ₹ 66.66.