Paper 20 - Strategic Performance Management & Business Valuation

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

The figures in the margin on the right side indicate full marks.
Working notes should form part of the answer.

Section - A

Answer Question No. 1 which is compulsory and any two from the rest of this section

1. Multiple choice questions: [5×2=10]
[1 mark for right choice and 1 mark for justification]

(i) According to model developed by Altman in 1968, which of the following is not the selected ratio for corporate distress prediction?
(A) Working Capital to Total Assets
(B) Retained Earnings to Total Assets
(C) Sales to Total Assets
(D) Book value of Equity/ total liabilities.

(ii) The risk which is primarily influenced by the level of financial gearing, interest cover, operating leverage, and cash flow adequacy, is called:
(A) Financial Risk
(B) Business Risk
(C) Economic Risk
(D) Default Risk.

(iii) The prices which are fixed and enforced by the Government and regulatory in nature, is called:
(A) Dual Pricing
(B) Administered Pricing
(C) Shadow Pricing
(D) Multiple Product Pricing.

(iv) The Average Cost of a firm is given by the function Average Cost = $x^3 + 12x^2 – 11x$, the marginal cost will be:
(A) $4x^3 + 36x^2 – 22x$
(B) $x^4 + 12x^3 – 11x^2$
(C) $x^2 + 24x – 11$
(D) None of the above.

(v) Which of the following is not a part of Customer Relationship Management (CRM) application?
(A) Analytical CRM
(B) Operative CRM
(C) Quantitative CRM
(D) Collaborative CRM.

Answer:
(i) (D) According to model developed by Altman in 1968, the five selected ratio for corporate distress prediction are — Working Capital to Total Assets, Retained Earnings to Total Assets, EBIT to Total Assets, Market Value of Equity & Preference to Book Value of Total Debt and Sales to Total Assets.

(ii) (A) The risk which is primarily influenced by the level of financial gearing, interest cover, operating leverage, and cash flow adequacy, is called Financial Risk.

(iii) (B) Administered prices are the prices which are fixed and enforced by the Government. The term administered prices was introduced by Keynes. These prices are regulatory in nature.

(iv) (A) Average Cost = $x^3 + 12x^2 - 11x$
Total Cost (C) = $x^4 + 12x^3 - 11x^2$
Marginal Cost = $dc/dx = 4x^3 + 36x^2 - 22x$.

(v) (C) Except Quantitative CRM, all others are parts of Customer Relationship Management (CRM) application.

2.(a) What is Supply Chain Management? Write about the different types of Customer Relationship Management. [4+6=10]

(b) What is Enterprise Resource Planning (ERP)? "Benefits from ERP are of two kinds, tangible and intangible." — State those benefits. [2+8=10]

Answer:

(a) Supply Chain Management encompasses the planning and management of all activities involved in sourcing, procurement, conversion and logistics management activities. Importantly, it also includes coordination and collaboration with channel partners, which can be suppliers, intermediaries, third party service providers, and customers. In essence, Supply chain Management integrates supply and demand management within and across companies.

The Supply Chain Management Program integrates topics from manufacturing operations, purchasing, transportation, and physical distribution into a unified program.

In a typical supply chain, raw materials are procured and items are produced at one or more factories, shipped to warehouses for intermediate storage, and then shipped to retailers or customers. Consequently, to reduce cost and improve service levels, effective supply chain strategies must take into account the interactions at the various levels in the supply chain. The supply chain , which is also referred to as the Logistic Network, consists of suppliers, manufacturing centers, warehouses, distribution centers, and retail outlets, as well as raw material, work –in- process inventory, and finished product that flow between the facilities.

Thus, we can define the Supply Chain Management as follows:
Supply chain management is a set of approaches utilized to efficiently integrate suppliers, manufactures, warehouses and stores, so that merchandise is produce and distributed at the right quantities, to the right locations, and at the right time, in order to minimize system wide costs while satisfying service level requirements.

Types of Customer Relationship Management: There are following three types of Customer Relationship Management (CRM):

(1) Analytical CRM: The purpose of analytical CRM is customer data analysis, its evaluation, modeling and prediction of customer behaviour. In real life situation the analytical CRM can for example gather all the data about customers inquiring a specific product by using data mining (tool for data gathering), what services they purchased right away and what services they purchased eventually. It can find

patterns in their behaviour and propose next steps during up-selling or cross-selling. It can evaluate efficiency of a marketing campaign, propose prices or even develop and propose new products.

(2) Operative CRM: Operative CRM mainly supports the actual contact with customers conducted by front office workers and general automation of business processes including sales of products, services and marketing. All communication with the customer is tracked and stored in the database and if necessary it is effectively provided to users (workers). The advantage of this approach being the possibility to communicate with various employees using various channels but creating the feeling that customer is being taken care of by just one person. It can also minimize the time that the worker has to spend typing the information and administrating (the data is shared). This allows the company to increase the efficiency of their employees work and they are then able to serve more customers.

(3) Collaborative CRM: Collaborative CRM enables all companies along the distribution channel, as well as all departments in a company, to work together and share information about customers, even speaks about partner relationship management (PRM). But sometimes we might see a rivalry between departments that undermines efforts of CRM to share relevant data throughout the whole company (e.g. information from help line can help the marketing department choose a point on which it will focus during the next campaign). The goal of collaborative CRM then is maximum sharing of relevant information acquired by all departments with the focus on increasing the quality of services provided to customers. The ultimate outcome of this process should be an increase in customer's utility and his loyalty.

(b) Enterprise Resource Planning (ERP): ERP means the techniques and concepts for integrated management of business as a whole from the view point of the effective use of management resources to improve the efficiency of enterprise management. ERP provides integrated business software modules to support functional units of an enterprise. It has a process oriented approach in the sense that it focuses on core processes like order fulfillment, materials procurement, balance sheet preparation etc. and attempts to integrate various functions of an enterprise involved the execution of these processes.

"Benefits from ERP are of two kinds, tangible and intangible." — The tangible and intangible benefits are as follows:

Tangible Benefits:

- Lowering the cost of products and services purchased
- Significant paper and postage cost reductions
- Improve the productivity of process and personnel
- Inventory reduction
- Lead time reduction
- Reduced stock obsolescence
- Faster product/service lookup and ordering saving time and money
- Automated ordering and payment, lowering payment processing and paper costs

Intangible Benefits:

- Can reach more vendors, producing more competitive bids
- Accurate and faster access to data for timely decisions
- Saves enormous time and effort in data entry
- More controls thereby lowering the risk of misutilization of resources
- Facilitates strategic planning
- Uniform reporting according to global standards
- Improved customer response
- Increases organizational transparency and responsibility.

3.(a) If Cost Function is $C = \frac{3}{5}x + \frac{15}{4}$, find :

(i) Cost when output is 5 units
(ii) Average Cost of 10 units
(iii) Marginal cost. **[3+3+2=8]**

(b) From the information provided relating to a company, calculate Altman's Z-score and comment on the financial condition of the company:

Equity Share Capital (of ₹ 10 each)	**2,00,000**
12% Preference Share Capital (of ₹ 100 each)	**1,00,000**
Fixed Assets	**3,00,000**
Current Assets	**2,00,000**
Fictitious Assets	**25,000**
Current Liabilities	**1,00,000**
10% Debentures	**2,00,000**
General Reserve	**75,000**
Profit & Loss A/c (Cr.)	**50,000**
Sales	**10,00,000**
Earnings before Tax	**1,30,000**
Interest on Debentures	**20,000**
Market Value of each Equity Share	**15**
Market Value of each Preference Share	**150**

[12]

Answer:

(a) $C = \frac{3}{5}x + \frac{15}{4}$

i) Cost when output is 5 units —

$= \frac{3}{5} \times 5 + \frac{15}{4} = 3 + \frac{15}{4} = 6.75$

ii) Average Cost of 10 units—

$= \frac{3}{5} + \frac{15}{4x}$

$= \frac{3}{5} + \frac{15}{10 \times 4}$

$= \frac{3}{5} + \frac{15}{40}$

$= \frac{3}{5} + \frac{3}{8} = \frac{24+15}{40} = \frac{39}{40} = 0.975$

iii) $\text{Marginal Cost} = \frac{dc}{dx} = \frac{3}{5} = 0.6$

(b) 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:

$X_1 = \text{Working Capital to Total Assets} = \frac{₹\ 1,00,000}{₹\ 5,00,000} = 0.20$

$X_2 = \text{Retained Earnings to Total Assets} = \frac{₹\ 1,00,000}{₹\ 5,00,000} = 0.20$

$X_3 = \text{EBIT to Total Assets} = \frac{₹\ 1,50,000}{₹\ 5,00,000} = 0.30$

$X_4 = \text{Market Value of Equity and Preference Shares to Book Value of Total Debt} = \frac{₹\ 4,50,000}{₹\ 3,00,000} = 1.50$

$X_5 = \text{Sales to Total Assets} = \frac{₹\ 10,00,000}{₹\ 5,00,000} = 2 \text{ times}$

Hence, Z-score = (1.2 × 0.20) + (1.4 × 0.20) + (3.3 × 0.30) + (0.6 × 1.50) + (1 × 2)

= 0.24 + 0.28 + 0.99 + 0.90 + 2 = 4.41

Notes:

1. Calculation of Working Capital:

   Working Capital = Current Assets - Current Liabilities

   Here, Working Capital = ₹ (2,00,000 -1,00,000) = ₹ 1,00,000

2. Calculation of Total Assets:

   Total Assets = Fixed Assets + Current Assets

   Here, Total Assets = ₹ (3,00,000 + 2,00,000) = ₹ 5,00,000

3. Calculation of Retained Earnings:

   Retained Earnings = Reserves & Surplus - Miscellaneous Expenditure

   = General Reserve + Profit & Loss A/c (Cr.) - Fictitious Assets = ₹ (75,000 + 50,000 - 25,000) = ₹ 1,00,000

4. Calculation of Earnings before Interest & Tax (EBIT):

   EBIT = EBT+ Interest on Debts

   Here, EBIT = ₹ (1,30,000 + 20,000) = ₹ 1,50,000

5. Calculation of Market Value of Equity & Preference Shares:

Market Value of Equity Shares	20,000 shares x ₹ 15	₹ 3,00,000
Market Value of Preference Shares	1,000 shares x ₹ 150	₹ 1,50,000
		₹ 4,50,000

6. Calculation of Book Value of Total Debts:
   Book Value of Total Debts = Long-term Debts + Current Liabilities
   Here, Book Value of Total Debts =10% Debentures + Current Liabilities = ₹ (2,00,000 + 1,00,000) = ₹ 3,00,000

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 (i.e., non-failed company).

4.(a) Write short note on:
(i) Economic risk
(ii) Financial risk
(iii) Risk pooling. **[3+3+4=10]**

(b) What are the accounting techniques of financial performance analysis? State the significance of financial performance analysis. **[6+4=10]**

Answer:

(a)(i) Economic Risk: Economic risk is concerned with the general economic climate within the country. Some of the factors which reflect the economic climate of a country are:

1. Level of affluence enjoyed by the country.
2. The growth rate of income.
3. The nation's propensity to save/invest.
4. The stability of prices (inflation).
5. Characteristics of the labour force.
6. Level of sophistication of the financial system.
7. Level of foreign debt outstanding.
8. Major income earners (exports) and their sensitivity to overall global economic changes.
9. Extent of dependence on major export items.
10. Trends in balance of payments.
11. level of imports
12. level of reserve and credit standing, and
13. Fluctuations of exchange rate and controls on foreign exchange.

(ii) Financial Risk: Financial risk is primarily influenced by the level of financial gearing, interest cover, operating leverage, and cash flow adequacy. The financial risk depends on the method of financing adopted by the company. Financial risk is associated with the capital structure of a firm. A firm with no debt financing has no financial risk. The extent of financial risk depends on the leverage of the firm's capital structure. A highly geared firm may face the problems like high cost of equity and debt funds, cash flow problems in servicing off debt obligations, constraints on management control, fall in profits available to equity holders etc. The financial risk will also arise due to short-term liquidity problems, shortage of working capital, inefficiency in collection of receivables, bad debts, funds tied in excess inventories, long operating cycle etc.

(iii) Risk Pooling: One of the forms of risk management mostly practiced by insurance companies is Risk Pool. Under this system, insurance companies come together to form a pool, which can provide protection to insurance companies against catastrophic risks such as floods, earthquakes etc. The term is also used to describe the pooling of similar risks that underlies the concept of insurance. While risk pooling is necessary for insurance to work, not all risks can be effectively pooled. In particular, it is difficult to pool dissimilar risks in a voluntary insurance market, unless there is a subsidy available to encourage participation.

Risk pooling is an important concept in supply chain management. Risk pooling suggests that demand variability is reduced if one aggregates demand across locations because as demand is aggregated across different locations, it becomes more likely that high

demand from one customer will be offset by low demand from another. This reduction in variability allows a decrease in safety stock and therefore reduces average inventory.

The three critical points to risk pooling are:

- Centralized inventory saves safety stock and average inventory in the system.
- When demands from markets are negatively correlated, the higher the coefficient of variation, the greater the benefit obtained from centralized systems i.e., the greater the benefit from risk pooling.
- The benefits from risk pooling depend directly on the relative market behaviour. If we compare two markets and when demand from both markets is more or less than the average demand, we say that the demands from the market are positively correlated. Thus the benefits derived from risk pooling decreases as the correlation between demands from the two markets becomes more positive.

(b) Accounting techniques of financial performance analysis: Various accounting techniques such as Comparative Financial Analysis, Common-size Financial Analysis, Trend Analysis, Fund Flow Analysis, Cash Flow Analysis, CVP Analysis, Ratio Analysis, Value Added Analysis etc. may be used for the purpose of financial analysis. Some of the important techniques which are suitable for the financial analysis are discussed hereunder:

- Ratio Analysis: In order to evaluate financial condition and performance of a firm, the financial analyst needs certain tools to be applied on various financial aspects. One of the widely used and powerful tools is ratio or index. Ratios express the numerical relationship between two or more things. This relationship can be expressed as percentages (25% of revenue), fraction (one-fourth of revenue), or proportion of numbers (1:4). Accounting ratios are used to describe significant relationships, which exist between figures shown on a balance sheet, in a profit and loss account, in a budgetary control system or in any other part of the accounting organization. Ratio analysis plays an important role in determining the financial strengths and weaknesses of a company relative to that of other companies in the same industry. The analysis also reveals whether the company's financial position has been improving or deteriorating over time. Ratios can be classified into four broad groups on the basis of items used: (i) Liquidity Ratio, (ii) Capital Structure/Leverage Ratios, (iii) Profitability Ratios, and (iv) Activity Ratios.

- Common-Size Financial Analysis: Common-size statement is also known as component percentage statement or vertical statement. In this technique net revenue, total assets or total liabilities is taken as 100 per cent and the percentage of individual items are calculated likewise. It highlights the relative change in each group of expenses, assets and liabilities. Common size ratios are used to compare financial statements of different-size companies or of the same company over different periods. By expressing the items in proportion to some size-related measure, standardized financial statements can be created, revealing trends and providing insight into how the different companies compare.

- Trend Analysis: Trend analysis indicates changes in an item or a group of items over a period of time and helps to draw the conclusion regarding the changes in data. In this technique, a base year is chosen and the amount of item for that year is taken as

one hundred for that year. On the basis of that the index numbers for other years are calculated. It shows the direction in which concern is going.

Significance of financial performance analysis: Interest of various related groups is affected by the financial performance of a firm. Therefore, these groups analyze the financial performance of the firm. The type of analysis varies according to the specific interest of the party involved.

(A) Trade creditors: interested in the liquidity of the firm (appraisal of firm's liquidity)

(B) Bond holders: interested in the cash-flow ability of the firm (appraisal of firm's capital structure, the major sources and uses of funds, profitability over time, and projection of future profitability)

(C) Investors: interested in present and expected future earnings as well as stability of these earnings (appraisal of firm's profitability and financial condition)

(D) Management: interested in internal control, better financial condition and better performance (appraisal of firm's present financial condition, evaluation of opportunities in relation to this current position, return on investment provided by various assets of the company, etc).

Section - B

Answer Question No. 5 which is compulsory and any two from the rest of this section

5. Multiple choice questions: [5×2=10]

[1 mark for right choice and 1 mark for justification]

(i) Which is not a, human – capital related intangible asset?

(A) Trained workforce

(B) Employment agreements

(C) Union contracts

(D) Design patent

(ii) Given the growth rate in the dividends is expected to be 8%. The Beta of the Stock is 1.60 and return on the market index is 13%. The required rate of return would be:

(A) 14%

(B) 16%

(C) 18%

(D) 20%.

(iii) A firm's current assets and current liabilities are ₹ 1600 and ₹ 1000 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

(iv) Identify which of the following is not a financial liability for a company:

(A) X Ltd. has 1 lac ₹10 ordinary shares issued

(B) X Ltd. has 1 lac ₹10 redeemable preference shares issued

(C) None of the above

(D) Both.

(v) If value of A Ltd. is 50, B Ltd. is 20 and on merger their combined value is 90 and A Ltd. receives premium on merger 12, the synergy for merger is (all amounts are in ₹ Lakhs):
(A) 8
(B) 20
(C) 32
(D) 38.

Answer:
(i) (D) Design patent

(ii) (B) 16%
Required Rate of Return = $R_f + \beta (R_m - R_f)$ = 8% + 1.6 (13% - 8%) = 16%.

(iii) (C) ₹ 1,400
Amount of borrowing be x. (Current Asset will increase because borrowing will increase the cash amount)

$$\therefore \frac{1,600+x}{1,000+x} = 1.25$$

Or, x=1,400

(iv) (A) X Ltd. has 1 lac ₹10 ordinary shares issued

(v) (B) 20
₹ [90-(50 + 20)] lakhs. Premium on merger is irrelevant.

6.(a) If, Earnings per share: ₹ 3.15;
Capital Expenditure per share: ₹ 3.15.
Depreciation per share: ₹ 2.78
Change in working capital per share: ₹ 0.50 Debt financing ratio: 25%

Earnings, Capital expenditure, Depreciation, Working Capital are all expected to grow at 6% per year. The beta for stock is 0.90. Treasury bond rate is 7.5%. A premium of 5.50% is used for market.

Calculate value of stock. **[10]**

(b) Explain Economic Value Added (EVA). **[5]**

(c)

Equity Share Capital	**₹ 5,00,000**
13% Preference Share Capital	**₹ 2,00,000**
Reserves and Surplus	**₹ 6,00,000**
Non trade investments (Face value 1,00,000) Rate of Interest	**10%**
20% Debentures	**₹ 3,00,000**
Profits before tax	**₹ 2,00,000**
Tax Rate	**40%**
WACC	**13%**

Calculate EVA. **[5]**

Answer:
(a) Estimating Value:

Long term bond rate 7.5%
Cost of equity = 7.5% + (0.90 x 5.50%) = 12.45%
Expected growth rate 6%
Base year FCFE = Earnings per share – (Capital Exp. – Dep.) (1 – Debt Ratio) – Change in working capital (1 – Debt Ratio)
=3.15 – (3.15 – 2.78) (1 – 0.25) – 0.50 (1 – 0.25)
=2.49
Value per share = 2.49 x 1.06 / (0.1245 – 0.06) = ₹41.

(b) Economic Value Added (EVA): It is a performance metric that calculates the creation of shareholder value. It distinguishes itself from traditional financial performance metrics such as net profit and EPS. EVA is the calculation of what profits remain after the cost of company's capital, comprising of both debt and equity, are deducted from operating profit.

The value of a firm is the sum of the capital invested and the present value of the economic value added. The present value of the economic value added by an asset over its life is the net present value of that asset. The value of a firm can be written as the sum of three components, the capital invested in assets in place, the present value of the economic value added by these assets, and the expected present value of the economic value that will be added by future investments. It can be calculated as:

$$\text{Firm Value} = \text{Capital Invested}_{\text{Assets in Place}} + \sum_{t=1}^{t=\infty} \frac{EVA_{t,\text{Assets in Place}}}{(1+WACC)^t} + \sum_{t=1}^{t=\infty} \frac{EVA_{t,\text{Future Project}}}{(1+WACC)^t}$$

Where:

Economic Value Added for all years = (Return on Capital Invested – WACC) (Capital Invested)

Terminal EVA= EVA / (WACC – Net sales growth rate).

WACC = Cost of capital means the "fair rate of return to invested capital", which goes to all claimholders. It is computed by multiplying Capital invested with WACC.

Return on Capital = Operating Income (1 – tax rate) / Capital Invested

NOPAT = Net Operating Profit after Tax

NOPLAT = Net Operating Profit Less Adjusted Taxes.

It means total operating profit for a firm with adjustments made for taxes. It is used in variant of the FCF and used in mergers or acquisitions.

NOPLAT is very similar to NOPAT, except its (net income + after tax interest expenses + Deferred taxes)

Capital Invested for all years = Total equity + Interest bearing liabilities + Convertibles - Total interest bearing financial assets.

Capital Invested for terminal year = (NOPLAT – Gross capital expenditure – Change in working capital + Increase in non-interest bearing liabilities – Total depreciation) / (Net sales growth × NOPLAT).

(c) Economic Value Added = (Return on operating capital – weighted average cost of capital) × Operating capital.

Working Note – 1

Calculation of Return on operating capital

NOPAT =	₹

Profit before tax	2,00,000
+ Interest Expense	60,000
- Non operating income	10,000
Operating EBIT	2,50,000
Less: economic taxes @ 40%	1,00,000
NOPAT	1,50,000

Working Note – 2

Calculation of Operating Capital

	₹
Equity Share capital	5,00,000
Reserve and surplus	6,00,000
13% preference share capital	2,00,000
20% debenture	3,00,000
Total	16,00,000
Less: Non operating assets	1,00,000
Operating Capital	15,00,000

ROOC = 1,50,000/15,00,000×100 = 10%

EVA = (10% - 13%) × 15,00,000 = ₹ (45,000)

7.(a) Alpha India Ltd., is trying to buy Beta India Ltd., Beta India Ltd., is a small bio-technology firm that develops products that are licensed to major pharmaceutical firms. The development costs are expected to generate negative cash flows of ₹ 10 lakhs during the first year of the forecast period. Licensing fee is expected to generate positive cash flows of ₹ 5 lakhs, ₹ 10 lakhs, ₹ 15 lakhs and ₹ 20 lakhs during 2-5 years respectively. Due to the emergence of competitive products, cash flows are expected to grow annually at a modest 5% after the fifth year. The discount rate for the first five years is estimated to be 15% and then drop to 8% beyond the fifth year. Calculate the value of the firm.

Given: The discount rate @ 15% will be:

Year	**1**	**2**	**3**	**4**	**5**
Discount Rate	**0.869**	**0.756**	**0.6575**	**0.572**	**0.497**

[10]

(b) Tridev Ltd. is in the business of making sports equipment. The Company operates from Thailand. To globalise its operations Tridev has identified Try Toys Ltd., an Indian Company, as a potential takeover candidate. After due diligence of Try Toys Ltd, the following information is available:

(A) Cash Flow Forecasts (₹ in Crores)

Year	**10**	**9**	**8**	**7**	**6**	**5**	**4**	**3**	**2**	**1**
Try Toys Ltd.	**24**	**21**	**15**	**16**	**15**	**12**	**10**	**8**	**6**	**3**
Tridev Ltd.	**108**	**70**	**55**	**60**	**52**	**44**	**32**	**30**	**20**	**16**

(B) The Net Worth of Try Toys Ltd (₹ in Lakhs) after considering certain adjustments suggested by the due diligence team reds as under —

Tangible	**750**	
Inventories	**145**	
Receivables	**75**	**970**
Less- Creditors	**165**	
Bank Loans	**250**	**(415)**
Represented by Equity Shares @ ₹ 1000 each		**555**

Talks for the takeover have crystallized on the following –

(i) Tridev Ltd. will not be able to use Machinery worth ₹75 Lakhs which will be disposed of by them subsequent to take over. The expected realization will be ₹50 Lakhs.

(ii) The inventories and receivables are agreed for takeover at values of ₹100 and ₹50 Lakhs respectively, which is the price they will realize on disposal.

(iii) The liabilities of Try Toys Ltd will be discharged in full on take over along with an employee settlement of ₹90 Lakhs for the employees who are not interested in continuing under the new management.

(iv) Tridev Ltd will invest a sum of ₹150 Lakhs for upgrading the Plant of Try Toys Ltd on takeover. A further sum of ₹50 Lakhs will also be incurred in the second year to revamp the machine shop floor of Try Toys Ltd.

(v) The anticipated cash flow (in ₹ Crore) post takeover are as follows -

Year	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Cash Flows	**18**	**24**	**36**	**44**	**60**	**80**	**96**	**100**	**140**	**200**

You are required to advise the management the maximum price which they can pay per share of Try Toys Ltd., if a discount factor of 15% is considered appropriate. [10]

Answer:

(a)

Year	Cash flows (₹ In lakhs)	Discount rate @15%	Present Value (₹ in lakhs)
1	(10)	0.869	(8.69)
2	5	0.756	3.78
3	10	0.6575	6.575
4	15	0.572	8.58
5	20	0.497	9.94

Total sum of present value = 20.185

Terminal Value $_t$ = Cash Flow$_{t+1}$ / r-g$_{stable}$

Cash flow $_{t+1}$ = Cash flow (1+g) = 20 (1+0.05) = 21 Lakhs

Terminal Value = 21/(0.08-0.05) = ₹700 Lakhs.

Present value of terminal value = 700 x 0.497 = ₹ 347.9

Value of the firm = Total sum of present value + Present value of terminal value

= ₹20.185 + ₹ 347.9 = ₹ 368.085.

(b)(i) Computation of Operational Synergy expected to arise out of merger (₹ Lakhs):

Year	1	2	3	4	5	6	7	8	9	10
Cash flow after merger	1,800	2,400	3,600	4,400	6,000	8,000	9,600	10,000	14,000	20,000
Cash	1,600	2,000	3,000	3,200	4,400	5,200	6,000	5,500	7,000	10,800

flow without merger										
Synergy Effect	200	400	600	1,200	1,600	2,800	3,600	4,500	7,000	9,200

(ii) Valuation of Try toys Ltd. (₹ in Lakhs)

		Without Merger		Considering Merger	
Year	Discount Factor	Cash Flows	Discounted Cash Flow	Cash Flow	Discounted Cash Flow
1	0.870	300	261.00	200	174.00
2	0.756	600	453.60	400	302.40
3	0.657	800	525.60	600	394.20
4	0.572	1000	572.00	1200	686.40
5	0.497	1200	596.40	1600	795.20
6	0.432	1500	648.00	2800	1209.60
7	0.376	1600	601.60	3600	1353.60
8	0.327	1500	490.50	4500	1471.50
9	0.284	2100	596.40	7000	1988.00
10	0.247	2400	592.40	9200	2272.40
			5337.90		10,647.30
			5338.00		10,647.00

(iii) Computation of Maximum Value to be quoted

Particulars	₹ in Lakhs	₹ in Lakhs
Value as per discounted Cash flow from Operations		10,647
Add – Cash to be collected immediately by disposal of assets:		
Sundry Fixed Assets	50	
	150	
	165	
	90	
	250	
	150	
	38	693
Maximum Amount to be quoted		10,154
Difference in Valuation had there been no merger = (10,647 – 5,338) = ₹5,309 Lakhs.		

8.(a) The following information is provided in relation to the acquiring firm M Ltd. and the target firm P Ltd.

Particulars	M Ltd.	P Ltd.
Earnings after tax (₹)	**200 lakhs**	**40 lakhs**
Number of shares outstanding	**20 lakhs**	**10 lakhs**
P /E Ratio	**10**	**5**

Required:

(i) What is the swap ratio in terms of current market price?

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

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

(iv) Determine the market value of the merged firm. [8]

(b) Acquiring company is considering the acquisition of Target Company in a stock- for-stock transaction in which target Company would receive ₹ 90 for each share of its common stock. The Acquiring company does not expect any change in its price/ earnings ratio multiple after the merger and chooses to value the target company conservatively by assuming no earnings growth due to synergy.
Calculate:

(i) The purchase price premium
(ii) The exchange ratio
(iii) The number of new shares issued by the acquiring company.
(iv) Post-merger EPS of the combined firms
(v) Pre-merger EPS of the Acquiring company
(vi) Pre-merger P/E ratio
(vii) Post-merger share price
(viii) Post-merger equity ownership distribution.

The following additional information is available.

Particulars	Acquiring	Target
Earnings	₹ 2,50,000	₹ 72,500
Number of shares	1,10,000	20,000
Market Price per Share	₹ 50	₹ 60

Also, Comment on your results. [12]

Answer:
(a)

Particulars	M Ltd.	T Ltd.
Earnings after tax (₹)	200 lakhs	40 lakhs
Number of shares outstanding	20 lakhs	10 lakhs
P / E Ratio	10	5
ESP	10	4
Market price (₹)	100	20

(i) Swap ratio in terms of market prices: 20/100 = 0.20
(ii) EPS of M Ltd. after acquisition: (200 + 40) / (20 + 0.2×10) = 240/22 or say ₹10.91
(iii) Expected market price per share of M Ltd. with the same P/E ratio of 10 will be: 10.91 × 10 = ₹109.10
(iv) Market value of merged firm: Total number of outstanding shares × market price = ₹ 2,400.2 lakhs.

(b)

(i) Purchase price premium = Offer price for Target company stock/Target company Market price per share = 90/60 = 1.5
(ii) Exchange ratio = Price per share offered for Target Company/Market Price per share for the acquiring company = 90/50 = 1.8

Acquiring company issues 1.8 shares of stock for each of Target Company's stock.

(iii) New shares issued by acquiring company = shares of Target Company x Exchange ratio = 20,000 × 1.8 = 36,000.
(iv) Post-merger EPS of the combined companies = Combined earning/ total number of share.

Combined earnings = (2,50,000 + 72,500) = ₹3,22,500

Total shares outstanding of the new entity

= 1,10,000 + 36,000 = 1,46,000

= ₹3,22,500 ÷ 1,46,000 = ₹2.209

(v) Pre-merger EPS of the acquiring company

= earnings / Number of shares

= 2,50,000 / 1,10,000 = ₹2.273

(vi) Pre-merger P/E = Pre-merger market price per share / Pre-merger earnings per share

= 50/2.273 = 22.00

(vii) Post-merger share price = Post-merger EPS x Pre-merger P/E

= 2.209 × 22.00 = ₹48.60 (as compared to ₹50 Pre-merger)

(viii) Post-merger Equity Ownership Distribution

Target Company = Number of new shares / Total number of shares

= 36,000/ 1,46,000 = 0.2466 or 24.66%

Acquiring company = 100 – 24.66 = 75.34%

Comment – The acquisition results in a ₹1.40 reduction in the market price of the acquiring company due to a 0.064 decline in the EPS of the combined companies. Whether the acquisition is a poor decision depends upon what happens to the earnings would have in the absence of the acquisition, the acquisition may contribute to the market value of the acquiring company.