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. (a) Choose the correct option from the four alternatives given: [10 × 2 = 20]

(i) **In Supply Chain Management, ATP stands for _____.**

(A) Acquire, Track & Perform
(B) Available to Promise
(C) Access to Point
(D) Active Transport Protocol

(ii) **Arrange the five measurements below in the order of cause-and-effect ____.**

a. Improve customer loyalty.
b. Improve return on capital employed.
c. Improve repeat and expanded sales.
d. Improve cycle time.
e. Improve on time delivery to customers

(A) b→ c→ a→ e→ d
(B) e→ d→ c → a → b
(C) d→ e→ a → c → b
(D) a→ d→ e→ b → c

(iii) **Pareto Improvement is an action that makes _____.**

(A) Both the person better off
(B) At least one person worse off
(C) At least one person worse off without making anyone better off
(D) At least one person better off without making anyone worse off

(iv) **When portfolio risk comprising of two securities A & B is -1,_____.**

(A) it does nothing to help reduce risk
(B) the overall portfolio risk can be eliminated
(C) systematic risk can be diversified
(D) political risk can be diversified

(v) **Tangible assets are usually valued using any of the following premises except _____.**

(A) Going Concern
(B) Forced Sale
(C) Orderly liquidation
(D) Highest and best use

(vi) **Advik & Co's debt is twice that of the equity. The required returns on the company's debt and equity are 8% and 10%, respectively. The company's marginal tax rate is 30%. The WACC of Advik & Co is closest to:**

(A) 6.07%
(B) 7.07%
(C) 8.67%
(D) 8.07%

(vii) **Which valuation method is primarily used to value franchise agreements and certain licenses?**

(A) Relief-from-royalty method
(B) Multi period excess earning method
(C) Greenfield method
(D) With and without method

(viii) **Current forecasts are for JSB Estates to pay dividends of ₹3, ₹3.24 & ₹3.50 over the next years respectively. At the end of three years, you anticipate selling your stock at a market price of ₹94.48. What is the price of the stock given a 12% expected return?**

(A) ₹75.00
(B) ₹70.00
(C) ₹104.22
(D) ₹84.74

(ix) **X ltd. has ₹100 crores worth of common equity comprising of 50 lakh shares. The company's market value added is ₹24 crores. What is company's stock price?**

(A) 230
(B) 248
(C) 238
(D) 264

(x) **An acquisition is being considered where the acquirer would pay ₹200 million for a target company that has a standalone value of ₹150 million. The acquirer has estimated ₹60 million in synergies, but expects the cost of integration to be ₹20 million. What is the net gain or loss?**

(A) ₹10 million net loss
(B) ₹10 million net gain
(C) ₹30 million net loss
(D) ₹30 million net gain

b) Read the following scenario and answer the following questions:

Asterix Pharmaceuticals Ltd. is a mid-sized pharmaceutical firm with 3 strategic business units (SBUs):

- **Formulations Division (FD)**
- **Active Pharmaceutical Ingredients (API) Division**
- **Research & Development (R&D) Division**

Management introduced a Balanced Scorecard (BSC) framework aligned with their cost leadership and innovation strategies. Key metrics and data from the latest fiscal year are as follows:

Division	Operating Profit (₹ lakhs)	Capital Employed (₹ lakhs)	WACC (%)	Customer satisfaction (out of 100)	Employee training hours / year
FD	1,800	9,000	12	86	22
API	1,400	7,000	11	78	18
R&D	-300	5,000	14	90	50

Additional Info:

- **The firm uses EVA, Residual Income, and BSC perspectives to evaluate performance.**
- **Industry benchmark ROI for similar divisions is 18%.**
- **R&D division is not expected to generate immediate profits; its performance is assessed using non-financial indicators and value creation potential.**

Answer the following questions based on the above scenario.

(xi) **What is the EVA of the API Division?**

(A) ₹630 lakhs
(B) ₹1,400 lakhs
(C) ₹620 lakhs
(D) ₹1,330 lakhs

(xii) **Which divisions have outperformed the industry benchmark ROI of 18%?**

(A) FD and R&D
(B) API and R&D
(C) FD& API
(D) API

(xiii) **Based on Balanced Scorecard's Learning & Growth perspective, which division is performing best?**

(A) RD
(B) API
(C) FD
(D) All are performing at the same level

(xiv) **If Asterix plans to benchmark non-financial performance, which combination of metrics below would be MOST appropriate for the R&D division?**

(A) Operating profit, ROI
(B) Capital Employed, WACC
(C) EVA, Training hours
(D) Customer Satisfaction, Employee Training Hours

(xv) **What strategic insight does the negative EVA and ROI of the R&D division provide in the context of long-term strategic performance management?**

(A) R&D should be shut down due to poor returns.

(B) Financial metrics alone are insufficient to evaluate R&D

(C) R&D is underperforming due to capital misallocation

(D) EVA is not applicable for R&D **(5×2 = 10)**

Answers:

Question No.	Correct Option
(a) (i)	B
(ii)	C
(iii)	D
(iv)	B
(v)	A
(vi)	B
(vii)	C
(viii)	A
(ix)	B
(x)	A
(b) (xi)	A
(xii)	C
(xiii)	A
(xiv)	D
(xv)	B

Section – B

[Answer any five questions from Question No. 2 to 8. Each question carries 14 marks.]

[5 × 14 = 70]

2. **(a) Describe Customer Relationship Management (CRM) and explain its primary objective in a business context. Further, identify and explain the five common misrepresentations of CRM.**

[7]

(b) In today's competitive manufacturing landscape, operational excellence is no longer optional - it's essential. With this in mind, describe the core principles of Lean Manufacturing and explain the 5S methodology within the Lean framework.

[7]

Answer:

(a) CRM & Its objective:

Customer Relationship Management (CRM) is a strategy and technology used by businesses to manage interactions with current and potential customers.

Its primary objective is to improve customer satisfaction, enhance customer retention, and drive sales growth by better understanding and addressing customer needs.

Five misrepresentations of CRM

CRM is often misunderstood or misrepresented in business contexts. These misrepresentations can lead to poor implementation, wasted involvement and unmet expectations. Here are five common misrepresentations of CRM:

1. CRM is merely a database marketing - The scope of CRM is much broader than database marketing. Though the success of CRM depends much on the database, strategic and operational CRM is not merely database marketing.
2. CRM is a marketing process - The scope of CRM extends beyond the nuances of marketing activities of market segmentation, customer acquisition, customer retention and customer development. CRM extends into selling and service functions.
3. CRM is an information technology (IT) issue - Without the advent of IT, CRM would not be possible. IT may be said to be an enabler of CRM. However, the two other important parts of most CRM projects are people and process while the architecture on which it is developed is IT.
4. CRM can be implemented by any company - Though strategic CRM and operational CRM can be implemented in any company, implementation of analytical CRM is not possible in all companies. Analytical CRM is based on customer-related data and in smaller companies or companies in which such customer related data are not readily available implementation of the same is not possible.
5. CRM is a technical name of loyalty schemes - in order to acquire new customers or retain old customers, business houses often offer loyalty schemes like air miles and lunch coupons and free train fare passages. These are redeemed by the customer in future. These are distributed to loyal customers. Some CRM implementations are linked to loyalty schemes, not all of them are and it would not be wise to intermingle the two concepts. Rather loyalty schemes are a subset of the CRM implemented company wide.

(b)

Principles of Lean Manufacturing & 5S of Lean:

Principles of Lean manufacturing, also known as lean production, refers to systemized reduction of time within the production cycle including response times of suppliers and customers. Five principles of lean manufacturing are:

1. Value – Value is determined by what the customer considers to be important within a product or service, rather than what the individuals developing or delivering the product or service consider important.
2. Value Stream – The set of business activities and steps involved in creating and delivering products and services to the customer; it is the connection of the steps together rather than considering each step in isolation.
3. Flow – The degree to which there is smooth uninterrupted flow of activities that add value to the customer, rather than waste and inefficiency that impedes the flow through the value stream.
4. Pull – The degree to which the value stream is only processing products and services for which there is a customer demand, rather than creating something and hoping someone wants it.
5. Perfection – The continuous assessment of value stream performance to identify and improve the value created and delivered to the customer, rather than resisting changes that improve the process of creating and delivering customer value.

Much of Lean manufacturing is applying “common sense” to manufacturing environments. In implementing Lean, the 5S quality tool, derived from five Japanese terms beginning with the letter “S”, are used to create

a workplace suited for visual control and lean production. 5 S's are frequently used to assist in the organization of manufacturing. The 5 S's are:

1. Seiri: To separate needed tools, parts, and instructions from unneeded materials and to remove the unneeded ones.
2. Seiton: To neatly arrange and identify parts and tools for ease of use.
3. Seiso: To conduct a clean-up campaign.
4. Seiketsu: To conduct seiri, seiton, and seiso daily to maintain a workplace in perfect condition
5. Shitsuke: To form the habit of always following the first four S's

3. (a) A company produces two products x and y. The total Profit (in ₹ 000) earned by the company is expressed algebraically by the function $P = 100x – x^2 – 2xy + 200y – 3y^2$. Calculate the Profit maximizing quantities of the products. Also calculate the maximum Profit. **[7]**

(b) Explain briefly the Risk Enabled Performance Management (REPM).Summarize the focus areas of the traditional ERM and also classify the areas of practices based on which transformation to REPM are done. **[7]**

Answer:

(a) Calculation of profit maximization price and associated profit

Profit function is given as: $P = 100x – x^2 – 2xy + 200y – 3y^2$

Differentiating the function partially with respect to x we get,

$Px = 100 – 2x – 2y$ (I)

Also differentiating the function partially with respect to y we get

$Py = – 2x + 200 – 6y$ (II)

To determine the Critical Point we have $Px = 0$ and $Py = 0$

So, $100 – 2x – 2y = 0$ Or. $x + y = 50$ --------- (1)

and $- 2x + 200 – 6y = 0$ Or, $x + 3y = 100$ …….(2)

(2) – (1) gives, $2y = 50$ Or, $y = 25$ Putting $y = 25$ in (1) we get $x = 25$

Thus Critical Point is (25, 25)

To check whether this point is a local Maxima, we have to find out the values of the 2nd Order Partial Derivatives at this point.

Again differentiating (I) partially with respect to x we get $Pxx = -2$ Or,

$A = -2$ (Let) Or, $A < 0$

Similarly differentiating (II) partially with respect to y we get $Pyy = -6$

Or, $C = -6$ (Let)

Or, $C < 0$

Also differentiating (I) partially with respect to y we get $Pxy = –2$ Or,

$B = –2$ (Let)

So $D = AC – B2 = (–2) \times (–6) – (–2)2 = 8 > 0$

Hence $D > 0$ and $A, C < 0$

Thus, there is a local Maxima at the already determined Critical Point (25, 25).

Required Profit maximizing quantities of the products are x = 25 units and y = 25 units.
Also, Maximum Profit = Value of the function P (at x = 25 & y = 25)
= $100 \times (25) - 25^2 - 2(25)(25) + 200(25) - 3(25)^2$
= ₹ 3,750 (in 000)

(b) Risk Enabled Performance Management (REPM):

For the purpose of handling uncertainties and opportunities at the same time, business leaders need to be incorporate risk exposure, what-if scenarios, uncertainty, best case/worst case forecast, earned value models, risk drivers and contingency plans etc. in their business plans. They cannot afford the traditional set up where risk is something handled independently by risk managers once a quarter. They need access to the insights, tools and models on a continuous basis. Thus, there is a need for a more comprehensive Risk Enabled Performance Management (REPM) which grows out of the traditional ERM model.

The focus areas of the traditional or foundational ERM may be summarized as

1. Independent enterprise risk identification and assessment process.
2. Risk reporting to the top management is one of the primary aspect of traditional ERM.
3. The risk management process is independent of operations and performance management.
4. Historical perspective designs the evaluation of current exposure
5. The focus is on compliance.

The transformation to REPM is based on some leading practices which are grouped in three aspects;

A) REPM is used to measure and drive performance

(i) Integrates risk and performance management.

(ii) Creates linkages between KRIs and performance drivers.

(iii)Uses data analytics for risk analysis

B) REPM is forward looking

(i) Defines future trends and undertakes predictive analysis

(ii) Emerging risks are also considered

(iii)Scenario analysis and stress testing are two important tools used

C) Action and result orientation- Risk and uncertainty are key elements in strategic and operational decision framework and management process.

4. (a) The following is the extracts from the financial records of Linku LLP and Pinku LLP:

(₹ in Thousands)

	Linku LLP		**Pinku LLP.**	
	2023	**2024**	**2023**	**2024**
Net Income	**1,000**	**1,200**	**2,100**	**2,100**
Revenue from operation	**10,000**	**10,000**	**17,500**	**17,500**
Average Assets	**5,000**	**4,800**	**8,750**	**8,750**

Average Equity	**2,000**	**2,000**	**5,000**	**3,500**

You are required to calculate the ROE of both the companies for both the years and explain the performance of the two companies on the basis of the DuPont analysis.

[7]

(b) Beneish M-score analysis for The Finshore Co. (TFC) is shown in the following table:

Index	Score
DSRI	**1.19**
GMI	**0.88**
AQI	**0.90**
SGI	**1.12**
DEPI	**1.19**
SGAI	**0.78**
LVGI	**0.12**
TATA	**0.55**

Calculate the Beneish M-score of the company. Further, explain the implications of the DSRI and DEPI variables for TFC. **[7]**

Answer:

(a) Du-Pont Analysis of Linku LLP & Pinku LLP:

(Figures in ₹ 000)

		Linku LLP		Pinku LLP	
	Particulars	2023	2024	2023	2024
a	Net Income	1,000	1,200	2,100	2,100
b	Revenue from operation	10,000	10,000	17,500	17,500
c	Profit Margin (a ÷ b)	0.10	0.12	0.12	0.12
d	Average Assets	5,000	4,800	8,750	8,750
e	Asset Turnover (b ÷ d)	2.00	2.08	2.00	2.00
f	Average Equity	2,000	2,000	5,000	3,500
g	Equity Multiplier (d ÷ f)	2.50	2.40	1.75	2.50
h	ROE (c × e × g)	50%	60%	42%	60%

It is obvious from the above table that, Linku LLP improved its profit margins by increasing net income and reducing its total assets. Shareholders' equity has remained stable at ₹2000. The equity multiplier has marginally fallen as the average assets is reduced. Simply, Linku LLP improved its profit margin and asset turnover while equity remained constant. It can be also inferred that there is partial reduction of debt since average total asset has declined while equity has remained constant.

While the situation at Pinku LLP is very dissimilar. It may be observed that the profit margin and the asset turnover both has remained the same over the years. ROE has significantly risen from 42% to 60% over the two-year period. The entire change in ROE is due to an increase in equity multiplier which increased from 1.75 to 2.5. This is also projected in the fact that though the average asset remained same at ₹8750, equity decreased from ₹5,000 to ₹3,500 implying that there is debt instrument in the capital structure.

Linku LLP's performance improvement in 2024 is more sustainable, as it is driven by margin and efficiency gains. Pinku LLP increased its ROE mainly by increasing financial leverage, which might involve higher risk. Investors and stakeholders should consider not just the ROE but how it is achieved - Linku LLP shows a healthier operational improvement path.

(b) Calculation of Beneish M-Score:

Index	Score	Coefficient	Composite Score
DSRI	1.19	0.92	1.095
GMI	0.88	0.528	0.465
AQI	0.9	0.404	0.364
SGI	1.12	0.892	0.999
DEPI	1.19	0.115	0.137
SGAI	0.78	-0.172	-0.134
LVGI	0.12	-0.327	-0.039
TATA	0.55	4.679	2.573
			5.459
			-4.840
Beneish M-Score			0.619

Since M-score (0.619) > -2.22, TFC is likely a manipulator.

Both DSRI and DEPI (as well as SGI) have a value greater than 1. A DSRI value greater than 1 may indicate that the firm is accelerating revenue recognition. A DEPI value greater than 1 indicates that the depreciation rate was lower than the previous year. TFC may have used aggressive estimates for estimated useful lives or estimated salvage values or may be adopting more income friendly methods of depreciation.

5. (a)

Baazee.com, a book selling company reported earnings per share of ₹2.40 in 2024-25 and paid dividends per share of ₹1.06. The earnings had grown 7.5% a year over the prior five years and were expected to grow 6% per year in the long term (starting in 2025-26). The stock had a beta of 1.05 and traded for ten times earnings. The Treasury bond rate is 7% and the market risk premium is 5.5%.

(i) Apply the earnings valuation model to calculate the P/E ratio for Baazee.com.

(ii) Calculate the long-term growth rate implied in the firm's current P/E ratio.

(iii) Also Calculate the value of an equity share assuming a P/E ratio of 8 and current EPS. **[7]**

(b) The valuation of Advik Inc. has been done by an investment analyst. Based on an expected free cash flow of ₹ 54 lakhs for the following year and an expected growth rate of 9%, the analyst has estimated the value of Advik Inc. to be ₹1,800 lakh. However, he committed a mistake of using the book values of debt and equity. The book value weights employed by the analyst are not known, but you know that Advik Inc. has a cost of equity of 20% and post-tax cost of debit of 10%. The value of equity is thrice its book value, whereas the market value of its debt is nine-tenths of its book value. Calculate the correct value of Advik Inc. **[7]**

Answer:

(a) (i) Payout Ratio = DPS/ EPS = ₹1.06/₹2.40 = 44.17%
Expected Growth Rate = 6%
Cost of Equity = 7% + 1.05 × 5.5% = 12.775%
We know that,
$P = D / (K_e – g)$
Or, $P/E = D/ E (K_e-g)$
Or, $P/E = Payout (1+g) / (K_e-g)$
$= (0.4417 \times 1.06) / (0.12775 – 0.06) = 6.91$

(ii) The Stock is trading at ten times earnings.
P/E ratio = 10 = 0.4417 (1+g) / (0.12775-g)
Solving for g, g = (1.2775-0.4417)/10.4417
g = 8%

(iii) The value of equity share = P/E × EPS = 8 × ₹2.4 = ₹19.20

(b) Computation of wrong WACC used by the analyst

Value of firm = $FCFF_1 / (WACC – g)$
1800 lakhs = 54 lakhs / (WACC – 0.09)
WACC – 0.09 = 54/1800= 0.03
WACC = 0.03+0.09 = 0.12 or 12%

Computation of weights used by the analyst:
Let us assume weight of equity to be X and weight of debt will be 1-X

Source	Cost	Weight	Product
Equity	20	X	20X
Debt	10	1 - X	10 -10X
Total	12	1	20X +10 -10X

Therefore, 20X +10 -10X = 12; 10X = 2 ; X = 0.2
Hence, the weight of equity is 20% and weight of debt is 80%.

Computation of correct WACC with correct weights:
Weight of equity = 0.20 ×3 = 0.60
Weight of debt = 0.80 × 9/10 = 0.72

Source	Cost	Weight	Product
Equity	20	0.60	12.00
Debt	10	0.72	7.20
Total		1.32	19.20

WACC = 19.20/1.32 = 14.55%

Correct valuation of Advik Inc.:
Value of firm = $FCFF_1$ / (WACC – g) = 54 lakhs / (14.55% - 9%) = ₹972.97 lakhs

6. (a) EduZone Ltd. engaged in providing coaching to commerce students has a capital base of ₹1 crore and has earned a profit of ₹11 lakhs. Return on investment among the peer companies is 12.5%. The company is considering hiring CMA Dinesh and as a result it is expected that profits will increase by ₹2.50 lakhs over and above the target profit. Calculate the amount of maximum bid price EduZone Ltd. can offer for CMA Dinesh and maximum salary that could be offered to him.

[7]

(b) Goodluck Ltd. has developed a high-tech product which has reduced the Carbon emission from the burning of the fossil fuel. The product is in high demand. The product has been patented and has a market value of ₹ 100 Crore, which is not recorded in the books. The Net Worth (NW) of Goodluck Ltd. is ₹ 200 Crore. Long term debt is ₹ 400 Crore. The product generates a Net Operating Profit after Tax of ₹ 84 Crore. The rate on 365 days Government bond is 10% p.a. Market portfolio generates a return of 12% p.a. The stock of the company moves in tandem with the market. Calculate Economic Value added of the company. **[7]**

Answer:

(a) Calculation of Maximum Bid Price & Maximum Salary Payable:

Particulars	₹ in lakhs
Capital Base	100.00
Target Profits (Capital Base × 12.50%)	12.50
Add: Extra Profits due to induction of the Executive	2.50
Total Profits of the Company (anticipated after induction of the Executive)	15.00
Less: Current Profits	11.00
Incremental Profit	4.00

Maximum Salary Payable = Incremental profit due to introduction= ₹4 lakhs

Maximum Bid Price = Value of salary payable in perpetuity
= Maximum Salary / desired rate of return
= ₹4 lakhs / 12.5% = ₹32 lakhs.

(b) Calculation of Total Investment:

	₹ Crores
Net Worth	200
Long term debt	400
Patent Rights	100
Total Investment	700

Calculation of Weighted Average Cost of Capital:

WACC (K_0) = $K_e \times E / (E+D) + K_d \times D / (E+D)$

= 12 × 300 /700 + 10 × 400/700

= 5.14% +5.71% = 10.85%

Calculation of EVA:

EVA = NOPAT – (WACC × Total Capital Employed)

EVA=₹84Crore –(0.1085× ₹700Crores)

EVA = ₹8.05 Crore

7. (a) The Shareholders of Aditya Co. have voted in favour of a buyout offer from Subhajit Co. Information about each firm is given here below. Moreover, Aditya Co.'s shareholders will receive one share of Subhajit Co. Stock for every three shares they hold in Aditya Co.

Particulars	Subhajit Co.	Aditya Co.
Present earnings	**₹6.75 lakhs**	**₹ 3.00 lakhs**
EPS	**₹3.97**	**₹5**
Number of Share	**1.70 lakhs**	**0.60 lakhs**
P/E ratio	**20**	**5**

Apply the given information to calculate the post-merger EPS of Subhajit Co. Further, determine the P/E ratio assuming the acquisition has zero NPV. Also, evaluate the value of synergy between the two firms and justify how this is consistent with the decision to proceed with the takeover.

[7]

(b) Consider two firms that operate independently and have the following characteristics: (₹ in lakhs)

	NILU Ltd.	PILU Ltd.
Revenue	**6000**	**3,000**

COGS	**3,500**	**1,800**
EBIT	**2,500**	**1,200**
Expected Growth Rate	**5%**	**7%**
Cost of Capital	**8%**	**9%**

Both firms are in steady state with capital spending offset by depreciation. Both firms have an effective tax rate of 40% and are financed only by equity.

Consider the following two scenarios:

Scenario I: Assume that combining the two firms will create economies of scale that will reduce the COGS to 50% of revenues.

Scenario II: Assume that as a consequence of the merger, the combined firm is expected to increase its future growth to 7% while COGS will be 60%.

It is given that Scenario I and II are mutually exclusive.

You are required to compute the value of Synergy in Scenario I & II above.

[7]

Answer:

(a) (i) The EPS of the combined company will be the sum of the earnings of both companies divided by the shares in the combined company. Since the stock offer is one share of the acquiring firm for three shares of the target firm, new shares in the acquiring firm will increase by one- third [Exchange ratio = 1/3].

So, the new EPS will be:

EPS = (₹300,000 + 675,000)/ [170,000 + (1/3) (60,000)] = ₹ 5.132.

The market price of Subhajit Co. will remain unchanged if it is a zero NPV acquisition. Using the PE ratio, we find the current market price of Subhajit Co. stock, which is = P/E × EPS = 20 × (6.75 lakhs/ 1.70 lakhs) = ₹ 79.41

If the acquisition has a zero NPV, the stock price should remain unchanged. Therefore, the new PE will be:

P/E = ₹ 79.41 / ₹ 5.132 = 15.48

(ii) If the NPV of the acquisition is zero, it would mean that Subhajit Co. would pay just the market value of Aditya Co. i.e.

Number of shares x market price of Aditya Co. i.e., = 60000 × 25 [MPS = P/E × EPS = 5 × 5 = 25]. The market value received by Subhajit co. = ₹ 15,00,000.

The cost of the acquisition is the number of shares offered times the share price, so the cost is:

Cost = (1/3) (60,000) (INR 79.4118) = ₹ 15,88,236.

The difference is synergy i.e. (15,00,000 - 15,88,236) = ₹ 88,236.

(b) Calculation of Value of Firms without synergy

Value of NILU Ltd. = FCFF (1+g) / (k_e-g)

= EBIT (1-t) (1+g) / (k_e-g)

= 2500(1-0.4)(1+0.05)/(0.08-0.05)= ₹52,500 lakhs

Value of PILU Ltd. = FCFF (1+g) / (k_e-g)

= EBIT (1-t) (1+g) / (k_e-g)

= 1200(1-0.4)(1+0.07) / (0.09-0.07)= ₹38,520 lakhs

Value of both the firms without synergy = 52,500+38,520= ₹91,020 lakhs

Weighted Average Cost of Capital of the combined firm

= 8% × (52500/91020) +9% × (38,520/91,020)

= 8.42%

Expected Growth rate of the combined firm

= 5% × (52,500/91,020) + 7% × (38,520/91,020)

= 5.84%

Calculation of Value of Synergy: (₹ in Lakhs)

	Scenario I	Scenario II
Revenue	9,000	9000
COGS	4,500	5400
EBIT	4,500	3600
PAT	2,700	2160
Cost of Capital	8.42%	8.42%
Growth Rate	5.84%	7.00%
Value	1,10,763	1,62,760
Value of the firm without Synergy	91,020	91,020
Value of Synergy	19,743	71,740

8. (a) Mr. Sandip runs NovaTech Appliances, a mid-sized home appliance manufacturing company in Pune. Over the last three financial years, the company has faced growing competition, raw material cost fluctuations, and pressure on margins. Mr. Sandip is concerned about declining profitability and wants a comprehensive financial performance analysis.

Here's NovaTech's summary financial data (in ₹ lakhs):

Income Statement Highlights:

Particulars	2022	2023	2024
Revenue	**1,200**	**1,350**	**1,440**
COGS	**780**	**900**	**1,020**
Operating Expenses	**240**	**270**	**300**
EBIT	**180**	**180**	**120**
Interest	**20**	**25**	**30**

Required:

(i) Describe and interpret the year-over-year trend in key financial metrics such as revenue growth, EBIT margin, and net profit margin.

(ii) If Mr. Sandeep is considering investing ₹150 lakhs in automation to improve margins by 4% from 2025 onward, explain the financial viability and strategic justification for the investment (assume a 5-year benefit period and 12% cost of capital). Ignore depreciation and taxation. Given PV factor @12% for 5 years is 3.605.

[7]

(b) In the bustling corridors of Zenith Technologies Ltd., the ambitious Chief Executive Officer, Ms Nilima, had a singular belief: "The market rewards performance through Earnings Per Share (EPS); that's what our shareholders care about the most." To her EPS was not just a number- it was the compass guiding every strategic decision.

One fine Monday morning, Nilima was reviewing the company's financial dashboard which has the following figure:

Particulars	Amount (₹)
Net Profit	80 lakhs
EPS	4
MPS	42

Driven by her vision of expanding the company's footprint, she eyed a promising acquisition - Delta Systems Pvt. Ltd., a smaller firm known for its niche technology and steady profits which has current income of ₹15.75 lakhs, EPS of ₹10.50 and the market price per share of ₹85. Calculate the maximum exchange ratio that Ms. Nilima should offer to ensure that the Earnings Per Share (EPS) remains at the current level. If Ms Nilima borrows funds at 15% rate of interest and buys out the firm by paying cash, then calculate the amount she offer to maintain his EPS. Assume a tax rate of 30%.

[7]

Answer:

(a) (i) Year-over-Year Trend Analysis:

(₹ in lakhs)	2022	2023	2024	YOY Change (22-23) (%)	YOY Change (23-24) (%)
Revenue	1,200	1,350	1,440	12.5	6.67
EBIT	180	180	120	0	-33.33
Net Profit	160	155	90	-3.13	-41.94
Gross Profit	420	450	420	7.14	-6.67
Operating Expenses	240	270	300	12.5	11.11

Key Observations:

- Revenue is growing but growth rate is slowing down.
- EBIT remains flat from 2022 to Year 2023 but drops sharply in 2024 (-33%).
- Net profit declines, especially in 2024, reflecting margin pressures.
- Operating expenses are increasing consistently.

- Gross profit increased in 2023 but decreased in 2024 indicating margin pressure from rising COGS.

(ii) Financial Viability of ₹150 lakhs Automation Investment:

Assuming revenue growth continues at 6.67% from 2024 to 2025, revenue in 2025 = 1440 × 1.0667 = ₹ 1536 lakhs
Current net profit margin = 6.25 % (in 2024) (90/1440)
If improved by 4%, the new margin is 10.25%.
Now net profit for 2025 = 10.25 % × ₹1536 = ₹157.44 lakhs
Old Net Profit for 2025 = 6.25 % × ₹1536 = ₹96 lakhs

Incremental profit due to automation = ₹157.44 -₹96 = ₹61.44 lakhs.

NPV of the investment = ₹61.44 × 3.605 - ₹150 = ₹71.5 lakhs.

Since there is a positive NPV, the proposal is financially viable.

(b) Current data:

	Zenith Technologies Ltd	Delta Systems Pvt. Ltd.
Net Profit	80,00,000	15,75,000
EPS	4	10.50
MPS	42	85
No. of equity shares	20,00,000	1,50,000

Maximum Exchange Ratio = 4: 10.50 or 1: 2.625
Thus, for every one share of Delta Systems Pvt Ltd, 2.625 shares of ZenithTechnologies Ltd. to maintain the current EPS level.

Alternatively:
Combined net profit / No. of shares = 4,
(80 lakhs + 15.75 lakhs) / (20 lakhs + x) = 4
Solving for x, we have x = 3,93,750 shares
Share Exchange Ratio = 3,93,750 / 1,50,000 = 2.625
The acquiring company can offer its 2.625 shares against the target company's 1 share.

Let A lakhs be the amount paid by Zenith Technologies Ltd to Delta Systems Pvt Ltd. Since the EPS is maintained at the current level i.e. ₹4, we have
{(80 lakhs + 15.75 lakhs) – (0.70 X 15% X A)} / 20 lakhs = 4
Or A = 150 lakhs.
Thus ₹150 lakhs should be offered in cash to maintain the same EPS.