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]

   (a) (i) The _____ ratios are used to compare financial statements of different size companies or the same company over different periods.
      (A) Common size
      (B) DuPont
      (C) Liquidity
      (D) P/E

    (ii) Trend analysis is an important tool of financial statement analysis and is also known as _____
      (A) Horizontal analysis
      (B) Vertical analysis
      (C) Pyramid method
      (D) None of the above

    (iii) Market price per share of a firm having equity capital of ₹1,00,000 consisting of shares of ₹10 each, profit after tax of ₹82,000 & P/E ratio of 8 is
      (A) ₹65.70
      (B) ₹10.25
      (C) ₹65.60
      (D) ₹1.025

    (iv) X ltd has ₹100 crores worth of common equity on its balance sheet comprising of 50 lakhs shares. The company's market value Added (MVA) is ₹24 crores. What is company's stock price?
      (A) ₹230
      (B) ₹238
      (C) ₹248
      (D) ₹264

    (v) Reverse mapping is a bottom up approach used in _____
      (A) Strategy formulation
      (B) Strategy implementation
      (C) Formulation of operational plan
      (D) Formulation of tactical plan

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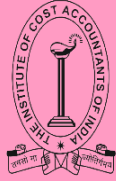
STRATEGIC PERFORMANCE MANAGEMENT AND BUSINESS VALUATION

(vi) 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%

(vii) If an all equity firm has cash from operating Activities amounting to ₹60 lakhs, Depreciation ₹30 lakhs, increase in non-cash working capital ₹25 lakhs and capital expenditure ₹20 lakhs, its Free cash flows to Equity amounts to (in ₹ Lakhs):

(A) ₹40 lakhs

(B) ₹45 lakhs

(C) ₹60 lakhs

(D) ₹90 lakhs

(viii) 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%

(ix) Which one of the following is cannot be classified as systematic risk.

(A) Interest rate risk

(B) Political risk

(C) Credit risk

(D) Foreign exchange risk

(x) 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

(b) An investor has been watching two similar companies, Lotus Inc., and ASA Inc. that have recently been improving their return on equity compared to the rest of companies in the industry. This could be a good thing if the two companies are making better use of assets or improving profit margins. But if the companies have increased the debt proportion in the capital structure, this would also be reflected in the ROE but would actually mean an increase in the financial risk perception of the companies.

In order to decide which company has a better opportunity, the investor decides to use DuPont analysis to determine the efforts of each company in improving its ROE and whether that improvement is sustainable.

The following information are provided:

				figures in ₹ '000	
Particulars		**Lotus Inc.**		**ASA Inc.**	
		Year 1	**Year 2**	**Year 1**	**Year 2**
i.	**Net Income**	1,000	1,200	2,100	2,100
ii.	**Revenue from operation**	10,000	10,000	17,500	17,500
iii.	**Average Assets**	5,000	4,800	8,750	8,750
iv.	**Average Equity**	2,000	2,000	5,000	3,500

Based on the above case, you are required to answer the questions no. from (i) to (v):

(i) The profit margin of Lotus Inc. in the Year 2 will be:
    (A) 8.33
    (B) 0.1
    (C) 0.12
    (D) None of the above.

(ii) What will be the asset turnover ratio of ASA Inc. in Year 1?
    (A) 2
    (B) 2.08
    (C) 0.5
    (D) None of the above.

(iii) Which company has better ROE in Year 1?
    (A) Lotus Inc.
    (B) ASA Inc.
    (C) Both companies have same ROE
    (D) None of the above.

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(iv) **The ROE of Lotus Inc. in the Year 1 will be:**
(A) **42%**
(B) **50%**
(C) **60%**
(D) **None of the above.**

(v) **The equity multiplier of ASA Inc. in Year 1 and Year 2 will be respectively:**
(A) **2.5 and 2.4**
(B) **2.5 and 1.75**
(C) **1.75 and 2.5**
(D) **None of the above.**

Answer:

(a)

(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
A	C	C	C	A	C	A	B	C	A

(b)

(i)	(ii)	(iii)	(iv)	(v)
C	A	A	B	C

SECTION – B

(Answer any five questions out of seven questions given. Each question carries 14 Marks.)
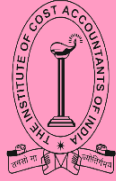
[5x14=70]

2. (a) **Explain the five misrepresentation of Customer–Relationship – Management (CRM).** **[7]**
   (b) **Summarize the four perspective of Balanced Score Card (BSC).** **[7]**

Answer:

(a) Customers are categorized as profitable or unprofitable. Strategies need to be developed either for enticing new profitable customers, safeguarding relationships with old profitable customers or terminating relationships with unprofitable customers. In order to zero down on the concept of CRM an elucidation about the misinterpretations about CRM is required which are put forward in the following few lines.

- Misrepresentation 1: CRM is merely 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.

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- Misrepresentation 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.

- Misrepresentation 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.

- Misrepresentation 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.

- Misrepresentation 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 (for example frequent-flyer gets admission to a loyalty programme and accumulates points which are convertible to free air miles with every travel she/he undertakes). 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) BSC provides CEOs with a comprehensive framework that translates a company's vision and strategy into a coherent set of performance measures. Organisations adopt mission statements to communicate fundamental values and beliefs to the stakeholders. Traditional performance measurement models assist to gauge the organisation's efforts in realisation of the mission and strategy. BSC is more than a measurement system. In BSC, traditional financial measures based on past performance are retained. 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. Thus the model embraces four perspectives for measurement of organizational performance which are:

1. Financial: The financial perspective serves as the focus for the objectives and

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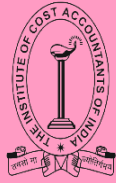STRATEGIC PERFORMANCE MANAGEMENT AND BUSINESS VALUATION

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) = Q² + 10Q + 12. Calculate how many items he should sell to make the maximum profit and also calculate the maximum profit.**   **[7]**

     (b)   **Explain the Risk Management and the objectives of it. Describe how risk is reduced through diversification in the context of enterprise risk management.**   **[7]**

Answer:

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

Revenue (R) = P × Q = $330Q – Q^2$

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

$\pi = 330Q – Q^2 – Q^2 - 10Q - 12$

$\pi = 320Q – 2Q^2 - 12$

in order to maximize the profit, the two steps are followed.

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

Thus, at Q = 320/4 = 80, which is the critical point of the profit function.

Thus the second order condition is taken up.

$= d^2\pi/\partial Q^2 = - 4$ which is negative

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

$\pi = 320Q – 2Q^2 - 12$

$\pi = 320 (80) – 2(80)^2 - 12$

$\pi = 12788$

(b)   Risk management is the process of measuring or assessing risk and developing strategies to manage it. Risk management is a systematic approach in identifying, analyzing and controlling areas or events with a potential for causing unwanted change. It is through risk management that risks to any specific program are assessed and systematically managed to reduce risk to an acceptable level. Risk management is the act or practice of controlling risk. It includes risk planning, assessing risk areas, developing risk handling options, monitoring risks to determine how risks have changed and documenting overall risk management program.

Risk management basically has the following **objectives:**

1.   Anticipating the uncertainty and the degree of uncertainty of the events not happening the way they are planned.

2.   Channelizing events to happen the way they are planned.

3.   Setting right, at the earliest opportunity, deviations from plans, whenever they occur.

4.   Ensuring that the objective of the planned event is achieved by alternative means when the means chosen proves wrong, and

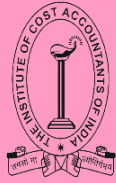5.   In case the expected event is frustrated, making the damage minimal.

Risk Reduction through Diversification: The important principle to consider that in an efficient capital market, investors should not hold all their eggs in one basket; they should hold a well-diversified portfolio. In order to diversify risk for the creation of an efficient portfolio (one that allows the firm to achieve the maximum return for a given level of risk or to minimize risk for a given level of return), the concept of correlation must be understood. Correlation is a statistical measure that indicates the relationship, if any, between series of numbers representing anything from cash flows to test data. If the two series move together, they are positively correlated; if the series move in opposite directions, they are negatively correlated. The existence of perfectly correlated (especially negatively correlated) projects is quite rare. In order to diversify project risk and thereby reduce the firm's overall risk, the projects that are best combined or added to the existing portfolio of projects are those that have a negative (or low positive) correlation with existing projects

4.   **(a)**   **Describe RONA (Return on Net Assets) and its implications in details.**   **[7]**

     (b)   **Mr. Hajime is considering investing in bonds of two companies; Lotus Inc. and Woodex Inc. He has a recently received a sum of ₹ 35,50,000 from sale of a market related insurance product which he invested in 10 years back. He is nearing retirement age and desire to undertake minimal risk in his investment. He is also worried about the default risk associated with his investment and desire to assess the chance of the company (in which he invests) going bust. For the purpose of the financial assessment he recalls his childhood friend Simmamoto who is currently into financial consultancy. He requests her to assess the bankruptcy risk associated with the two companies; Lotus Inc. and Woodex Inc. For the purpose she looks into the financial statements of the two companies which are extracted from the annual reports and are given below;**

     Relevant particulars from the annual reports of Lotus Inc. and Woodex Inc.

Particular	Lotus Inc.	Woodex Inc.
	Amount (₹)	Amount (₹)
Working Capital	10,00,000	20,00,000
Retained Earnings	5,00,000	9,50,000
Earnings Before Interest and Taxes	7,50,000	7,50,000
Market Value of Equity	15,00,000	18,00,000
Sales	12,00,000	15,00,000
Total Assets	10,00,000	12,00,000
Total Liabilities	10,00,000	12,00,000

Calculate which company is safer to invest by using Altman Z score and why. [7]

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Answer:

(a) Return on net assets (RONA) is measure of profitability which calculates net profit as a proportion of the sum of fixed assets and net working capital. Thus RONA is yet another variation of the return on investment which considers the investment in the working capital, as well. The net profit, considered, is after interest and taxes. Algebraically,

$$RONA = Net\ Profit/(fixed\ assets + NWC)$$

Where,

NWC = Current Assets −Current Liabilities

RONA = Return on net assets

NWC = Net working capital

The RONA ratio shows how well a company and its management are deploying assets in economically valuable ways; a high ratio result indicates that management is squeezing more earnings out of each dollar invested in assets. RONA is also used to assess how well a company is performing compared to others in its industry. Three important key aspects of the RONA may be identified;

a)   Return on net assets (RONA) compares a firm's net profits to its net assets to show how well it utilizes those assets to generate earnings.

b)   A high RONA ratio indicates that management is maximizing the use of the company's assets.

c)   Net income and fixed assets can be adjusted for unusual or non-recurring items to gain a normalized ratio result.

Implications of RONA:

RONA provides a comparison between a firm's net income and its assets (fixed asset and excess of current asset over current liabilities). This provides assistances to financial analysts to define how well the company is generating profit from its assets. The higher a firm's earnings relative to its assets, the more effectively the company is deploying those assets. RONA is an especially important metric for capital intensive companies, which have fixed assets as their major asset component. In the capital-intensive manufacturing sector, RONA can also be calculated as:

$$RONA = Plant\ Revenue – Costs/\ Net\ Assets$$

RONA is just another ratio used to evaluate a company's financial health of the enterprise.

(b) The Altman Z-Score for Lotus Inc. as follows;

$$Z = 1.2\ X_1 + 1.4\ X_2 + 3.3\ X_3 + 0.6\ X_4 + 0.999\ X_5$$

Where,

X_1 = Working capital/Total Assets= 10,00,000/10,00,000= 1

X_2 = Retained/Total Assets= 5,00,000/10,00,000= 0.5

X_3 = Earnings before Interest and Taxes/Total Assets= 7,50,000/10,00,000= 0.75

X_4 = Market value of equity/Book value of total liabilities = 15,00,000/10,00,000= 1.5

X_5 = Sales/Total Assets= 12,00,000/10,00,000 = 1.2

Therefore, Altman Z-Score (Z) is given as

$Z = 1.2 X_1 + 1.4 X_2 + 3.3 X_3 + 0.6 X_4 + 0.999 X_5$

$Z = 1.2 \times 1 + 1.4 \times 0.5 + 3.3 \times 0.75 + 0.6 \times 1.5 + 0.999 \times 1.2$

$Z = 6.4738$

The Altman Z-Score for Lotus Inc as follows;

$Z = 1.2 X_1 + 1.4 X_2 + 3.3 X_3 + 0.6 X_4 + 0.999 X_5$

WHERE,

X_1 = Working capital/Total Assets= 20,00,000/12,00,000= 1.67

X_2 = Retained/Total Assets= 9,50,000/12,00,000= 0.79

X_3 = Earnings before Interest and Taxes/Total Assets= 7,50,000/12,00,000= 0.625

X_4 = Market value of equity/Book value of total liabilities= 18,00,000/12,00,000= 1.5

X_5 = Sales/Total Assets= 15,00,000/12,00,000 = 1.25

Therefore, Altman Z-Score (Z) is given as

$Z = 1.2 \times 1.67 + 1.4 \times 0.79 + 3.3 \times 0.625 + 0.6 \times 1.5 + 0.999 \times 1.25$

$Z = 7.32125$

Simmamoto will advise Hajime that both the companies have pretty good scores and are considered to be financially heathy since the Z score of the companies under consideration is substantially higher than three.

$Z_{Lotus\ Inc} = 6.4738$

$Z_{Woddex\ Inc} = 7.32125$

However there is slight difference in the scores and from the above it is clear that $Z_{Woddex\ Inc} > Z_{Lotus\ Inc.}$. Thus Simmamoto will advise Hajime that though both the companies are in safe as regards to bankruptcy risk it may be stated that Woddex Inc. is a slightly safer company to invest than Lotus Inc as projected by the Altman Z score.

5. (a) **Ratnakar Ltd. agrees to buy over the business of JSB Ltd. effective 1st April, 2023. The summarized Balance Sheet of Ratnakar Ltd. as on 31st March 2023**

are as follows:

Balance Sheet as at 31st March, 2023 (In crores)

Liabilities	Ratnakar (₹)	JSB (₹)
Paid up Share Capital		
Equity Shares of ₹100 each	350	-
Equity Shares of ₹10 each	-	6.5
Reserve & Surplus	950	25
Total	1300	31.5
Assets		
Net Fixed assets	220	0.5
Net Current assets	1020	29
Deferred current asset	60	2
Total	1300	31.5

Ratnakar Ltd. proposes to buy out JSB Ltd. and the following information is provided to you as a part of the scheme of buying:

(1) The weighted average post tax maintainable profits of Ratnakar Ltd. and JSB Ltd. for the last 4 years are INR 300 crores and ₹10 crores respectively.

(2) Both the companies envisage a capitalization rate of 8%.

(3) Ratnakar Ltd. has a contingent liability of ₹300 crores as on 31st March, 2023.

(4) Ratnakar Ltd. to issue shares of ₹100 each to the shareholders of JSB Ltd. in terms of the exchange ratio as arrived on the share value basis. (Please Consider weights of 1 & 3 for the value of shares arrived on Net Asset basis and Equity Capitalization method respectively for Ratnakar Ltd. & JSB Ltd.

Calculate the value of the shares of both Ratnakar Ltd. and JSB Ltd. under:

a) Net Asset Value method

b) Earnings Capitalization Method

c) Exchange ratio of shares of Ratnakar Ltd to be issued to the shareholders of JSB Ltd on a Fair value basis (taking into consideration the assumptions mentioned in point 4 above) [7]

(b) A valuer has obtained the following information regarding Infolink Ltd:

Number of equities shares outstanding	₹ 300,000

Market price per share	₹ 20
Market value of Preference Shares	₹ 15,00,000
Market value of debt	₹ 35,00,000
Cash and short-term investments	₹ 8,00,000
Revenues	₹ 95,00,000
Depreciation and amortization expense	₹ 6,00,000
Interest expense	₹ 1,00,000
Taxes	₹ 3,50,000
Net Profit	₹ 14,00,000

(i)   Calculate the EV/EBITDA Ratio

(ii)   E-Link Ltd has reported an EBITDA of ₹27,00,000 and is a comparable company to Infolink Ltd. Calculate the Enterprise Value of E-Link Ltd.

[7]

Answer:

(a)

(i)   Net Asset Value
       Ratnakar Ltd. (₹ in Crores) = (1300-300)/3.5 = 285.71
       JSB Ltd (₹ in Crores) 31.5 /0.65 = 48.46

(ii)   Earning Capitalization Value
       Ratnakar Ltd. (₹ in Crores) =(350 / 8)/3.5 = 1071.43
       JSB Ltd. (₹ in Crores) = (10 / 0.08)/ 0.65 = 192.31

(iii) Fair Value
       Ratnakar Ltd. (₹ in Crores) =(285.71 x 1) + (1071.43 x3)/4= 875
       JSB Ltd. (₹ in Crores) = {(48.46 x1)+(192.31x 3)}/4= 156.3475
       Exchange Ratio = 156.3475/875 = 0.1787
       Ratnakar Ltd. should issue 0.1787 share for each share of JSB Ltd.

Note: In above solution it has been assumed that the contingent Liability will materialize at its full amount.

(b)   Calculation of EV/EBITDA Ratio of Infolink Ltd.

Enterprise Value	₹
Market Value of Equity	60,00,000
Add: Value of Debt	35,00,000
Add: Value of Preference Capital	15,00,000
Less: Cash and Cash Equivalents	8,00,000
Enterprise Value	1,02,00,000

EBITDA	₹
Net profit after tax	14,00,000
Add: Taxes	3,50,000
Add: Interest Expense	1,00,000
Add: Depreciation and Amortisation	6,00,000
EBITDA	24,50,000

The EV to EBITDA multiple is given by ₹1,02,00,000 / 24,50,000 = 4.16

Calculation of EV of E-Link Ltd.:

Enterprise Value = V/EBITDA Multiple × EBITDA = 4.16 × 27,00,000 = ₹1,12,32,000.

6.   (a)   **V. Goel, the current Copyright holder of the book "Business Valuation, Practitioners' Guide valuation of Companies" is willing to sell the copyrights of his book to a publisher who is keen to buy the copyrights. The following assumptions may be relevant.**

            Currently, 2500 copies of the book are sold at an annual price of ₹1,750 per book. The cost of production, distribution and author royalties amount to 70% of Sales. The book is becoming popular and the publisher estimates that the sales of the book may increase by 5 % every year for the next 5 years and for 2 % from year 6 to 10. This is including the newer editions of the same book. However, after 5 years, given the introduction of other books on the same subject, dilution of exclusivity, violation of copyrights and plagiarism, there may not be any special advantage from the book beyond year 10. Assuming a discount rate of 10 %, Assess the value of the copyrights.   [7]

   (b)   **Following is the Profit and Loss Account and Balance Sheet for M/s Henry Ltd.**

(₹ in Lakhs)

Particulars	2023	2024
Turnover	652	760
Pre-tax accounting profit 134 168	134	168
Taxation	46	58
Profit after tax	88	110
Dividends	30	36
Retained earnings	58	74

Balance Sheet extracts are as follows:

(₹ in lakhs)

Particulars	2023	2024
Fixed Assets	240	312

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Net current assets	260	320
Total	500	632
Equity Shareholders funds	390	472
Medium and long-term bank loan	110	160

The Companies performance in regard to turnover had increased by 17% along with increase in pre-tax profit by 25% but shareholders are not satisfied by the company's preference in the last 2 years. Calculate economic value added as suggested by M/s. Stern Stewerts & Co., USA, so that reasons of nonsatisfaction can be evaluated.
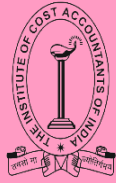
You are also given-

SN.	Particulars	2023	2024
1.	Pre-tax cost of debt	9%	10%
2.	Cost of equity	15%	17%
3.	Tax rate	35%	35%
4.	Interest expense (₹ in lakhs)	₹8	₹12

[7]

Answer:

(a) The copyrights valuation can be done using the Market or Income or even cost approach. Let's say we apply the Income approach to value the copyrights.

Amount in ₹Lakh	0	1	2	3	4	5	6	7	8	9	10
Annual Increase	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%
Book Price (₹)	1750										
Unit Sales per Year	2500										
Revenue	43.75										
Less: Costs @ 70%	30.63										
Cash Flows	13.13	13.78	14.47	15.19	15.95	16.75	17.09	17.43	17.78	18.13	18.49
PV Factor @ 10%		0.909	0.826	0.751	0.683	0.621	0.564	0.513	0.467	0.424	0.386
PV of Cash Flows		12.53	11.95	11.41	10.90	10.40	9.64	8.94	8.30	7.69	7.14
Value of Copyrights	98.89										

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(b) Calculation of ROOC:

(₹ in lakhs)

NOPAT	2023	2024
PBT	134	168
Add: Int. Expenses	8	12
Less: Taxes @ 35%	142	180
	49.7	63
NOPAT (A)	92.3	117
Operating Capital		
Equity Shareholders Funds	390	472
Long Term Debt	110	160
Operating Capital(B)	500	632
ROOC = A/B×100	18.46%	18.52%

Calculation of WACC:

Particulars	2023	2024
K_d	9%(1-0.35) ×110/500	10%(1-0.35)×160/632
	1.287%	1.645%
K_e	15% × 390/500	17% × 472/632
	11.7%	12.7%
	12.99%	14.34%
EVA		
ROOC	18.46%	18.51%
Less: WAAC	12.99%	14.34%
EVA Spread	5.47%	4.17%
EVA = Spread × Op. Cap.	2,735 Lakhs	2635.44 Lakhs

Since, EVA has declined in Year 2024 by ₹99.56 Lakhs this can be attributed as reason for non-satisfaction.

7. (a) Two firms **RAJJAN** and **REKHA** Corporation operate independently and have the following financial statements:

Particulars	Rajjan	Rekha
Revenue	₹8,00,000	₹4,00,000
Cost of Goods Sold (COGS)	₹6,00,000	₹2,40,000
EBIT	₹2,00,000	₹1,60,000
Expected growth rate	6%	8%
Cost of capital	10%	12%

Both firms are in steady state, with capital spending offset by depreciation. No working capital is required, and both firms face a tax rate of 40%. Combining the two firms will create economies of scale in the form of shared distribution and advertising cost, which will reduce the cost of goods sold from 70% of revenues to 65% of revenues. Assume that the firm has no debt capital. Calculate:

(i) The value of the two firms before the merger;

(ii) The value of the combined firm with synergy effect. [7]

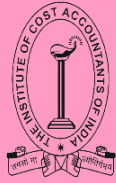(b) The following information is provided related to the acquiring firm Big Limited and the target firm Tall Limited:

	Big Ltd.	Tall Ltd.
Profit after tax (PAT)	₹ 2,000 Lakhs	₹ 400 Lakhs
Number of Shares outstanding	200 Lakhs	100 Lakhs
P/E ratio	10	5

You are required to calculate -

(i) What is the swap ratio based on current market price?

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

(iii) What is the expected market price per share of Big Limited after acquisition, assuming P/E ratio of Big Limited remains unchanged?

(iv) The market value of the merged firm.

(v) Gain/loss for shareholder of the two independent companies after acquisition. [7]

Answer:

(a) (i) Value of the Firms before the Merger

Calculation of Free Cash Flow to each of the Firm Free cash flow to RAJJAN

= EBIT (1 – tax rate) = ₹2,00,000 (1 – 0.4)

= 1,20,000 Free cash flow to REKHA

= EBIT (1 – tax rate)

= ₹1,60,000 (1 – 0.4) = ₹96,000

Value of the two firms independently

Value of RAJJAN = [1,20,000 (1.06)] / (0.10 – 0.06) = ₹31,80,000

Value of REKHA = [96,000 (1.08)] / (0.12 – 0.08) = ₹25,92,000

In the absence of synergy, the combined firm value is:

Combined Firm Value with No Synergy = ₹31,80,000 + ₹25,92,000 = ₹57,72,000

(ii)   Value of the Firm with Synergy

On combining the two firm the cost of goods sold is reduced firm 70% to 65% of revenues.

The revenue of the combined firm = ₹8,00,000 + ₹4,00,000 = ₹12,00,000

Cost of goods sold = 65% of revenues = 0.65 × ₹12,00,000 = ₹7,80,000

Weighted average cost of capital for the combined firm

= 10% [31,80,000 / 57,72,000] + 12% [25,92,000 / 57,72,000]

= 0.0551 + 0.0539 = 0.109 Or 11% approximately

Weighted average expected Growth rate for the combined firm

= 6% [31,80,000 / 57,72,000] + 8% [25,92,000 / 57,72,000]

= 0.033 + 0.0359 = 0.0689 Or 7% approximately

Particulars	Firm with no Synergy	Firm with Synergy
Revenue	₹12,00,000	₹12,00,000
Cost of Goods Sold (COGS)	₹8,40,000	₹7,80,000
EBIT	₹3,60,000	₹4,20,000
Growth rate	7%	7%
Cost of Capital	11%	11%
FCF = EBIT (1 – T)	₹2,16,000	₹2,52,000

Value of the Firm without Synergy

= [2,16,000 (1.07)] / 0.11 – 0.07 = ₹57,78,000

Value of the firm with Synergy

= [2,52,000 (1.07)] / 0.11 – 0.07 = ₹67,41,000.
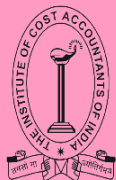
(b)   EPS before acquisition:

Big Ltd. 2,000 lakhs/200 lakhs = ₹ 10

and Tall Ltd. ₹ 400/100 = ₹4

Market price of share before an acquisition = EPS×PE ratio:

Big Ltd. ₹ 100 and Tall Ltd. ₹20

(i)   Swap ratio based on current market prices: ₹20/₹ 100 = 0.2 that is one share

of Big limited for 5 shares of Tall limited. Number of shares to be issued 100 lakhs × 0.2 = 20 lakhs.

(ii)   EPS after acquisition = (2000 lakhs + 400 lakhs) ÷ (200 lakhs + 20 lakhs) = ₹ 10.91

(iii) Expected market price per share of Big Ltd. After an acquisition after assuming PE ratio of Big limited remains unchanged is ₹10.91 × 10 = ₹ 109.10

(iv)   Market value of Merged Firm = ₹109.10 × 220 lakh shares = ₹240.02 crores

(v)   Gain from the merger: Post merger market value of merged firm 240.02 Crores (minus pre-merger market value of both firms i.e. ₹ 200 crores and ₹20 crores) = (240.02 – 220.00) = ₹20.02 crores

Gain to shareholders of both the firms :	Big Ltd.	Tall Ltd.
Post-merger value	₹ 218.20 Lakhs	₹ 21.80 Lakhs
Less: Pre-merger value	₹ 200.00 Lakhs	₹ 20.00 Lakhs
Gain to share holders	18.20	1.82

8.   (a)   **The following are the extract of the income statements of A Limited for the years ended 31.03.2023 and 31.03.2024.**

	31.03.23 (₹)	31.03.24 (₹)
Net Sales	1,70,000	1,90,400
Less :- Cost of goods sold	1,05,000	1,20,000
Gross Profit (P)	65,000	70,400
Administrative expenses (A)	13,200	14,960
Selling expenses :		
Advertisement expenses	3,000	4,000
Other selling expenses	40,800	41,800
Total selling expenses (B)	43,800	45,800
Operating expenses (A + B)	57,000	60,760
Operating Profit (D) [D = P – (A + B)]	8,000	9,640
Other Incomes (E)	6,400	9,200
Other expenses (F)	6,800	4,800
Profit before tax (PBT) [PBT = D + E – F]	7,600	14,040
Income tax (T)	3,800	6,200
Profit after tax (PAT) [PAT = PBT – T]	3,800	7,840

Illustrate and prepare a comparative income statement and interpret the performance of the company.   **[7]**
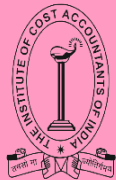
(b) Company X is contemplating the purchase of Company Y, Company X has 3,00,000 shares having a market price of ₹ 30 per share, while Company Y has 2,00,000 shares selling at ₹ 20 per share. The EPS are ₹ 4.00 and ₹ 2.25 for Company X and Y respectively. Managements of both companies are discussing two alternative proposals for exchange of shares as indicated below:

A)   in proportion to the relative earnings per share of two Companies.

B)   0.5 share of Company X for one share of company Y (0.5: 1).

You are required:

(i)   to calculate the Earnings Per Share (EPS) after merger under two alternatives; and

(ii) to assess the impact on EPS for the shareholders of two companies under both alternatives.   [7]

Answer:

(a) Comparative Income Statement of A Ltd. for the years ended 31st March, 2023 and 2024:

Particulars	31.03.23 (₹)	31.03.24 (₹)	Amount of increase (+) or decrease (-) (₹)	Percentage increase (+) or decrease (-)
Net Sales	1,70,000	1,90,400	(+) 20,400	(+) 12.0
Less :- Cost of goods sold	1,05,000	1,20,000	(+) 15,000	(+) 14.3
Gross Profit (P)	65,000	70,400	(+) 5,400	(+) 8.3
Administrative expenses (A)	13,200	14,960	(+) 1,760	(+) 13.3
Selling expenses :				
Advertisement expenses	3,000	4,000	(+) 1,000	(+) 33.3
Other selling expenses	40,800	41,800	(+) 1,000	(+) 2.5
Total selling expenses (B)	43,800	45,800	(+) 2,000	(+) 4.6
Operating expenses (A + B)	57,000	60,760	(+) 3,760	(+) 6.6
Operating Profit (D) [D = P –(A + B)]	8,000	9,640	(+) 1,640	(+) 20.5
Other Incomes (E)	6,400	9,200	(+) 2,800	(+) 43.8
Other expenses (F)	6,800	4,800	(−) 2,000	(−) 29.4
Profit before tax (PBT) [PBT = D + E – F]	7,600	14,040	(+) 6,440	84.7
Income tax (T)	3,800	6,200	(+) 2,400	(+) 63.2

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Profit after tax (PAT) [PAT = PBT – T]	3,800	7,840	(+) 4,040	(+) 106.3

Notes: Calculation for percentage increase (+) or decrease (–):

(i) $\dfrac{₹20,400}{₹1,70,000} \times 100 = 12\%$,

(ii) $\dfrac{₹15,000}{₹1,05,000} \times 100 = 14.3\%$ and so on

Comparative income statement shows the income and expenses of two periods of same company, absolute changes of each items for the year ended 31.03.2024 over 31.03.2023 and also shows percentage change. The following comments can be made on the performance of A Ltd.: -

(i)   Sales of A Ltd. has been increased by ₹20,400 during the year 2023-24 over 2022-23. But, the cost of goods sold has also increased by ₹15,000 in the same period. i.e., sales have improved by 12% and cost of goods sold has increased by 14.3%. So, GP has not improved markedly. Cost of goods sold may increase due to higher quantity of sales or due to higher input cost. As sale value has increased so it is clear cost of goods sold has increased due to higher quantity of sales. If such quantity has been sold at previous price, then sales value has been increased with higher amount. But here sales value has not increased significantly. It indicates that the addition in sales has been due to lowering of sale price. It is also clear from advertisement expenses. The increase in advertisement expenses (33.3%) has been much higher than the percentage increase in net sales (12%). It indicates there was tough selling market where mass advertisement was necessary and reduction of sale price was necessary in order to higher quantity of sales. Such situation may also arise due to new product launching where huge advertisement is necessary and reduction of sale price is necessary.

(ii)   There has been a substantial improvement in other incomes, both in relative term (43.8%) and in absolute term (₹2,800). Similarly, there has been a considerable reduction in other expenses in relative term (29.4%) as well as in absolute term (₹2,000). These items have been responsible for the increase in profit before tax (PBT) for the period under study by 84.7%. It implies that more emphasis has been given by the management of the company on earning non-operating profits as compared to the operating profits.

(b) **(i)** Working Notes:

Computation of total earnings after merge:

Particulars	Company X	Company Y	Total
Outstanding shares	3,00,000	2,00,000	
EPS (₹)	4	2.25	
Total earnings (₹)	12,00,000	4,50,000	16,50,000

Calculation of EPS when exchange ratio is in proportion to relative EPS of two companies:

Company X	3,00,000
Company Y (2,00,000 × 2.25/4)	1,12,500
Total number of shares after merger	4,12,500

Company X:

EPS before merger = ₹ 4

EPS after merger = ₹ 16,50,000/4,12,500 shares = ₹ 4

Calculate of EPS when share exchange ratio is 0.5:1

Total earnings after merger = ₹ 16,50,000

Total number of shares after merger = 3,00,000 + (2,00,000 × 0.5)

= 4,00,000 shares

EPS after merger = ₹ 16,50,000 / 4,00,000 = ₹ 4.125

(ii) Impact of merger on EPS for shareholders of Company X and Company Y

(A) Merger took place on relative EPS of two companies; therefore, both companies maintain their EPS and no impact on EPS of shareholders of both companies.

(B) Impact on Shareholders of Company X:

Particulars	(₹)
EPS before merger	4.000
EPS after merger	4.125
Increase in EPS	0.125

Impact on shareholders of Company Y:

Particulars	(₹)
EPS before merger	2.25
EPS after merger (4.125×0.5)	2.0625
Decrease in EPS	0.1875