



**FINAL EXAMINATION**

**ANSWERS TO PRACTICE TEST PAPER**

**TERM – JUNE 2026**

**PAPER – 20A**

**SYLLABUS 2022**

**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:**

**[15 x 2 = 30]**

**(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) Mura and Muri refer to \_\_\_\_\_ and \_\_\_\_\_ respectively**

- (a) Unevenness, waste**
- (b) Unevenness, overburden**
- (c) Overburden, waste**
- (d) Overburden, poka-yoke**

**(iii) A firm's marginal revenue is defined as:**

- (a) ratio of total revenue to total quantity produced;**
- (b) The additional output produced by lowering price**
- (c) The additional revenue received due to technical innovation;**
- (d) The additional revenue received when selling one more unit of output.**

**(iv) One of the following is not a qualitative method used for determining the level of risk of a business.**

- (a) Brainstorming**
- (b) Computer simulation**
- (c) Evaluation for multidisciplinary groups**
- (d) Judgment of specialists and experts (Delphi Technique)**

**(v) Companies that grow and earn a return on capital that exceeds their cost of capital create value.**

- (a) Alfred Marshall**
- (b) Black scholes**
- (c) Michael Porter**
- (d) None of the above**

**(vi) Which method in a capital budgeting is based on the discounted cash flow?**

- (a) Net equity budgeting method**
- (b) Net capital budgeting method**



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- (c) Net future value method
- (d) Net present value method

(vii) \_\_\_\_\_ assumes that an individual generates work value as he or she occupies and moves along organisation roles and renders service to the enterprise

- (a) Lev and Schwartz model
- (b) Flam Holtz's Stochastic Rewards Valuation Model
- (c) Multi period excess earnings method
- (d) None of the above

(viii) Credit rating AAA denotes for:

- (a) Extremely unlikely to default
- (b) Unlikely to default
- (c) Likely to default
- (d) Currently in default

(ix) If a bond of a company is trading at a premium in the market then its yield-to-maturity will be \_\_\_\_\_ its current yield.

- (a) more than
- (b) less than
- (c) same as
- (d) no effect on

(x) Which of the followings is not a attribute of good financial models

- (a) Realistic
- (b) Flexible
- (c) Hard coded values
- (d) Good documentation

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

There are four firms (A, B, C and D) which operate under similar conditions and are comparable. The top management of Firm B is worried about the profitability of the firm and anticipates that the firm's operational efficiency is relatively poor which is projected in declining market share of the company as well as other operational ratios.

Miss Lizi, the cost accountant of Firm B has been authorized by the top management to look into the matter and report back. Miss Lizi is able to extract the following data of the four firms.

Firm	Capital Employed (₹ in Millions)	Value added (₹ in Millions)
A	8.6	1.8



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B	2.2	0.2
C	15.6	2.8
D	31.6	4.1

She is of the opinion that the value added is the comparable output and the capital employed is the comparable input. Accordingly, she extracts the data of the two variables across the four firms.

Choose the correct option from the given alternatives based on the above scenario:

(i) Which firm has the highest efficiency?

- (a) A
- (b) B
- (c) C
- (d) D

(ii) Relative efficiency of Firm B is

- (a) 85.88
- (b) 43.40
- (c) 62.08
- (d) 100

(iii) For inefficient firm,

- (a) Input Target = Actual Input
- (b) Input Target > Actual Input
- (c) Input Target < Actual Input
- (d) Input Target = Input Slack

(iv) Input slack for Firm B is

- (a) 2.2
- (b) 1.245
- (c) 0
- (d) 0.955

(v) Output Target for Firm B is

- (a) ₹46 million
- (b) ₹0.26 million
- (c) ₹0.95 million
- (d) ₹0.80 million



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Answers:

1.(a)

- i. a
- ii. b
- iii. d
- iv. b
- v. a
- vi. d
- vii. b
- viii. a
- ix. b
- x. c

(b)

- i. a
- ii. b
- iii. c
- iv. b
- v. a

SECTION – B

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

[5x14=70]

2. (a) An efficiently operated Order to Cash (O2C) process creates a seamless value chain between the customer and the business. In light of the statement, Explain the practices used for optimisation of O2C process. [7]
- (b) Describe the Four Perspectives of Balanced Scorecard. [7]

Answer:

(a) The Practices used for Optimization of O2C Process are as follows:

(i) Automation of administrative tasks:

With the level of technological development available today, automation of office and administration has become a basic requirement. Manual processing of administrative tasks is error prone. Automation increases efficiency of repetitive tasks like billing, invoice collection, payment collection, and credit management.



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**(ii)** Standardization of the O2C process for the entire company:

The company should be able to standardize the O2C process for all the product lines irrespective of its size. Standard measures would include efforts to decrease the O2C cycle time. Even a small diminution of the O2C cycle time would result in increased release of working capital that would relieve financial stress on the day-today activities.

**(iii)** Preparation of electronic invoices:

It is already noted that manual processing is error prone and may create inefficient operations. Electronic invoices are important aspect of the automation process and would ultimately lead to increased customer satisfaction.

**(iv)** Re-evaluation of credit policies:

It is important that companies re-evaluate the credit policies in order to optimise resources, reduce credit risk, and improve cash flow. This is an important measure for ensuring an optimised O2C cycle time.

**(v)** Efficiency in billing process:

Automated billing system along with real time billing improves customer satisfaction and improves O2C process efficiency. This is a crucial aspect in the service industry. For example, in a hospital, automated real time billing procedure facilitates quick discharge of patients and leads to customer satisfaction.

**(vi)** Automated accounts receivable:

Automated accounts receivable (AR) is the order of the day and many organisations are taking up the route as it benefits the organisation in managing repetitive tasks like scheduling payment reminders, archiving customer responses, enabling online payments and settling disputes.

**(vii)** Data management:

Various data management software is being used by organisations which brings in consistency across all the sub processes of the O2C cycle. Availability of data creates a transparent environment which improves the decision-making process and helps the credit management.

- (b)** BSC provides CEOs with a comprehensive framework that translates a company's vision and strategy into a coherent set of performance measures. Organisations adopts 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 (a) Financial, (b) Customers, (c) Internal Business Process, and (d) Learning and Growth.



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- 1. Financial:** The financial perspective serves as the focus for the objectives and measures for the objectives and measures in the other scorecard perspectives. This perspective is concerned for profit of the enterprises. Under this perspective the focus will be on financial measures like operating profit, ROI, residual income, economic value added concept, revenue growth, cost reduction, asset utilization etc. These financial measures will provide feedback on whether improved operational performance is being translated into improved financial performance.
- 2. Customer:** This perspective captures the ability of the organization to provide quality goods and services, the effectiveness of their delivery, and overall customer service and satisfaction. Needs and desires of customers have to be attended properly because customer pay for the organization's cost and provided for its profits.  
This perspective typically includes several core or genetic measures that relate to customer loyalty and the result of the strategy in the targeted segment. They include market share, customer retention, new customer acquisition, customer satisfaction and customer profitability.
- 3. Internal Business Processes:** This perspective focuses on the internal business results that lead to financial success and satisfied customer. To meet organizational objectives and customers' expectations, organizations must identify the key business processes at which they must excel. Key processes are monitored to ensure that outcomes will be satisfactory. The principal internal business processes include the following: (a) Innovation processes for exploring the needs of the customers. (b) Operation processes with a view to providing efficient, consistent and timely delivery of product/ service. (c) Post service sales processes.
- 4. Learning and Growth:** This perspective looks at the ability of employees, the quality of information systems, and the effects of organizational alignment in supporting accomplishment of organizational goals. Processes will only succeed if adequately skilled and motivated employees, supplied with accurate and timely information, are driving them. In order to meet changing requirements and customer expectations, employees may be asked to take on dramatically new responsibilities, and may require skills, capabilities, technologies, and organizational designs that were not available before. The learning and growth perspective identifies the infrastructure that the business must build to create long-term growth and improvement. There will be focus on factors like employee capability, employee productivity, employee satisfaction, employee retention.

**3. (a) Given the cost function of a firm**

$$\text{Cost} = 300x - 10x^2 + (1/3)x^3,$$

Calculate:

- Output at which Marginal Cost is minimum.
- Output at which Average Cost is minimum.
- Output at which Marginal Cost = Average Cost.

[7]

**(b) Describe the Risk Retention? Explain the reasons for adopting a Risk Retention strategy?**

[7]



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### Answer:

(a)

(i) Cost =  $300x - 10x^2 + 1/3x^3$

Marginal Cost =  $dc/dx = 300 - 20x + x^2$  (say, y)

In order that MC is minimum first derivative must be equal to zero and 2nd derivative must be positive.

Therefore,  $dy/dx = 2x - 20 = 2x = 20$

X=10

$d^2 y/dx^2 = 2$ , which is positive. It is minimum at  $x = 10$

(ii) Average Cost =  $300 - 10x + 1/3x^2$  (y say)

$dy/dx = -10 + 2/3x = 0$

$x = 30/2 = 15$

$d^2 y/dx^2 = 2/3 \geq 0$ ,

Therefore, Average Cost is minimum of output at  $x = 15$

(iii) Output at which Marginal Cost = Average Cost

=  $300 - 20x + x^2 = 300 - 10x + 1/3x^2$

$-20x + 10x + x^2 - 1/3x^2 = 0$

$-10x + 2/3x^2 = 0$

$(-30x + 2x^2)/3 = 0$

$2x^2 - 30x = 0$

$2x(x-15) = 0$

$x - 15 = 0$

Therefore,  $x = 15$

(b) Risk Retention denotes acceptance of the loss or benefit arising out of a risk when it takes place. In short, it is also termed as self-insurance. This strategy is viable when the risks are small enough to be transferred at a cost that may be higher than the loss arising out of the risk itself. On the other hand, the risk can be so big that it cannot be transferred or insured. Such risks will have to be phased out when the eventuality occurs. War is an example as also are „Acts of God“ such as earthquakes and floods.

**The reasons for risk retention can be cited are as follows:**

(1) Non-insurable business risks are borne for appropriate returns. It is well known a proverb that “no risk, no gain”. If everything is predictable to mathematical precision, profits would not have arisen. But business is not a blind speculation. It involves vision to foresee future situations, strategies for keeping ahead of competition (in some way or the other) and finally, leadership for translating envisioned strategies into actions and results.

(2) Sometimes, such risks are so small that they are ignored and/or phased out when they surface.

(3) This method is also useful when the probability of occurrence is very low and a reserve built within the system over a period can take care of such losses arising out of risk retention. This is normally resorted to in businesses against credit risks that are inherent due to marketing on credit basis.

(4) In some cases, the subject, who is susceptible to risk, also becomes fully aware of the nature of risk.

In these situations, there is a certain amount of preparedness in the system due to risk retention.



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4. (a) The following financial data for two years has been extracted from the Annual Report 2024-25 of one of the world's largest generic pharmaceutical companies having a strong presence in over 170 countries. Though the company's mission is — 'To be a leading global healthcare company which uses technology and innovation to meet every day needs of all patients', yet it also wants to keep its shareholders happy by giving them a fair rate of return. For gauging return for shareholders, the company is using Return on Equity (ROE) as one of the metrics of performance evaluation. Because of intense competition, in recent years, its ROE is under pressure and to maintain the level of ROE, the company is changing its business model — in that, it is varying its margins, assets utilization and leverage.

Use suitable DU PONT Analysis by using the financial data given below.

Critically assess how the ROE of the company is changing due to its margins, assets utilization and leverage over a period of two years. Evaluate the change in these parameters and Recommend your comments accordingly

(₹ In Lakh)

Statement of Profit and Loss	2024	2025
<b>Relevant financial data</b>		
Total Revenue	7,125.80	8,431.55
Profit before Tax	1,421.46	2,011.86
Profit after Tax	1,123.96	1,507.11
Dividend	160.58	160.58
Tax on Dividend	26.05	27.29
Retained Earnings	937.32	1,319.24

(₹ In Lakh)

Balance Sheet	2024	2025
<b>ASSETS:</b>		
Fixed Assets	3,346.11	3,768.63
Investments (Current and Non-Current)	1,035.15	2,601.82
Other Net Assets (Current and Non-Current)	3,413.67	3,746.08
Total	7,794.93	10,116.53
<b>EQUITY AND LIABILITIES:</b>		
Share Capital	160.58	160.58
Reserves and Surplus	7,389.70	8,708.94
Net Worth	7,550.28	8,869.52
Loan Funds (Current and Non-Current)	12.20	965.81
Other Current Liabilities	232.45	281.20
Total	7,794.93	10,116.53

[7]

- (b) Fairy Tale Co. Ltd. has applied for a loan at Maharashtra Credit Bank. Sri Arun Pilgaonkar, the credit analyst of the bank is apprehensive of manipulations in operations as he fears that earnings manipulation is the most distinctive aspect of financial distress. He desires to calculate the Beneish M Score as this according to him is the best model to predict the degree of earnings manipulation. For this purpose, he furnishes the eight indices as stipulated by the said model:

Index	Score
DSRI	0.500
GMI	1.210



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<b>AQI</b>	<b>0.810</b>
<b>SGI</b>	<b>1.250</b>
<b>DEPI</b>	<b>0.904</b>
<b>SGAI</b>	<b>0.730</b>
<b>LVGI</b>	<b>0.400</b>
<b>TATA</b>	<b>0.005</b>

#### Required:

Calculate Beneish M-score of the company and advise Sri Pilgaonkar whether the company is susceptible to earnings manipulation.

[Note: Restrict your calculations up to three decimal places]

[7]

#### Answers:

(a)

<b>DU PONT ANALYSIS</b>	<b>2024</b>	<b>2025</b>
Net Profit Ratio	15.77%	17.87%
Assets Turnover Ratio	0.914	0.833
Assets to Equity Ratio	1.032	1.141
Return on Equity	14.88%	16.98%

The Return on Equity (ROE) has increased in 2025 from 14.88% to 16.98% and the main reasons for the increase are- margin and leverage which have increased but due to lower assets utilization ROE has not increased by its full potential. If the Company concentrates on better utilization of the assets, its ROE will further improve.

#### Working Notes:

**ROE=Net Profit Margin × Asset Turnover × Equity Multiplier**

Where:

Net Profit Margin = Net Profit / Total Revenue

Asset Turnover = Total Revenue / Total Assets

Equity Multiplier (Leverage) = Total Assets / Equity

#### 1. Net Profit Margin

- 2024:  $1123.96 / 7125.80 = 0.1577$  or 15.77%
- 2025:  $1507.11 / 8431.55 = 0.1787$  or 17.87%

#### 2. Asset Turnover Ratio

Total Assets<sub>2024</sub>=7794.93,

Total Revenue<sub>2024</sub>=7125.80

Asset Turnover<sub>2024</sub>= $7125.80 / 7794.93 = 0.914$



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Total Assets<sub>2025</sub>=10116.53,  
Total Revenue<sub>2025</sub>=8431.55  
Asset Turnover<sub>2025</sub>=8431.55/10116.53=0.833

### 3. Equity Multiplier (Leverage)

Equity<sub>2024</sub>=7550.28,  
Total Assets<sub>2024</sub>=7794.93  
Equity Multiplier<sub>2024</sub>=7794.93/7550.28=1.032

Equity<sub>2025</sub>=8869.52,  
Total Assets<sub>2025</sub>=10116.53  
Equity Multiplier<sub>2025</sub>=10116.53/8869.52=1.141

#### 2024:

ROE<sub>2024</sub>=15.77%×0.914×1.032= 14.88%

#### 2025:

ROE<sub>2025</sub>=17.87%×0.833×1.141= 16.98%

### (b) Beneish M-Score:

Index	Individual Score	Coefficient	Composite Score
DSRI	0.500	0.920	0.460
GMI	1.210	0.528	0.639
AQI	0.810	0.404	0.327
SGI	1.250	0.892	1.115
DEPI	0.904	0.115	0.104
SGAI	0.730	-0.172	-0.126
LVGI	0.400	-0.327	-0.131

#### Advice:

As per Beneish M model, if the score is less than the cut off score (-2.22) then the company is not manipulating the earnings and if the score is greater than the cut off score then it advocates that company may be manipulating its earnings.

In the case of Fairy Tale Company, the Beneish M score is calculated as -2.429 which is less than the cut off M score of -2.22. This suggests that the company is not manipulating its earnings.

5. (a) ABC Ltd. and PQRS Ltd. are in the same risk class and are similar in every respect except that ABC Ltd. is a levered firm, while PQRS Ltd. is unlevered, ABC Ltd. has ₹ 12,00,000 debentures worth carrying 12% rate of interest. Both the firms earn 18% before interest and taxes on their total assets of ₹ 22 lakh. Assuming a tax rate of 50% and a capitalization rate of 14% for the unlevered firm.



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Calculate the value of both the firms using Net Income approach.

[7]

(b) The following information is available pertaining to Sundar Televisions Ltd. for the financial year ending on 31.03.2024.

Particulars	Amount (₹ in Crores)
Sales	250
Profit after tax	40
Book value	100

The valuer appointed by the company believes that 50% weightage should be given to the earnings in valuation process. He also believes that equal weightage may be given to sales and book value. He has identified three firms viz., Alpha Ltd, Beta Ltd., and Gamma Ltd., which are comparable to the operations of Smart Televisions Ltd.

Particulars	Alpha Ltd. (₹ in Crores)	Beta Ltd. (₹ in Crores)	Gamma Ltd. (₹ in Crores)
Sales	190	210	270
Profit after tax	30	44	50
Book value	96	110	128
Market value	230	290	440

**Required:**

Calculate the value of Sundar Televisions Ltd. using the comparable firm's approach.

[7]

**Answer:**

(a)

Particulars	Levered Firm	Unlevered Firm
EBIT (18% of ₹22 lakh)	396000	396000
Less: Interest	144000	
Taxable Income	252000	396000
Earnings for equity holders	252000	396000
Equity capitalization rate (Ke)	14%	14%
Market value of equity	1800000	2828571
Market value of debt	12,00,000	0
Total value of firm	30,00,000	28,28,571

(b)

Valuation multiples for the comparable firms can be calculated as follows:

Particulars	Alpha Ltd	Beta Ltd	Gamma Ltd	Average
Price/Sales Ratio	1.21	1.38	1.63	1.41
Price/Earnings Ratio	7.67	6.59	8.80	7.69
Price/Book Value Ratio	2.40	2.64	3.44	2.83

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Applying the multiples calculated in Step 1, the value of Sundar Televisions Ltd. can be calculated as follows:

Particulars	Average Multiple	Parameter	Value ₹ Crores
Price/Sales Ratio	1.41	250.00	352.50
Price/Earnings Ratio	7.69	40.00	307.60
Price/Book Value Ratio	2.83	100.00	283.00

By applying the weightage to the P/S ratio, P/E ratio and P/BV ratio we get:

$[(352.50 \times 1) + (307.60 \times 2) + (283.00 \times 1)] / (1+2+1) = 312.675$ , i.e. ₹ 312.675 crore is the value.

Therefore, the value of Sundar Televisions Ltd. is ₹ 312.675 Crore

6. (a) Panda Limited holds 4,00,000 shares of AMGI Limited at cost of ₹ 48,00,000. The following is the latest available Balance Sheet of AMGI Limited:

Particulars	₹
Equity Share Capital	1,00,00,000
Other Equity	2,40,47,110
Non-Current Liabilities	22,30,898
Total Liabilities and Equity	3,62,78,008
Non-Current Assets	2,40,13,129
Net Working Capital	1,22,64,879
Total Assets	3,62,78,008

Additional Information includes:

- (I) The Face Value per share is ₹ 10/-.
- (II) Non-Current Asset of AMGI Ltd includes Land at Cost of ₹ 1,00,00,000. The Fair Value of such Land is estimated at ₹ 1,75,00,000.
- (III) AMGI Ltd. has a contingent liability of ₹ 12,00,000 which is not reflected in the Balance Sheet. As a Valuer, you believe that this contingent liability is likely to be incurred.

You are required to Calculate:

- (i) the fair value per share of AMGI Ltd.
- (ii) the fair value of investments in AMGI Ltd. in the books of Panda Limited.
- (iii) the Compounded Annual Growth Rate (CAGR) Change in value of investment if the investment was made 4 Years ago. [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

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<b>Revenues</b>	<b>₹ 95,00,000</b>
<b>Depreciation and amortization expense</b>	<b>₹ 6,00,000</b>
<b>Interest expense</b>	<b>₹ 1,00,000</b>
<b>Taxes</b>	<b>₹ 3,50,000</b>
<b>Net Profit</b>	<b>₹ 14,00,000</b>

**(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) Calculation of fair Value per Share of AMGI Limited using Cost Approach.**

	<b>₹</b>
Total Asset	3,62,78,008
Less: Total Liability	22,30,898
Net Asset Value	3,40,47,110
Less: Book Value of Land	1,00,00,000
Add: Fair Value of Land	1,75,00,000
Less: Contingent Liability	12,00,000
Adjusted Net Asset Value	4,03,47,110
No. of Share (Note - 1)	10,00,000
Value Per Share	40.35

**Note : 1**

The Number of shares of AMGI Ltd = 1,00,00,000 / 10 = 10,00,000 Shares.

**(ii) The Fair Value of Investments in AMGI Limited in the Books of Panda Limited.**

Number of Shares x Fair Value Per Share.

4,00,000 x 40.35 = ₹ 1,61,40,000

**(iii) Cost of Investment = ₹ 48,00,000**

Fair Value of Investment = ₹ 1,61,40,000

Compounded Annual Growth Rate =

$${}^4\sqrt{(FV / Cost)} - 1 = {}^4\sqrt{(16140000 / 4800000)} - 1$$
$$= {}^4\sqrt{(3.3625)} - 1 = 1.35415 - 1$$
$$= 0.35 \text{ i.e. } 35\%$$
**(b)****Calculation of EV/EBITDA Ratio of Infolink Ltd.**

<b>Enterprise Value</b>	<b>₹</b>
Market Value of Equity	60,00,000



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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.

7. (a) Preetam Ltd. is considering acquisition of Soham & Co. which has 3.10 crore shares issued and outstanding. The market price per share of Soham & Co is ₹ 440 at present. Preetam Ltd.'s average cost of capital is 12%. The cash inflows of Soham & Co. for the next three years are as under:

Year	₹ Crore
1	460
2	600
3	740

You are required to calculate the range of valuation that Preetam Ltd. has to consider. P.V.F. @12% for 3 years are 0.893, 0.797 and 0.712 respectively. [7]

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

Particulars	B Co. Ltd.	A Co. Ltd.
Present earnings (in ₹)	6.75	3.00
EPS (in ₹).	3.97	5.00
Number of share (Lakhs)	1.70	0.60
P/E ratio	20	5

- (i) Calculate the EPS of B Co. Ltd., after the merger? Calculate the PE ratio if the NPV of the acquisition is zero?  
(ii) Calculate, what B Co. Ltd. might consider to be the value of the synergy between the firms? [7]

Answer:

(a)

Valuation Based on market price

Market Price per share ₹ 440



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Thus, value of total business is ( $\text{₹ } 440 \times 3.1\text{Cr.}$ )  $\text{₹ } 1,364 \text{ Cr.}$

### Valuation based on discounted cashflow

Present Value of Cashflows

$(460 \text{ Cr} \times 0.893) + (600 \text{ Cr} \times 0.797) + (740 \text{ Cr.} \times 0.712) = \text{₹ } 1,415.86 \text{ Cr.}$

Value per share ( $\text{₹ } 1415.86 / 3.1 \text{ Cr}$ ) =  $\text{₹ } 456.73$

### Range of Valuation

	Per Share (₹)	Total (₹ in Cr)
Minimum based on Market Value	440.00	1364
Maximum based on Discounted cashflow	456.73	1415.86

(b)

(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 =  $(\text{₹ } 3,00,000 + 6,75,000) / [1,70,000 + (1/3)(60,000)]$   
=  $(9,75,000/1,90,000) = \text{₹ } 5.132$ .

The market price of B Co will remain unchanged if it is a zero NPV acquisition. Using the P/E ratio, we find the current market price of B. Co stock, which is =  $P/E \times \text{EPS} = 20 \times (6.75 \text{ lakhs} / 1.70 \text{ lakhs}) = 20 \times (3.97)$   
=  $\text{₹ } 79.40$

(ii) If the acquisition has a zero NPV, the stock price should remain unchanged. Therefore, the new

P/E will be =  $P/E = \text{₹ } 79.40 / \text{₹ } 5.132 = 15.47$ .

If the NPV of the acquisition is zero, it would mean that B Co. would pay just the market

value of A Co. i.e., Number of shares  $\times$  market price of A Co. i.e., =  $60,000 \times 25$  (MPS = P/E  $\times$

EPS =  $5 \times 5 = 25$ )

The market value received by B Co. =  $\text{₹ } 15,00,000$ .

The cost of the acquisition is the number of shares offered times the share price, so the cost is =  $(1/3)$   
 $(60,000) (\text{₹ } 79.40) = \text{₹ } 15,88,000$ .

The difference is synergy i.e.,  $\text{₹ } 88,000$ .

8. (a) Mr. Jagdish owns a Drug Store, located in Maliwara Ghaziabad. The drug store sells pharmaceuticals, cosmetics, toiletries, magazines, and various novelties. The most recent annual net income statement of drug store is as follows:

	Amount in ₹
Sales revenue	18,00,000

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<b>Costs:</b>	
Cost of goods sold	12,60,000
Wages and Salaries	2,00,000
Rent	1,20,000
Depreciation	60,000
Utilities	40,000
Miscellaneous	30,000
<b>Total costs</b>	<b>17,10,000</b>
<b>Net profit before tax</b>	<b>90,000</b>

Drug Store's sales and expenses have remained relatively constant over the past few years and are expected to continue unchanged in the near future. To increase sales, Drug Store is considering using some floor space for a small soda fountain. Drug Store would operate the soda fountain for an initial three-year period and then would re-evaluate its profitability. The soda fountain would require an incremental investment of ₹ 20,000 to lease furniture, equipment, utensils, and so on. This is the only capital investment required during the three-year period. At the end of that time, additional capital would be required to continue operating the soda fountain, and no capital would be recovered if it were shut down. The soda fountain is expected to have annual sales of ₹100,000 and food and materials expenses of ₹20,000 per year. The soda fountain is also expected to increase wage and salary expenses by 8% and utility expenses by 5%. Because the soda fountain will reduce the floor space available for display of other merchandise, sales of non-soda fountain items are expected to decline by 10%.

**Required:**

- (i) Calculate net incremental cash flows for the soda fountain.
- (ii) Assume that Drug Store has the capital necessary to install the soda fountain and that he places a 12% opportunity cost on those funds. Should the soda fountain be installed? Why or why not? [7]
- (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.

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

**Required:**

**Calculate:**

- (i) The purchase price premium



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- (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.

[7]

#### Answers:

- (a)
  - (i)

The relevant annual cash flows from the proposed soda fountain are:

	Amount in ₹
Incremental revenue	100000
Increment Cost :	
Food and materials	20000
Wages and salaries	16000
Utilities	2000
Opportunity Cost: Profit contribution lost on regular sales	54000
Total incremental cost	92000
Net incremental annual cash flow	8000

#### (ii) Incremental investment ₹ 20000

No, the NPV for the proposed soda fountain should be calculated to determine the economic viability of the project.

$$\text{NPV} = (\text{Incremental annual cash flow}) (\text{PVIFA}, N = 3, i = 12\%) - ₹ 20000$$

$$= ₹ 8000 (2.4018) - ₹ 20000$$

$$= - ₹ 785.60 \text{ (A Loss)}$$

Because  $\text{NPV} < 0$ , Drug Store should not undertake the soda fountain investment project

#### (b)

(i) Purchase price premium =  $90/60 = 1.5$

(ii) Exchange Ratio =  $90/50 = 1.8$

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

(iii) New shares issued by acquiring Company =  $20000 \times 1.8 = 36000$  Nos.

(iv) Post-merger EPS of the combined Companies.

$$\text{Combined Earnings} = (250000 + 72500) = ₹ 322500$$



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Total Shares outstanding of the New Entity

$$= 110000 + 36000 = 146000$$

$$\text{EPS} = ₹ 322500 \div 146000 = ₹ 2.209$$

(v) Pre-merger EPS of the acquiring company

$$\text{EPS} = 250000/110000 = ₹ 2.273$$

(vi) Pre-merger P/E =  $50/2.273 = 22.00$

(vii) Post-merger share price =  $2.209 \times 22.00 = ₹ 48.60$  (as compared to ₹ 50 Pre-merger)