Paper-18: BUSINESS VALUATION MANAGEMENT

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

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

Answer Question No. 1 which is compulsory carrying 25 marks and any five from the rest.

Working Notes should form part of the answer.

"Whenever necessary, suitable assumptions should be made and indicated in answer by the candidates."

1. (a) State whether the following statements are true or false: [1x10=10]

(i) Zero coupon bonds have no coupon rate, hence no yield.

(ii) Deferred Tax Liabilities are the liabilities towards payment of tax at some future point of time and hence, while calculating the Net Worth of a company, it should be deducted.

(iii) Value gap is the difference between the synergy value and purchase price.

(iv) Industrial groups are inherently less conservative than investors in allocating resources.

(v) In a debt for equity swap, a firm replacing equity with debt decreases its leverage ratio.

(b) Fill in the blanks by using the words/phrases given in the brackets: [1x5=5]

(i) Price/Earning (PE) Ratio of a company is…….related to Dividend Payout Ratio, (positively/negatively/not).

(ii) The stronger a brand of a company is,…… its risk, (lower is/higher is/nothing can be said regarding).

(iii) Intangible assets are treated as…….assets, (fixed/fictitious).

(iv) ……risk remains fixed irrespective of number of securities in portfolio (systematic/ unsystematic).

(v) Seller of a futures contract incurs a loss when the future price……. (increases/decreases).

(vi) The…… (Tangible/ Intangible) Assets monitor is a management tool for organizations that wish to track and value their……assets, (tangible/ intangible).

(vii) Dividend yield is the dividend per share as a % of the……value of the share, (book/market).

(viii) The dividend discount model is a specific case of……..valuation.(bond/equity).

(ix) Super profit is the excess of future maintainable profit over…..expected profits, (normally/abnormally).

(x) DCF analysis requires the revenue and expenses of…….past/future).

(c) In each of the questions given below one out of the four options is correct. Indicate the correct answer: [2×5=10]

(i) Which is not a, human – capital related intangible asset?
(a) Trained workforce
(b) Employment agreements
(c) Union contracts
(d) Design patent

(ii) A share, Y, currently sells for ₹50. It is expected that in one year it will either rise to ₹55 or decline to ₹45. The value of a European call, if the strike price of the underlying share is ₹48 and the risk free interest rate is 9% p.a. is
(a) ₹9.33
(b) ₹11.33
(c) ₹18.33
(d) ₹20.50

(iii) The beta (β) of portfolio is equal to
(a) The beta of the market portfolio
(b) The arithmetic average of the individual security betas
(c) The weighted average of the individual security betas
(d) None of these

(iv) A company is having Book Value per share of ₹15 while the market value per share is ₹20. If a company has 20 crores number of shares and Book Debt of ₹100 crores, then its Enterprise Value will be
(a) ₹300 Crores
(b) ₹400 Crores
(c) ₹500 Crores
(d) None of the above

(v) If the company has a P/E Ratio of 12 and a ROE of 13%, then its Market to Book Value Ratio will be
(a) 1.09
(b) 1.56
(c) 9.34
(d) Nothing can be concluded as information available is insufficient

Answer

1. (a) State whether the following statements are true or false:

(i) False

(ii) False

(iii) False

(iv) False

(v) False

1. (b) Fill in the blanks by using words / phrases given in the brackets:

(i) Positively

(ii) Lower

(iii) Fixed

(iv) Systematic

(v) Increases

(vi) Intangible, Intangible

(vii) Market Value

(viii) Equity

(ix) Normally

(x) Future

1. (c) In each of the questions given below one out of the four options is correct. Indicate the correct answer -

(i) (d) Design Patent

(ii) (b) ₹11.33

(iii) (c) The weighted average of the individual security betas.

(iv) (c) ₹500 Crores.

(v) (b) 1.56

2 (a) Rajjan Ltd. provide you the following information:

Net Assets at their current values:		**₹ 100 lacs**
Average Annual Earnings available for Equity Share holders		**₹ 15 lacs**
8,00,000 Equity Shares of ₹ 5 each fully paid	**₹ 40 lacs**	
1,00,000 Equity Shares of ₹ 10 each fully paid-up	**₹ 10 lacs**	**₹ 50 lacs**
Normal Rate of Expectation		**12%**

Calculate the Fair Value of an Equity Share assuming that controlling interest is to be transferred. [10]

Answer to 2(a):

Net Assets Value

Step 1: Total Equivalent Number of Equity Shares of ₹ 10 each
= [1,00,000 (₹ 10 each) + 4,00,000 (₹ 5 each)] = 5,00,000.

Step 2: Value of an Equivalent Equity Share of ₹ 10 each

$$= \frac{\text{Net Assets}}{\text{Total Equivalent number of Equity Sahres of ₹ 10 each}}$$

$$= \frac{\text{₹100 lacs}}{\text{5 lacs}}$$

= ₹ 20

Step 3: Value of Equity Shares of ₹ 5 each
= Value of an equivalent Equity Share of ₹ 10 each × ₹ 5/₹ 10
= ₹ 20 × 5/10
= ₹ 10.

Earning Yield Based Value

Step 1: Average Earnings available for Equity Share holders = ₹ 15 lacs.

Step 2: total Paid-up Value of all Equity Shares ₹ 50 lacs.

Step 3: Average Rate of Earning = $\frac{\text{Average Earnings}}{\text{Total Paid-up Value of all Equity Shares}} \times 100$

$= \frac{15}{50} \times 100$

= 30%.

Step 4: Normal Rate of Expectation in the same industry = 12%

Step 5: **Value of Share =** $\frac{\text{Average Rate of Earnings}}{\text{Normal Rate of Expectation}}$ × Paid-up Value of an Equity Share

Value of Share of ₹ 10 paid-up = ₹ $\frac{30}{12}$ × ₹ 10 = ₹ 25

Value of Share of ₹ 5 paid-up = ₹ $\frac{30}{12}$ × ₹ 5 = ₹ 12.5

Fair Value of Share

Fair Value of a Share = $\frac{\text{Net Assets Value + Yield Based Value}}{2}$

Fair Value of a Share of ₹ 10 paid-up = $\frac{₹10 + ₹25}{2}$ = ₹ 22.5

Fair Value of a Share of ₹ 5 paid-up = $\frac{₹10 + ₹25}{2}$ = ₹ 11.25.

2 (b). 'Balance Scorecard translates a business's vision and strategy enabling better monitoring and management'. Do you agree with the statement? [5]

Answer to 2 (b):

The Balanced Scorecard:
The balance Scorecard (BSC), developed by Prof. Robert Kaplan of Harvard Business School, is an organization framework for implement and managing a strategy at all levels of an enterprise by linking objectives, initiatives and measures to an organization's vision and strategy.

The BSC translates a business's vision and strategy into objectives and measures across four balanced perspectives – financial performance, customers, internal business processes, and organizational growth, learning and innovation. A BSC is a structured way of communicating measurements and targets, and is becoming a widespread way of how to manage, measure and communicate the financial, non- financial and intangible assets of a company. The BSC allows an organization to monitor both its current performance (financial, customer satisfaction and business process) and its efforts to improve processes, motivate and educate employees and enhance its ability to learn and improve. The BSC is closely related to the concept of intellectual capital and comprises not only tools for the measurement of intangible resources but also a vision of continuous learning and changes as to create value for the future. Since being introduced in 1992 the balance scorecard concept has been implemented at the corporate, strategic business unit and even individual level in hundreds of public and private sector organizations worldwide.

Despite its widespread use, the balanced scorecard concept does suffer from several shortcomings. Firstly, the creation of a BSC can involve a considerable amount of time on the part of everyone whose performance is to be measured. The selection of appropriate measures for the four perspectives can be especially time consuming. This is due to that fact that in any company there are a large number of potential goals and targets, and even more ways to measured and how to measure those objectives, and it will take time until consensus is achieved. Secondly, a well- designed scoreboard will be useless without the participation and

commitment of staff in implementing and using it. Thirdly, companies using BSC often come up with too many measures. For example, a division of one company came up with 500 important measures for its scorecard on the first pass. This is a problem because it is very difficult to accurately track a large numbers. Fourthly, the BSC does not have an explicit focus on intellectual capital – unlike some later IC measurement models. Finally, the fact that a BSC gathers all key indicators of business perfortm.mca (and their linkages) into one management tool may deprive a company's executives of the various information flows required to remain competitive in today's challenging business environment.

3 (a). DABU Ltd. is planning to acquire BALSA Ltd. another company in the same industry. The financial details of the two companies are as follows:

Details	DABU	BALSA
Profit after tax	**₹ 3,000 lakhs**	**₹ 600 lakhs**
Market Price	**₹550**	**₹100**
P/E ratio	**25**	**16**

DABU wants to merge BALSA with itself after acquiring k. The earnings of the merged entity are expected to be higher than the sum of earnings of the two companies by ₹15 lakhs and its P/E ratio is expected to be 22.

The Management of DABU is offering one share of DABU for every ten shares of BALSA, while the management of BALSA is expecting at least two. Can a deal be struck between the two companies? [10]

Answer to 3 (a):

Maximum exchange ratio acceptable to shareholders of Dabu:

A – DABU **B -** BALSA

Details	DABU	BALSA
Profit after tax	₹ 3,000 lakhs	₹ 600 lakhs
Market Price	₹550	₹100
P/E ratio	25	16
EPS	₹22	₹6.25
Number of Shares	136.36 lakhs	96

S_A = 136.36 lakhs

S_B = 96 lakhs

$$ER_A = -\frac{S_A}{S_B} + \frac{\left[(E_A + E_B + \text{Synergy})PE_{AB}\right]}{P_A S_B}$$

ER_1 = -1.42 + 1.50 = 0.08

∴ DABU can give a maximum number of 8 shares for every 100 shares of BALSA or 0.8 for every 10

Minimum exchange ratio acceptable to shareholders of BALSA:

$$ER_B = \frac{P_B S_A}{\left[(PE_{AB})(E_A + E_B + synergy) - P_B S_B\right]}$$

$= 0.195$

∴ Shareholders of BALSA can accept a minimum number of 20 shares of DABU for every 100 shares of Balsa i.e. 2 per every 10.

As the maximum exchange ratio acceptable to the shareholder of DABU is less than the minimum exchange ratio acceptable to the shareholders of BALSA, there is a scope of bargain.

3. (b) Identify and explain four techniques of relative valuation. [5]

Answer to 3 (b):

Relative valuation approaches and techniques are based on the premise that the value of any asset can be estimated by analyzing the market prices of similar or comparable assets. In this approach comparable assets are identified and their market value obtained (e.g. from share price listing on stock exchange). These market values are converted into multiples based on revenues or EBITDA or other key numbers. The multiple or adjusted multiple is applied to the asset being valued to obtain its market value.

Thus, relative valuation techniques assume that prices have stable and consistent relationships to various firm variables across groups of firms:

(i) Price – earnings ratio
(ii) Price – cash flow ratio
(iii) Price – book value ratio
(iv) Price sales ratio

(i) The **Price- earnings ratio**, popularly known as P/E ratio is affected by two variables;

I. Required rate of return on its equity (k)
II. Expected growth rate of dividends (g)

$$\frac{P}{E1} = \frac{\frac{D1}{E}}{k - g}$$ using the P/E approach to valuation we can (i) estimate earnings for the next year, (ii) Estimate P/E ratio and (iii) multiply expected earning by the expected P/E ratio to get expected price

$$V = E_1 * \frac{P}{E}$$

(ii) Price – cash flow ratio: Cash flows can also be used in this approach are often considered less susceptible to manipulation by management. The steps are similar to using P/E ratio

$$V - CF_1 * \frac{P}{CF}$$

(iii) Price – book value rateio: Book values can also be used as a measure of relative value. The steps to obtaining valuation estimates are again similar to using the P/E ratio

$$V = BV_1 * \frac{P}{BV}$$

(iv) Price sales ratio: Finally, sales can be used in relation to stock price. There are some drawbacks, in that sales do not necessarily produce profits and positive cash flows. The advantage is that sales are also less susceptible to manipulation. The steps are similar to using the P/E ratio

$$V = S_1 * \frac{P}{S}$$

4. Sundar Manufacturing Company Limited's Operating Profits and Operating Capital Employed during last 5 years are – (₹ in Lakhs)

Particulars	Operating Profit	Opening Capital	Closing Capital
2010-2011	410	4,000	6,000
2011-2012	690	6,000	7,000
2012-2013	800	7,000	9,000
2013-2014	1500	9,000	10,000
2014-2015	1800	10,000	12,000

The Company is expected to commission a new project in April 2015 at a cost of ₹ 9,000 Lakhs, which would generate operational flow amounting to ₹1,200 Lakhs p.a. for atleast 4 years. Moreover the Company expects a 2% annual growth of existing profits over the next 4 years. Industry Average Rate of Return is 6% p.a.

Determine the Company's Goodwill taking 4 years purchase of Discounted Super Profit. The Company is in 25% tax bracket. Consider 5% Capital Growth and 10% WDV depreciation from April 2015 onwards. 60% of Capital Employed comprise of depreciable Fixed Assets. Use 10% Discount Factor.

Also assume that the Company has the following Capital Structure as on 31.03.2015 - (a) Equity Share Capital (₹ 10 each) = ₹ 5,000 Lakhs, (b) Reserves and Surplus = ₹ 4,000 Lakhs, (c) 14% Debentures = ₹ 3,000 Lakhs.

The funds for the new project (₹ 9,000 Lakhs) are to be raised by issue of shares and availing loans. The Company wants to maintain the existing Debt-Equity Ratio. It can arrange for 16% Term Loan.

How much maximum premium should the Company fix for its new Equity Issue? Assume that the Company desires to link Premium to the Intrinsic Value of Shares after taking into account the Value of Goodwill. [15]

Answer to 4:

1. Computation of Depreciation (₹ Lakhs)

Year	Opening Balance	New Project	Additions at 5% of Opg Bal.	Gross Balance	Fixed Assets at 60%	Depreciation at 10%	Closing Balance
1	**2**	**3**	**4**	**5 =2+3+4**	**6**	**7 = 6 × 10%**	**8 = 5-7**
2015-2016	12,000	9,000	600	21,600	12,960	1,296	20,304
2016-2017	20,304	-	1,015	21,319	12,792	1,279	20,040
2017-2018	20,040	-	1,002	21,042	12,625	1,262	19,780
2018-2019	19,780	-	989	20,769	12,461	1,246	19,523

Notes:

- Since Capital Growth is 5%, additions are made at 5% of the Opening Balance, for every year. Alternatively, for Year 2015-2016, 5% growth can be computed on Opening Capital **Plus** New Project Cost, since New Project cost is incurred in the year beginning itself.
- Depreciation is provided at 10% on the Closing Balance in Fixed Assets for a particular year.

2. Computation of Future Maintainable Profits (₹ Lakhs)

Year	Operating Income			Depreciation (WN 1)	Taxable Income	Tax at 25%	Maintainable Profit
	Existing	Additional	Total				
1	**2**	**3**	**4 = 2 + 3**	**5**	**6 = 4 - 5**	**7 = 6 x 25%**	**8 = 6-7**
2015-2016	(1,800 + 2%) = 1,836	1,200	3,036	1,296	1,740	435	1,305
2016-2017	(1,836 + 2%) = 1,873	1,200	3,073	1,279	1,794	449	1,345
2017-2018	(1,873 + 2%) = 1,910	1,200	3,110	1,262	1,848	462	1,386
2018-2019	(1,910 + 2%) = 1,948	1,200	3,148	1,246	1,902	476	1,426

Note: It is assumed that the Operating Profits given is excluding Interest on Loans Borrowed.

3. Computation of Future Average Capital employed (₹ Lakhs)

Year	Opening Capital Employed	Closing Capital Employed	Average Capital Employed	Normal Rate of Return at 6%
2015 - 2016	12,000 + 9000 = 21,000	20,304	20,652	1,239
2016 - 2017	20,304	20,040	20,172	1,210
2017 – 2018	20,040	19,780	19,910	1,195
2018 - 2019	19,780	19,523	19,651	1,179

Note: Since new project investment is made in the beginning of the year itself, it is considered as part of Opening Capital Employed for computing Average Capital Employed.

4. Computation of Discounted super profits and Goodwill (₹Lakhs)

Year	Maintainable Profits	Normal Profit	Super Profit	PV Factor	Disc. Super Profit
2015-2016	1,305	1,239	66	0.9091	60.00
2016-2017	1,345	1,210	135	0.8264	111.56
2017-2018	1,386	1,195	191	0.7513	143.50
2018-2019	1,426	1,179	247	0.6830	168.70
Total = Discounted Super Profits for 4 Years = Goodwill					**483.76**

5. Funding Pattern for the new Project (₹ Lakhs)

(a) Present Equity Ratio: $\frac{\text{Debt}}{\text{Equity}} = \frac{₹3,000}{(₹5,000 + ₹4,000)}$	0.33 or 1 : 3
(b) Amount required for the Project	₹ 9,000 Lakhs
(c) Amount to be raised by way of Debt of 16% Term Loan = ₹ 9,000 Lakhs × 1/4	₹ 2,250 Lakhs
(d) Amount to be raised by way of Equity Issue = ₹ 9,000 Lakhs × 3/4	₹ 6,750 Lakhs

6. Computation of Intrinsic Value of Share and Share Premium

Particulars	₹ Lakhs
Equity Share Capital	5,000.00
Reserves	4,000.00
Add: Goodwill	483.76
Net Worth of Equity Holders	9,483.76
Number of Equity Shares (Lakhs)	500
Intrinsic Value Per Share $\frac{₹9,483.76 \text{ lakhs}}{500 \text{ lakhs}}$ i. e. Issue Price of New Equity	₹ 18.97
Less: Face Value of each Equity Share	₹ 10.00
Premium on Fresh Issue	**₹8.97**

5 (a). From the following data compute the Economic value Added: [7]

Share Capital	**1,600 Crores**	**Beta Factor**	**1.05**
Long Term Debt	**320 Crores**	**Market Rate of Return**	**14%**
Interest	**32 Crores**	**Risk Free Rate**	**10%**
Reserve and Surplus	**3,200 Crores**		
PBIT	**1,432 Crores**		
Tax Rate	**30%**		

Answer to 5 (a):

1. Computation of Cost of Equity and Interest

$E(R_A) = R_F + [\beta_A (R_M - R_F)] = 10\% \times 1.05 (14\% - 10\%) = 14.20\%$ = Cost of Equity

Cost of Debt = 32 / 320 Crores = 10% Pre Tax. Therefore, Post Tax = 10 × (1 - 30%) = 7%

2. **Computation of Weighed Average Cost of Capital**

Source	Amount ₹ Crores	Cost	Product
Equity (1,600 + 3,200)	4,800	14.20%	681.60
Long term Debt	320	7%	22.40
Capital Employed	5,120	WACC	704.00

Therefore, Weighted Average Cost of capital = 704 ÷ 5,120 = 13.75%

3. **Economic Value Added**

EVA = Operating Profit After Taxes **Less** Cost of Capital × Capital Employed

= ₹ 1,432 Crores × (1 - 30%) **Less** 13.75% × ₹ 5,120 Crores

= ₹1,002.40 Crores **Less** ₹ 704.00 Crores = **₹ 298.40 Crores**

5 (b). From the following information, calculate the value of a share if you want to

1. **Buy a small lot of shares;**
2. **Buy a controlling interest in the company.**

Year	Profit (₹)	Capital Employed (₹)	Dividend (%)
2011	**55,00,000**	**3,43,75,000**	**12**
2012	**1,60,00,000**	**8,00,00,000**	**15**
2013	**2,20,00,000**	**10,00,00,000**	**18**
2014	**2,50,00,000**	**10,00,00,000**	**20**

The market expectation is 12%. **[4+4]**

Answer to 5 (b):

(1)To Buy a Small lot of Shares, Dividend Yield Method is most appropriate.

Since Dividend rate is rising continuously, Weighted Average Dividend Rate has been calculated.

Year	Profit (₹)	Capital Employed (₹)	Dividend (%)
2011	12	1	12
2012	15	2	30
2013	18	3	54
2014	20	4	80
		10	**176**

Average Dividend = 176/10 = 17.16%

Value of Share = $\frac{\text{Average Dividend Rate}}{\text{Market Expectation Rate}} \times 100$

$= \frac{17.6}{12} \times 100$

= ₹ 146.67 per share

(2)To Buy a Controlling Interest in the company, Earning yield Method is most appropriates.

Since the profit is rising, Weighted Average Earning rate has been calculated.

Year	Yield % (Profit/Capital) (employed) × 100	Weight	Product
2009	16	1	16
2010	20	2	40
2011	22	3	66
2012	25	4	100
		10	222

Average Yield = 222/10 = 22.2%

Value per share = $\frac{\text{Average Earning Rate}}{\text{Market Expectation Rate}} \times 100$

$= \frac{22.2}{12} \times 100$

= ₹ 185 per share.

6 (a). Suraj Ltd. is a closely held company engaged M2M business offering logistic services mainly to small and medium sized companies through internet, who cannot afford sophisticated logistics practices. Company is planning to go for public issued in the coming year and is interest to know what the company's share will worth. The company engaged a consultant based in Mumbai. The consultant evaluated company's future prospects and made following estimates of future free case flows:

	Years (Amount in ₹)			
	1	2	3	4
Sales	1,00,000.00	1,15,000.00	1,32,250.00	1,32,250.00
Operating Income (EBIT)	16,000.00	18,400.00	21,160.00	21,160.00
Less: Cash tax payments	(4,800.00)	(5,520.00)	(6,348.00)	6,348.00
Net Operating Profit after	11,200.00	12,880.00	14,812.00	14,812.00
Less: Investments:				
Investments in Net Working Capital	(1,695.65)	(1,950.00)	(2,242.50)	---
Capital Expenditures (CAPEX)	(2,347.83)	(2,700.00)	(3,105.00)	---
Total Investments	(4,043.48)	(4,650.00)	(5,347.50)	---
Free Cash Flow	7,156.52	8,230.00	9,464.50	14,812.00

Further, the company's investment banker had done a study of the company's cost of capital and estimated WACC to be 12%. You are required to determine.

I. **Value Suraj Ltd. based on these estimates.**
II. **Market Value Added (MVA) by company supposing that invested capital in the year 0 was ₹ 31,304.05 lacs.**
III. **Value of per share, if company has 2,000 Equity Shares outstanding and debt amounting to ₹ 4,000 lacs. [3+1+3]**

Answer to 6 (a):

I. Terminal Value = ₹ 14,812/0.12 = 1,23,433.33

Value of the Company = PV of Free Cash Flows

$$= \frac{₹7,156.52}{(1.12)^1} + \frac{₹8,230.00}{(1.12)^2} + \frac{₹9,464.50}{(1.12)^3} + \frac{₹81,23,433.33}{(1.12)^3}$$

= ₹ 1,07,544.71

II. MVA = Company Value – Invested Capital = ₹ 1,07,544.71 – ₹ 31,304.50 = ₹ 76,240.21.

III. Company's Value = Debt Value + Equity Value

₹ 1,07,544.71 = ₹ 4,000 + Equity Value

Equity Value = ₹ 1,03,544.71

$$\text{Value of per share} = \frac{\text{Equity Value}}{\text{Shares Outstanding}} = \frac{₹1,03,544.71}{2,000} = ₹\ 51.77.$$

6 (b). CAS Ltd. gives the following information about past profits:

Year	2010	2011	2011	2013	2014
Profits ('000 ₹)	43,40	45,00	47,40	49,00	42,20

On scrutiny it is found (i) that upto 2012, The Company Ltd. followed FIFO method of finished stock valuation thereafter adopted LIFO method, (ii) that upto 2013 it followed Straight Line Method of Depreciation and thereafter adopted Written Down Value Method. Given below the details of Stock Valuation Straight Line and Written Down Value Depreciation:

(Figures in ₹ '000)

Year	Opening Stock		Closing Stock		Depreciation	
	FIFO	LIFO	FIFO	LIFO	SLM	WDV
2010	80,00	79,60	92,00	82,40	24,20	34,00
2011			98,40	95,80	28,30	36,20
2012			77,80	78,20	30,00	38,50
2013			84,00	77,00	33,40	39,20
2014			90,00	86,20	36,00	38,80

Determine Future Maintainable Profits (based on average of past 4 years) that can be used for Valuation of Goodwill. [8]

Answer to 6 (b):

Statement showing the Recomputation of Profits following Uniform Accounting Policies

(Figures in ₹ '000)

Year	Book Profits	Effect of LIFO Valuation of Stock	Effect of W.D.V Depreciation	Profits after elimination of the effect of change in Accounting Policies
2010	43,40	-9,20*	-9,80**	24,40
2011	45,00	+7,00	-7,90	44,10
2012	47,40	+3,00	-8,50	41,90
2013	49,00	-40	-5,80	42,80
2014	42,20	---	---	42,20

*Increase in Stock as per LIFO Valuation – Increase in Stock as per FIFO valuation

= 2,80 – 12,00 = -9,20 and similarly for other years.

**SLM Depreciation – WDV Depreciation = 24,20 – 34,00 = -9,80 and similarly for other years.

Since there is no increasing trend after elimination of the effect of change in accounting policies let us take a simple average of the last 4 years profits to arrive at the future maintainable profits: future Maintainable Profit ('000 ₹) = [(44,10 + 41,90 + 42,80 + 42,20)/4] = ₹ 42.75 thousands.

7. (a) Milton Consulting Ltd. is a firm that specializes in offering management consulting services to software companies.

Milton Ltd. reported operating income (EBIT) of ₹306 lakh and net income of ₹135 lakh in the most recent year. However, the firms expenses include the cost of recruiting new consultants and the cost of training which amounts to ₹60 lakh. A consultant who joins Milton Consulting Ltd. stays with the firm, on an average, for 4 years. Recruitment and training expenses are amortizable over 4 years immediately following the year in which they are incurred. Over the past 4 years the expenses are:

Year	Training, Recruitment Expenses (₹in lakh)
Current	60
Year 1	48
Year 2	45
Year 3	36
Year 4	30

Assuming a linear amortization schedule (over 4 years)

Estimate:

(1) The value of human capital asset and the amount of training and recruitment expenses amortization for this year.

(2) The adjustment to operating income. [4+2]

Answer to 7 (a):

Milton Consulting Ltd.

Year	Training, Recruitment Expenses (₹in lakh)	Unamortization portion (₹in lakhs)	Amortization this year (₹in lakhs)
Current	60	60 (100%)	---
Year 1	48	36 (75%)	12
Year 2	45	22.5 (50%)	11.25
Year 3	36	9 (25%)	9
Year 4	30	0	7.5

(1) The value of human capital assets as at the end of current year is ₹127.50 lakhs and amount of training and recruitment expenses amortization by debit to P&L account this year is ₹39.75 lakhs.

(2) Adjusted Operating Income.
= Operating Income + training & recruitment expenses – amortization of expenses this year
= (306 + 60 – 39.75) lakhs
= ₹326.25 lakhs.

7 (b). Describe the progress made by India so far in the field of human resource accounting. [4]

Answer to 7 (b):

Progress made by India so far in the field of human resource accounting:
Human resource accounting can be defined as the process of indentifying, measuring and communicating information about human resources in financial statements in order to facilitate effective management. Human resource accounting is a recent phenomenon in India. Leading public sector units like OIL, BHEL, NTPC, MMTC and SAIL etc. have started reporting Human Resources in their annual reports as additional information. The Indian companies basically adopted the model of human resource valuation as advocated by Lev and Schwartz (1971). Indian Companies focused their attention on the present value of employee earning as a measure of their human capital. However the Indian Companies have suitably modified the Lev and Schwartz model to suit their individual circumstances.

7 (c). How do you minimize Valuation bias? [5]

Answer to 7 (c):

Valuation bias exists and no valuation is completely objective or 'true'. The effort can be made to minimize the direction (i.e. over or under valuation) and magnitude(how much is the variation) of the bias. Bias may be introduced due to personal views of valuer, source of data, assumptions made, which party has commissioned the valuation (buyer or seller) etc. Bias can't be regulated or legislated out of existence, However, there are ways in which we

can mitigate the effects of bias on valuation: -

Reduce institutional pressures: A significant portion of bias can be attributed to Institutional factors. Equity-research analysts in the 1990s, for instance, in addition to dealing with all of the standard sources of bias had to grapple with the demand from their employers that they bring in investment banking business. Institutions that want honest sell-side equity research should protect their equity research analysts from such bias.

De-link valuations from reward/punishment: Any valuation process where the reward or punishment i s conditioned on the outcome of the valuation will result in biased valuations. In other words, if we want acquisition valuations to be unbiased, we have to separate the deal analysis from the deal making to reduce bias.

No pre-commitments: Decision makers should avoid taking strong public positions on the value of a firm before the valuation is complete. An acquiring firm that comes up with a price prior to the valuation of a target firm has put analysts in an untenable position, where they are- called upon to justify this price. In far too many cases, the decision on whether a firm is under or overvalued precedes the actual valuation, leading to seriously biased analyses.

Self- Awareness: The best antidote to bias is awareness. An analyst who is aware of the biases he or she brings to the valuation process can either actively try to confront these biases when making input choices or open the process up to more objective points of view about a company's future.

Honest reporting: In Bayesian statistics, analysts are required to reveal their priors (biases) before they present their results from an analysis. Thus, an environmentalist will have to reveal that he or she strongly believes that there is a hole in the ozone layer before presenting empirical evidence to that effect. The person reviewing the study can then factor that bias in while looking at the conclusions. Valuations would be much more useful if analysts revealed their biases up front.

While we cannot eliminate bias in valuations, we can try to minimize its impact by designing valuation processes that are more protected from overt outside influences and by report our biases with our estimated values

8. The following projections for T Ltd., have been developed based on internal estimates and market information:

					₹ In million
Year	**1**	**2**	**3**	**4**	**5**
Free cash flow to the firm	**200**	**250**	**300**	**340**	**380**
Interest bearing debt	**500**	**400**	**300**	**200**	**100**
Interest expenses	**60**	**48**	**36**	**24**	**12**

You are required to calculate the enterprise value of T Ltd., using the following assumptions:

(a) Beyond year 5, the free cash flow to the firm will grow at a constant rate of 10 percent per annum
(b) T Ltd.'s unlevered cost of equity is 14%
(c) After year 5, T Ltd. will maintain a debt equity ratio of 4:7
(d) The borrowing rate for T Ltd. will be 12 percent
(e) The tax rate for T Ltd. is 30%
(f) The risk free rate of return is 8%
(g) The market risk premium is 6% **[15]**

Answer to 8:

The present value of the unlevered equity free cash flow (which is the same as the free cash flow to the firm) during the planning period is :

$$\sum_{t=1}^{n}=\frac{FCFF_t}{(1+r_{UE})^t}=\frac{200}{(1.14)}+\frac{250}{(1.14)^2}+\frac{300}{(1.14)3}+\frac{340}{(1.14)^4}+\frac{380}{(1.14)^5}=₹969 \text{ million}$$

The present value of the interest tax shield during the planning period is:

$$\sum_{t=1}^{n}=\frac{I_t*T}{(1+r_D)^t}=\frac{60x0.3}{(1.12)}+\frac{48x0.3}{(1.12)^2}+\frac{36x0.3}{(1.12)3}+\frac{24x0.3}{(1.12)^4}+\frac{12x0.3}{(1.12)^5}=₹41.9 \text{ million}$$

The Present value of the terminal value at the end of the planning period is:

$$\frac{FCFF_n(1+g)}{WACC-g}\left[\frac{1}{1+r_{UE}}\right]^n=\frac{380(1.10)}{0.1349-0.10}\left[\frac{1}{1.14}\right]^5=₹6220.5 \text{ million}$$

Hence the enterprise value of the Optex Ltd. is:
969.0+41.9+6220.5= ₹7231.4 million
It may be noted that the WACC value of 13.49% used above has been arrived as follows:

1. Given that r_{UE} is 14%, β_{UE}, the unlevered equity beta, was calculated by solving the following equation:

   r_{UE} = Risk – free rate + β_{UE} * Market risk premium
   14 = 8 + β_{UE} * 6
   β_{UE} = 1

2. Given β_{UE} = 1, β_{LE}, the levered equity beta was calculated:

   $B_{LE} = \beta_{UE}[1+(1-T)\frac{D}{E}]$
   = 1[1+4/7(1-0.3)]
   = 1.4

3. Given $\beta_{UE} = 1.4$, r_{LE}, the cost of levered equity was calculated:

$$r_{LE} = 8+1.4*6 = 16.4\%$$

4. Given $r_{LE} = 16.4\%$, WACC, the weighted average cost of capital was calculated.

$$WACC = \frac{7}{11} * 16.4 + \frac{4}{11} * 12* (1-0.3) = 10.44 + 3.05 = 13.49\%$$