

# FINAL EXAMINATION

## GROUP IV

(SYLLABUS 2008)

### SUGGESTED ANSWERS TO QUESTIONS

December  
2012

#### Paper- 18 : BUSINESS VALUATION MANAGEMENT

Time Allowed : 3 Hours

Full Marks : 100

The figures in the right side indicate full marks.

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

1. (a) State whether the following statements are True or False: 1×5=5
- (i) The value of a firm's equity is equal to value of the firm less the value of non- equity claims.
  - (ii) Point estimation of the value of a business is the only right way to determine its value.
  - (iii) A lower discount would be applied to the cash flows of a government bond compared to a corporate debenture.
  - (iv) When prices rise, last in first out (LIFO) method of stock valuation results in lower reported earnings.
  - (v) Cost of the debt is always more than that of the equity as a company is not mandated to pay any dividend but it has to pay interest on the debt every year.
- (b) Fill in the blanks by using words/ phrases given in the brackets: 1x10=10
- (i)  $\beta$  factor does not measure -----risk. (systematic/unsystematic)
  - (ii) The -----the market and book value is an indication of intellectual capital if the shares are widely held and traded for a non-cyclical firm. (sum of/difference between)
  - (iii) Post merger control and the -----are two of the most important issues in agreeing on the terms of merger. (calculated price/negotiated price)
  - (iv) A negative economic value added indicates that the firm is-----value. (creating/destroying)
  - (v) -----is a process that involves either an investigation of a business or an act which ensures authenticity of numbers submitted by a seller of a business. (Audit/Due Diligence/Verification)
  - (vi) One of the methods of valuation of equity is –Constant Growth Dividend Discount Model. As per this model, the growth rate is used is the growth rate in -----  
---(Earnings per share/ dividend per share/ Market price of share)
  - (vii) A method under which the value of an asset is based on calculating the costs avoided by the acquiring company when obtaining a pre-existing and fully

- functional asset is known as ----- Method. (Sunk Cost/Marginal Cost/Avoided Cost/Incurred Cost)
- (viii) Tobin's Q is more a measure of the perceived quality of a firm's management than of its misvaluation. It is estimated by dividing the market value of a firm's assets by the -----of these asset. (realizable value/ replacement cost)
- (ix) In balance sheet, equity and fixed assets are expressed in terms of their.....value. (market/book/replacement)
- (x) Price to book ratio is -----related to return on equity. (Positively/negatively)
- (c) In each of the questions given below one out of the four options is correct. Indicate the correct answer: 2x5=10
- (i) 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
- (ii) Which one of the following statements is not true about Efficient market?
- (a) Share prices behave randomly and do not show any systematic pattern in the behavior  
 (b) Price of one share is independent of the price of other shares in the market  
 (c) Share prices fully reflect all available information  
 (d) None can earn abnormally high profits on a constant basis
- (iii) If Tobin's Q is over 1, this deems
- (a) Stock market to be under valued  
 (b) Stock market is valued at par  
 (c) Stock market is highly valued  
 (d) None of the above
- (iv) Assume that you buy a bond today yielding 9.50% (YTM). The face value of the bond is ₹ 1000 and is presently being traded in the market at ₹ 1005. Then, it means that the coupon rate is
- (a) More than 9.50%  
 (b) Less than 9.50%  
 (c) Exactly equal to 9.50%  
 (d) All the above are possible
- (v) Company has declared a dividend of ₹ 4 per share for the recently ended financial year. It is estimated that its cost of equity is 12.50%. If it has a Dividend pay-out Ratio of 40% and Growth rate in Dividend is 7.50%, then, its Price/ Earnings Ratio will be (assume that price in the market are determined as per the Constant Dividend Growth Model)
- (a) 8.00  
 (b) 8.33  
 (c) 8.60  
 (d) 14.33

**Answer 1.****(a)**

- (i) True - The value of a firm's equity is equal to value of the firm less the value of non-equity claims.
- (ii) False – There are three common approaches to business valuation – Discounted Cash Flow Valuation, Relative Valuation and Contingent Claim Valuation.
- (iii) True - A lower discount would be applied to the cash flows of a government bond compared to a corporate debenture.
- (iv) True - When prices rise, last in first out (LIFO) method of stock valuation results in lower reported earnings.
- (v) False – Cost of the debt is not always more than that of the equity just because of the company is not mandated to pay dividend every year but has to pay interest on the debt every year.

**(b)**

- (i) Unsystematic
- (ii) Difference between
- (iii) Negotiated price
- (iv) Destroying
- (v) Due diligence
- (vi) Dividend per share
- (vii) Avoided cost
- (viii) Replacement cost
- (ix) Book
- (x) Positively.

**(c)** In each of the Questions given below one out of the four options is correct. Indicate the correct answer.

- (i) (c) ₹248  
 $\frac{₹(100+24)}{50 \text{ lakhs shares}} = ₹248$
- (ii) (b) Price of one share is independent of the price of other shares in the market
- (iii) (c) Stock market is highly valued
- (iv) (a) More than 9.50% (If a bond is trading at a premium then it must have a coupon rate more than YTM)
- (v) (c) 8.60 Explanation

Dividend	₹4.00
Growth Rate in Dividend	7.50%
Dividend payout ratio	40%
EPS ( Dividend/ Dividend payout Ratio)	₹10
Cost of Equity	12.50%
Price	₹86
Price/Earning Ratio	8.60

- 2. (a) What do you mean by reverse merger? 5
- (b) In valuing a firm should you use marginal or effective tax rate? 5
- (c) How do you relate coupon rate, required yield and price? 5

**Answer 2.**

- (a) Usually a small company merges with a large company or a sick company merges with healthy company. Thus the larger company or the healthier is generally the resultant company. However in some cases reverse merger is done. When a healthy company merges with a sick or a small company it is called reverse merger. Some of the reasons for reverse merger are:-
  - (i) The transferee company is a sick company and has carry forward losses and transferor company is profit making company. If transferor company merges with sick transferee company, it gets advantages of setting off carry forward losses without any additions. If sick company merges with a healthy company, many restrictions are applicable for allowing set off of the accumulated losses.

(ii) If transferee company is a listed company and transferor, non listed company merges with the listed company, it gets advantages of listed company without following strict norms of listing of stock exchanges.

In such cases, it is provided that on the date of merger, name of transferee company will be changed to that of transferor company. Thus, outside people even may not know that the transferee company with which they are dealing after merger is not the same as the earlier one. Example of such reverse merger is Shiva Texyarn Ltd.

(b) The most widely reported tax rate in financial statements is the effective tax rate. It is computed as under:

**(Taxes due) / Taxable income**

The second choice on tax rate is marginal tax rate, which is the tax rate the firm faces on its last rupee of income. The reason for the choice of marginal tax rate lies in the fact that marginal tax rate for most firms remains fairly similar but wide differences in effective tax rates are noted across firms. In valuing a firm, if same tax rate has to be applied to earning of every period, the preferred choice is the marginal tax rate. This makes calculation and analysis comparable across different years of the same firm and across different firms in an industry.

(c) As the expected yield changes in the market place, prices of bonds change to reflect the new required yield. When the required yield on a bond rises above its coupon rate, the bond sells at Discount. When the required yield on a bond falls below its coupon rate, the bond sells at a premium. We can summarize the relationship between Coupon rate, required yield and price as follows:

Coupon rate < Required yield = Price < Par value (Discount bond)

Coupon rate = Required yield = Price = Par value (At par bond)

Coupon rate > Required yield = Price > Par value (Premium bond)

3. (a) The following information has been extracted from the Annual Report 2011-12 of ABC Limited:

Balance Sheet of ABC Limited as at 31<sup>st</sup> March 2012

(₹ in crores)	
Particulars	2012
<b>EQUITY AND LIABILITIES</b>	
Shareholder's Funds	
Share Capital	8,245.46
Reserves and Surplus	65,045.71
	<b>73,291.17</b>
Non-Current Liabilities	
Long- Term Borrowings	47,975.23
Other long term liabilities	2, 332.76
	<b>50,307.99</b>
Current Liabilities	
Trade payables	4,468.07
Other current Liabilities	12,770.57
	<b>17,238.64</b>
<b>Total</b>	<b>1,40,837.80</b>
<b>ASSETS</b>	
Non-Current Assets	
Fixed Assets:	
Tangible assets	45,046.47
Intangible assets	211.89
Capital work-in-progress	41, 827.82
Intangible assets under Development	0.04
	<b>87,086.22</b>
Non-current investments	
Long-term loans and advances	9,583.92
Other non-current assets	3,883.26
	<b>1,371.88</b>
	<b>14,839.06</b>
Current Assets:	
Current investments	1,622.46
Inventories	3,702.85

Trade receivables	5,832.51
Cash and bank balance	16,146.11
Short- term loans advances	2,754.73
Other current assets	8,853.86
	38,912.52
<b>Total</b>	<b>1,40,837.80</b>

Statements of Profit and Loss of ABC Limited for the year ending on 31<sup>st</sup> March 2012  
(₹ in crores)

Particulars	2012
Revenue from operations (Gross)	62,480.88
Less: Excise Duty	428.65
Revenue from operations (Net)	62,052.23
Other Income	2,778.42
<b>Total Revenue</b>	<b>64,830.65</b>
<b>EXPENSES:</b>	
Fuel	41,635.46
Employee benefits expense	3,090.48
Finance Costs	1,711.64
Depreciation and amortization expense	2,791.70
Administration & other expenses	3,588.79
<b>Total Expenses</b>	<b>52,818.07</b>
<b>Profit/ (Loss) Before Tax</b>	<b>12,012.58</b>
Note: Profit on sale of Non-Current Assets (included in Other Income above) being exceptional items.	313.58

Tax expense is 30% of the profit.

The directors of XYZ Ltd. are considering a takeover of ABC Ltd. As the consultant of XYZ Ltd., you are required to determine the value of a share of ABC Limited on the basis of the Profit-Earning Capacity (Capitalization) Method by considering the following additional information:

- (i) The face value of the share is ₹ 10.
  - (ii) Profit on sale on Non-current Assets is an exceptional item of the profit and it is expected that in future no such profits are likely to occur.
  - (iii) In subsequent years, additional expenses on advertisements of ₹ 25 crores and on depreciation of ₹ 50 crores each year are expected to be incurred.
  - (iv) The Capitalization rate on the similar business is 10.50%
  - (v) All other items of the above financial statements are expected to remain same in the future.
- 10
- (b) What is value chain analysis? 5

### Answer 3.

<b>(a) Profit- Earning Capacity ( Capitalization) Method</b>		(₹ in crores)
Profit Before Tax excluding exceptional items ( 12, 012.58 – 313.58)		₹ 11, 699.00
Less:		
Additional Expenses on Advertisement		₹ 25.00
Depreciation		₹ 50.00
Expected Profit before Tax		₹ 11, 624.00
Less: Tax @30%		₹ 3, 487.20
Expected Maintainable Profit		₹ 8, 136.80
Capitalization Rate	10.50%	
<b>Value of Business</b>		<b>₹ 77, 493.33</b>
Less: Outsiders and External Liabilities		
NON-CURRENT LIABILITIES		
Long –Term Borrowings		47, 975.23
Other long term liabilities		2,332.76
CURRENT LIABILITIES		
Trade payables		4, 468.07
Other current liabilities		12,770.57
Total Outsiders Liabilities		67, 546.63
<b>Value of Equity</b>		<b>₹ 9, 946.70</b>
Share capital		

No. of share ( Face Value ₹ 10)	8, 245. 46
<b>Value per Share</b>	824.546
	₹ <b>12. 06</b>

- (b) Competitive advantages stem from firm's ability to enhance value where it can do so. For this purpose, it is helpful to look at value chain, which are the entire set of activity raw material extraction to after sales service to customers.

Michael Porter, a proponent of value chain analysis, argues that competitive advantage can be understood not by looking at the company as a whole but by analyzing the discrete activity that a company performs to deliver its goods or services. Each activity in the value chain enhances or diminishes a company's ability to capture and sustain competitive advantages.

Value chain analysis is relevant for most business, but particularly useful for business engaged into two types of activity.

- Vertically integrated activities:

A vertically integrated business is engaged in all the activity required for converting raw material from sourcing to converting into and selling the finished goods to the ultimate consumers including after sales service. Value chain analysis helps in identifying company is doing well, where the company needs to improve and what the company can out source profitably.

- Activity susceptible to technological change. Technological changes can disintegrate value chains, permitting companies to specialize in to narrow set of activities.

4. From the following information in respect of Manas Ltd. compute the value of employees of the organization by using Lev and Schwartz Model: 15

Age	House Keeping Staff		Administrative Staff		Professional Staff	
	No.	Average Annual earnings(₹)	No.	Average Annual earnings(₹)	No.	Average Annual earnings(₹)
30-90	100	3,00,000	60	3,50,000	40	5,00,000
40-49	50	4,00,000	30	5,00,000	20	6,00,000
50-59	30	5,00,000	20	6,00,000	10	7,50,000

The retirement age is 60 years. The future earnings have been discounted at 10%. For computing the total value of human factor lowest age value of each class range is to be taken.

Annuity Factors at 10% discounting rate are as follows:

5 Years	10 Years	15 Years	20 Years	25 Years	30 Years
3.791	6.145	7.606	8.514	9.077	9.427

#### Answer 4.

The value of employees has been computed as follows:

- (A) Valuation in respect of House Keeping Staff:

Age Group 30-39 (Assuming all employees are just 30 years old)

Particulars	Computation	PV (₹)
₹ 3,00,000 p.a. for next 10 years	$3,00,000 \times 6.145$	18,43,500
₹ 4,00,000 p.a. for next 11-20 years	$(4,00,000 \times 8.514) - (4,00,000 \times 6.145)$	9,47,600
₹ 5,00,000 p.a. for next 21-30 years	$(5,00,000 \times 9.427) - (5,00,000 \times 8.514)$	4,56,500
	<b>Total</b>	<b>32,47,600</b>

Age Group 40-49 years: (Assuming all employees are just 40 years old)

Particulars	Computation	PV (₹)
₹ 4,00,000 p.a. for next 10 years	$4,00,000 \times 6.145$	24,58,000
₹ 5,00,000 p.a. for next 11 to 20 years	$(5,00,000 \times 8.514) - (5,00,000 \times 6.145)$	11,84,500
	<b>Total</b>	<b>36,42,500</b>

Age Group 50-59 years: (Assuming all employee are just 50 years old)

Particulars	Computation	PV (₹)
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₹ 5,00,000 p.a. for next 10 years	$5,00,000 \times 6.145$	30,72,500
	<b>Total</b>	<b>30,72,500</b>

## (B) Valuation in respect of Administrative Staff.

Age Group 30-39 (Assuming all employee are just 30 years old)

Particulars	Computation	PV (₹)
₹ 3,50,000 p.a. for next 10 years	$3,50,000 \times 6.145$	21,50,750
₹ 5,00,000 p.a. from 11 to 20 years	$(5,00,000 \times 8.514) - (5,00,000 \times 6.145)$	11,84,500
₹ 6,00,000 p.a. from 21 – 30 years	$(6,00,000 \times 9.427) - (6,00,000 \times 8.514)$	5,47,800
	<b>Total</b>	<b>38,83,050</b>

Age Group 40-49 years: (Assuming all employee are just 40 years old)

Particulars	Computation	PV (₹)
₹5,00,000 p.a. for next 10 years	$5,00,000 \times 6.145$	30,72,500
₹ 6,00,000 p.a. from 21 – 30 years	$(6,00,000 \times 8.514) - (6,00,000 \times 6.145)$	14,21,400
	<b>Total</b>	<b>44,93,900</b>

Age Group 50-59 years: (Assuming all employee are just 50 years old)

Particulars	Computation	PV (₹)
₹ 6,00,000 p.a. for next 10 years	$6,00,000 \times 6.145$	36,87,000
	<b>Total</b>	<b>36,87,000</b>

## (c) Valuation in respect of Professional Staff:

1. Age Group 30-39 (Assuming all employee are just 30 years old)

Particulars	Computation	PV (₹)
₹ 5,00,000 p.a. for next 10 years	$(5,00,000 \times 6.145)$	30,72,500
₹ 6,00,000 p.a. from 11 to 20 years	$(6,00,000 \times 8.514) - (6,00,000 \times 6.145)$	14,21,400
₹ 7,50,000 p.a. from 21 – 30 years	$(7,50,000 \times 9.427) - (7,50,000 \times 8.514)$	6,84,750
	<b>Total</b>	<b>51,78,650</b>

Age Group 40-49 years: (Assuming all employee are just 40 years old)

Particulars	Computation	PV (₹)
₹ 6,00,000 p.a. for next 10 years	$(6,00,000 \times 6.145)$	36,87,000
₹ 7,50,000 p.a. from 21 – 30 years	$(7,50,000 \times 8.514) - (7,50,000 \times 6.145)$	17,76,750
	<b>Total</b>	<b>54,63,750</b>

Age Group 50-59 years: (Assuming all employee are just 50 years old)

Particulars	Computation	PV (₹)
₹ 7,50,000 p.a. for next 10 years	$(₹ 7,50,000 \times 6.145)$	46,08,750
	<b>Total</b>	<b>46,08,750</b>

## (D) Total Value of Employees:

Age No.		House Keeping Staff No. PV of future earning		Administrative Staff No. PV of future earnings		Professional Staff No. PV of future earnings		Total PV of future earning
30-39	100	$32,47,600 \times 100$ = 32,47,60,000	60	$38,83,050 \times 60$ = 23,29,83,000	40	$51,78,650 \times 40$ = 20,71,46,000	200	76,48,89,000

40-49	50	36,42,500 x 50 = 18,21,25,000	30	44,93,900 x 30 = 13,48,17,000	20	54,63,750 x 20 = 10,92,75,000	100	42,62,17,000
50-59	30	30,72,500 x 30 = 9,21,75,000	20	36,87,000 x 20 = 7,37,40,000	10	46,08,750 x 10 = 4,60,87,500	60	21,20,02,500
Total	180	59,90,60,000	110	44,15,40,000	70	36,25,08,500	360	1,40,31,08,500

5. (a) Distinguish between Intrinsic Value and Time Value of an 'option' with suitable examples. 6  
 (b) What are the risk factors in valuation of intellectual property fixed assets? 9

**Answer 5.**

- (a) Intrinsic value of an option and the time value of an option are primary determinants of an option's price. By being familiar with these terms and knowing how to use them, one will find himself in a much better position to choose the option contract that best suits the particular investment.

Intrinsic value is the value that any given option would have if it were exercised today. This is defined as the difference between the option's strike price (x) and the stock actual current price (c.p). In the case of a call option, one can calculate the intrinsic value by taking  $CP-X$ . If the result is greater than Zero (In other words, if the stock's current price is greater than option's strike price), then the amount left over after subtracting  $CP-X$  is option's intrinsic value. If the strike price is greater than the current stock price, then the intrinsic value of the option is zero. It would not be worth anything if it were to be exercised today. An option's intrinsic value can never be below zero. To determine the intrinsic value of a put option, simply reverse the calculation to  $X-CP$ .

**Example:** let us assume W Ltd. Stock is priced at ₹105. In this case, a W Ltd. 100 call option would have an intrinsic value of  $(₹105- ₹100 = ₹5)$  However, a W Ltd. 100 put option would have an intrinsic value of zero  $(₹100- ₹105= -₹5)$ . Since this figure is less than zero, the intrinsic value is zero. Also, intrinsic value can never be negative. On the other hand, if we are to look at a W put option with a strike price of ₹ 120. Then this particular option would have an intrinsic value of ₹15  $(₹120 - ₹ 105 = ₹ 15)$

**Time Value:** This is the second component of an option's price. It is defined as any value of an option other than the intrinsic value. From the above example, if W Ltd is trading at ₹105 and the W 100 call option is trading at ₹7, then we would conclude that this option has ₹2 of time value  $(₹7 \text{ option price} - ₹5 \text{ intrinsic value} = ₹2 \text{ time value})$ . Options that have zero intrinsic value are comprised entirely of time value.

**Time Value:** It is basically the risk premium that the seller requires to provide the option buyer with the right to buy/sell the stock upto the expiration date. This component may be regarded as the Insurance premium of the option. This is also known as "Extrinsic value": Time value decays over time. In other words, the time value of an option is directly related to how much time an option has until expiration. The more time an option has until expiration. The greater the chances of option ending up in earning money.

- (b) Unlike most enterprise or fixed asset valuations, intellectual property fixed assets have their own set of unique risk factors. Some of these risk are:
- **New Patent Issuance:** New patents can either make existing technology obsolete or, more likely, allow for another competitor in the same space. If a similar patent is issued the value of the underlying technology will decrease. One key difficulty of the process is that it is nearly impossible to know what has been filed with the U.S. patent



and Trademark Office (USPTO). Only issued patents are publicly available information and therefore the risk posed pending patent claims cannot be easily foreseen.

- **Patent Challenges/Declared Invalid:** An issued patent remains open to attack for invalidity, and it is a common defense for an alleged infringer to assert that the patent is invalid. Typically, patents are challenged on the grounds that someone other than the named inventor invented the claimed property, that the invention is “obvious” to persons skilled in the relevant technology, or that the patent is not unique and too similar to existing methods. Successful challenges can immediately invalidate the patent and corresponding licenses. In principal, proper due diligence should turn up these potential problems.
- **Patent Infringement Suits:** Licensees could be held liable and ultimately pay three times damages. Again, due diligence should reveal any potential problems of overlapping, uncited prior or concurrent claims.
- **Trade Secrets:** Some patents are virtually worthless without the necessary trade secrets. An example of a “worthless” patent is a pharmaceutical patent for a specific drug that did not reveal the exact “recipe” for formulating the drug. The inventor(s) of the patent need to cooperate and share those trade secrets to maximize the value of the patent.

**Foreign Government’s failure to comply with Patent Cooperation Treaties:** This is a major issue for software patents, many of which are pirated in foreign countries and sold into the world market.

6. The directors of Hi Value Fund are keen on acquiring the business of G Ltd. They have approached you given your valuation expertise for mergers and acquisitions for help. G Ltd. has an invested capital of ₹ 50 million. Its return on invested capital (ROIC) is 12% and its weighted average cost of capital (WACC) is 11%. The expected growth rate in G Ltd.’s invested capital will be 20% for the first three years, 12% for the following two years and 8% thereafter forever. The forecast of G Ltd’s free cash flows is given below:

(₹ in Million)

Year	1	2	3	4	5	6	7
Invested Capital	50	60	72	86.40	96.77	108.38	117.05
Net operating profit less adjusted tax	6	7.20	8.64	10.37	11.61	13.00	14.05
Net investment	10	12.00	14.40	10.37	11.61	8.67	9.36
Free cash flow	(-)4.00	(-)4.80	(-)5.76	-	-	4.33	4.69
Cost of Capital (%)	11	11	11	11	11	11	11
Capital charge	5.50	6.60	7.92	9.50	10.64	11.92	12.88
Economic Profit	.50	.60	.72	.87	.97	1.08	1.17
Growth rate (%)	20	20	20	12	12	8	8

Value G Ltd. under (i) Discounted cash flow method and (ii) present value of economic profit method.

Can the consideration paid for the shares exceed the valuation, if so, under what circumstances?

15

#### Answer 6.

The present value of free cash flow (PCF) during the planning period is:

$$\begin{aligned}
 PV(\text{FCF}) &= \frac{-4.00}{1.11} + \frac{-4.80}{(1.11)^2} + \frac{-5.76}{(1.11)^3} + \frac{0}{(1.11)^4} + \frac{0}{(1.11)^5} + \frac{4.33}{(1.11)^6} \\
 &= -9.4 \text{ million.}
 \end{aligned}$$

The horizon value at the end of six years, applying constant growth model, is

$$V_{+1} = \frac{FCF_{H+1}}{WACC - g} = \frac{4.68}{.11 - .08} = 156.0 \text{ million}$$

The present value of VH is

$$\frac{156.0}{(1.11)^6} = 83.4 \text{ million.}$$

Adding the present value of free cash flow during the planning period and present value of horizon value, gives the enterprise DCF value

$$V_0 = -9.4 + 83.4 = 74.0 \text{ million.}$$

The present value of Economic profit stream is.

$$\frac{0.50}{1.11} + \frac{0.60}{(1.11)^2} + \frac{0.72}{(1.11)^3} + \frac{0.87}{(1.11)^4} + \frac{0.97}{(1.11)^5} + \frac{1.08}{(1.11)^6} + \frac{1.17}{(0.11 - .08)} \times \frac{1}{(1.11)^6}$$

$$= 24.0 \text{ million.}$$

Adding the invested capital to the present value of EP stream given the enterprise value:

$$V_0 = 50 + 24 = 74 \text{ million.}$$

Thus, the two models lead to identical valuation.

In the case of Mergers and Acquisitions the actual consideration paid for the shares can exceed the valuation of shares under the DCF method and /or under the Present Value of Economic Profit method in situations where the merger /acquisition is likely to result in synergy providing additional benefits arising out of the M&A. Examples are where the target company has patents or other key facilities/factors like access to resources, raw material, location, markets etc. which can be better utilized by the existing acquirer company, thereby enhancing its profitability. This can also arise where the target company is a key competitor. In such situations the consideration paid can exceed the valuation based on present value using DCF or PV of economic profit.

7. The balance sheets of RST Ltd. for the year ended on 31.3.2010, 31.3.2011 and 31.3.2012 are as follows:

Liabilities	31.3.2010 ₹	31.3.2011 ₹	31.3.2012 ₹
3,20,000 Equity Shares of ₹ 10 each fully paid	32,00,000	32,00,000	32,00,000
General Reserve	24,00,000	28,00,000	32,00,000
Profit & Loss Account	2,80,000	3,20,000	4,80,000
Creditors	12,00,000	16,00,000	20,00,000
	70,80,000	79,20,000	88,80,000

Assets	31.3.2010 ₹	31.3.2011 ₹	31.3.2012 ₹
Goodwill	20,00,000	16,00,000	12,00,000
Building and Machinery (Less: Depreciation)	28,00,000	32,00,000	32,00,000
Stock	20,00,000	24,00,000	28,00,000
Debtors	40,000	3,20,000	8,80,000
Bank Balance	2,40,000	4,00,000	8,00,000
	70,80,000	79,20,000	88,80,000

	31.3.2010 ₹	31.3.2011 ₹	31.3.2012 ₹
Actual valuation were as under			
Building & Machinery	36,00,000	40,00,000	44,00,000
Stock	24,00,000	28,00,000	32,00,000
Net Profit (including opening balance) after writing off depreciation and goodwill, tax provision and transfer to General Reserve	8,40,000	12,40,000	16,40,000

Capital employed in the business at market values at the beginning of 2009-2010 was ₹ 73,20,000 which included the cost of goodwill. The normal annual return on Average Capital employed in the line of business engaged by RST Ltd. is  $12\frac{1}{2}\%$ .

The balance in the General Reserve account on 1<sup>st</sup> April, 2009 was ₹ 20 lakhs.

The Goodwill shown on 31.3.2010 was purchased on 1.4.2009 for ₹ 20,00,000 on which date the balance in the Profit and Loss Account was ₹ 2,40,000. Find out the average capital employed each year.

Calculate the value of goodwill which is to be valued at 5 years purchase of super profits (Simple average method).

Also find out the total value of the business as on 31.3.2012.

15

**Answer 7.**

1. Since goodwill has been paid for, it is taken as part of capital employed. Capital employed at the end of each year is shown below.
2. Assumed that the building and machinery figure as revalued is after considering depreciation.

	31.3.2010 ₹	31.03.211. ₹	31.03.2012 ₹
Goodwill	20,00,000	16,00,000	12,00,000
Building and Machinery (revalued)	36,00,000	40,00,000	44,00,000
Stock (revalued)	24,00,000	28,00,000	32,00,000
Debtors	40,000	3,20,000	8,80,000
Bank Balance	2,40,000	4,00,000	8,00,000
Total Assets	82,80,000	91,20,000	1,04,80,000
Less: Creditors	12,00,000	16,00,000	20,00,000
Closing Capital	70,80,000	75,20,000	84,80,000
Opening Capital	73,20,000	70,80,000	75,20,000
	1,44,00,000	1,46,00,000	1,60,00,000
Average Capital	72,00,000	73,00,000	80,00,000

Maintainable profit has to be found out after making adjustments as given below:

	31.3.2010 ₹	31.03.211. ₹	31.03.2012 ₹
Net profit as given	8,40,000	12,40,000	16,40,000
Less: Opening Balance	2,40,000	2,80,000	3,20,000
	<b>6,00,000</b>	<b>9,60,000</b>	<b>13,20,000</b>
Add: Under valuation of closing stock	4,00,000	4,00,000	4,00,000
	<b>10,00,000</b>	<b>13,60,000</b>	<b>17,20,000</b>
Less: Adjustment for valuation in opening stock		4,00,000	4,00,000
	<b>10,00,000</b>	<b>9,60,000</b>	<b>13,20,000</b>
Add: Goodwill written-of		4,00,000	4,00,000
	<b>10,00,000</b>	<b>13,60,000</b>	<b>17,20,000</b>
Add: Transfer to Reserves	4,00,000	4,00,000	4,00,000
	<b>14,00,000</b>	<b>17,60,000</b>	<b>21,20,000</b>
Less 12½% Normal return	9,00,000	9,12,500	10,00,000
Super Profit	5,00,000	8,47,500	11,20,000

Average super profits =  $(₹5,00,000 + ₹8,47,500 + ₹11,20,000)/3$

=  $24,67,500/3 = ₹8,22,500$

Goodwill = 5 years purchase

=  $8,22,500 \times 5 = ₹41,12,500$

Total Net Assets on 31/03/2012	84,80,000
(-) Goodwill	<u>12,00,000</u>
	72,80,000
+ Goodwill	<u>41,12,500</u>
Value of Business ₹	<u>1,13,92,500</u>

8. The following financial statements have been extracted from the Annual Report 2011-12 of Kaka Steel:

Balance Sheet of Kaka Steel Limited as at 31<sup>st</sup> March

(₹ in crores)

Particulars	2011	2012
<b>EQUITY AND LIABILITIES</b>		
Shareholders's Funds:		
Share Capital	959.41	971.41
Reserves and Surplus	45,807.02	51,649.95
Money received against share warrants	178.20	
	<u>46,944.63</u>	<u>52,621.36</u>
Hybrid Perpetual Securities	1,500.00	2,275.00
Non-Current Liabilities:		
Long-term Borrowings	24,499.05	21,353.20
Deferred tax liabilities (Net)	936.80	970.51
Other long-term liabilities	373.88	216.05
Long-term provisions	2,201.47	1,851.30
	<u>28,011.20</u>	<u>24,391.06</u>
Current Liabilities:		
Short-term borrowings	149.13	65.62
Trade payables	4,464.81	5,973.23
Other current liabilities	6,262.10	8,798.55
Short term provisions	2,219.85	2,066.24
	<u>13,095.89</u>	<u>16,903.64</u>
<b>Total</b>	<b>89,551.72</b>	<b>96,191.06</b>
<b>ASSETS</b>		
Non-Current Assets		
Fixed Assets:		
Tangible assets	11,532.58	11,142.36
Capital work-in-progress	5,612.28	16,058.49
Intangible assets	272.52	223.90
	<u>17,417.38</u>	<u>27,424.75</u>
Non-current investments	43,565.15	49,078.35
Foreign currency monetary item translation difference account	-	404.90
Long-term loans and advances	10,453.41	6,415.80
Other non-current assets	2.76	2.76
	<u>54,021.32</u>	<u>55,901.81</u>
Current Assets:		
Current investments	2,999.79	1,204.17
Inventories	3,953.76	4,858.99
Trade receivable	424.02	904.08
Cash and bank balance	4,138.78	3,946.99
Short-term loans and advance	6,458.94	1,828.09
Other current Assets	137.73	122.18
	<u>18,113.02</u>	<u>12,864.50</u>
<b>Total</b>	<b>89,551.72</b>	<b>96,191.06</b>

Statement of Profit and Loss of Kaka Steel Limited for the year ending on 31<sup>st</sup> March.

(₹ in crores)

Particulars	2011	2012
Revenue from Operations	31,902.14	37,005.71
Less: Excise Duty	2,505.79	3,072.25
	<u>29,396.35</u>	<u>33,933.46</u>

Other Income	528.36	886.43
<b>Total Revenue</b>	<b>29,924.71</b>	<b>34,819.89</b>
<b>EXPENSES</b>		
Raw materials consumed	6,244.01	8,014.37
Purchase of finished, semi-finished and other products	180.20	209.52
Charges in inventories of finished goods, work-in-progress, and stock-in-trade	(173.65)	(220.72)
Employee benefits expense	2,837.46	3,047.26
Depreciation and amortization expense	1,146.19	1,151.44
Finance costs	1,735.70	1,925.42
Other expenses	9,024.82	11,824.49
	20,994.73	25,951.78
Less: Expenditure (other than interest) transferred to capital and other accounts	198.78	478.23
Total Expenses	20,795.95	25,473.55
Profit before Tax and Exceptional Items	9,128.76	9,346.34
Exceptional Item:		
Profit on sale of Non-Current Investments	648.09	511.01
	648.09	511.01
Profit/(Loss) before Tax	9,776.85	9857.35
Tax Expenses	2,911.16	3,160.93
Profit/(Loss) after Tax	6,865.69	6,696.42

- (i) Find the EPS for the period ending on March 31, 2011 and March 31, 2012.
- (ii) The face value per share is ₹ 10. Determine Return on Equity (ROE) for the year ending on March 31, 2011 and March 31, 2012.
- (iii) Using the price of ₹ 471.75, determine the ratio between the market price and the book value as on April 1, 2012.
- (iv) Calculate the P/E ratio using the price of ₹ 471.75 and the EPS calculated for the year ending on March 31, 2012.
- (v) The CFO of Kaka Steels has to make a presentation as a part of due diligence in Merger and Acquisition process. He has requested your help in determining intrinsic value of the shares. Assuming that the intrinsic value of the Kaka Steel Ltd. share can be fairly estimated through the Constant Growth Model, using the information given below, you are required to determine the value of share. Assume the cost of equity as 15%.

(₹ In crores)

Dividend Particulars	2010-11	2011-12
Proposed dividend on Ordinary Shares	1,151.06	1,165.46
Tax on dividends	156.71	181.57

4+2+3+1+5=15

**Answer 8.**

- (i) Calculation of the EPS for the period ending on March 31, 2011 and March 31, 2012. The face value per share is ₹10.

	31-Mar-11	31-Mar-12
PAT	6,865.69	6,696.42
Share Capital	959.41	971.41
No. of Shares	95.94	97.14
EPS	71.56	68.94

- (ii) Determination of Return on Equity (ROE) for the year ending on March 31, 2011 and March 31, 2012.

Calculation of Net Worth		
	31-Mar-11	3-Mar-12
Share Capital	959.41	971.41

Reserves and Surplus	45,807.02	51,649.95
Money received against share warrants	178.20	
Deferred tax liabilities (Net)	936.80	970.51
	47,881.43	53,591.87
Less: Foreign currency monetary item		404.90
Translation difference account		
Net Worth	47,881.43	53,186.97
Calculation of Return of Equity		
PAT	6,865.69	6,696.42
Return on Equity	14.34%	12.59%

- (iii) Using the price of ₹471.75, determine the ratio between the market price and the book value as on April 2, 2012.

31-Mar-12	
Net Worth	53,186.97
Share Capital	971.41
No. of Shares	97.14
Book – value-per share	547.52
Market Price [02-04-2012]	471.75
Market Price to Book Value Ratio	0.86

- (iv) Calculate the P/E ratio using the price of ₹471.75 and the EPS calculated for the year ending on March 31, 2012.

EPS	68.94
Market Price	471.75
P/E ratio	6.84

- (v) Assuming that the intrinsic value of the Kaka Steel Ltd. share can be fairly estimated through the Constant Growth Model, using the information given below, you are required to determine the value of share. Assume the cost of equity as 15%

(₹ in Crores)

Dividend Particulars	2010-11	2011-12
Proposed dividend on Ordinary Shares	1,151.06	1,165.46
Tax on dividends	156.71	181.57

(₹ in Crores)

Dividend Particulars	2011-2012
Proposed dividend on Ordinary Shares	₹ 1,165.46
Tax on dividends	₹181.57
Total pay Out	1,347.03
PAT	₹6,696.42
Dividend Pay Out Ratio	20.12%
Retention Ratio	79.88%
Return on Equity	12.59%
Growth Rate (ROE x Retention Rate)	10.06%
Dividend Per Share (Proposed Dividend/ No. of Shares)	12.00
Cost of Equity	15.00%
Intrinsic Value of Share	₹ 267.17