

FINAL EXAMINATION

(REVISED SYLLABUS - 2008)

GROUP - IV

Paper-18 : BUSINESS VALUATION MANAGEMENT

Q.1. [A] State whether following statements are True [T] or False [F]:

1. Point estimation of the value of a business is the right way to determine its value.
2. Higher debt/Equity ratio implies higher valuation of a company.
3. The key importance of annual reports information is that it is used by investors when they form their expectation about the firm's future earnings and dividends and riskiness of those of cash flow.
4. Management buy out is not a takeover method.
5. Paying a onetime extraordinary dividend is a defensive financial technique.
6. The corporate valuation model cannot be used for a company that doesn't pay dividends.
7. Free cash flow should be discounted at the weighted average cost of capital to find the value of a company's operations.
8. An ESOP can be used to improve workers' productivity and to prevent hostile takeovers.
9. In a synergistic merger, the post-merger value exceeds the sum of the separate companies' pre-merger values.
10. Since the basic rationale for any operating merger is synergy, in planning such mergers, the development of accurate pro forma cash flows is the single most important aspect of the analysis.
11. The book value of an asset is the historical cost less depreciation.
12. Valuing a firm using discounted cash flow method is conceptually different from valuing a capital project using percent value method.
13. It is important to cross-check the financial statement information by studying financial statement information with respect to the changes in financial ratio during the period of forecast.
14. The provinces of accounting standards do not impact mergers of companies.
15. Divestitures represent the sale of a part of the total undertaking.
16. Horizontal mergers are also known as conglomerate mergers.
17. Possession of complimentary resources is one of the reasons for mergers negotiations.
18. Brands do not influence customers' demand.
19. For calculating the value of an equity share by yield method, it is not essential to know capital employed.
20. 'Comparable Companies Approach' to valuation is same as 'Relative Valuation Approach'.
21. The return estimated from Capital Asset Pricing Model (CAPM) provides the weighted average cost of capital (WAAC) of a company.
22. Industrial groups are inherently less conservative than investors in allocating resources.
23. Value gap is the difference between the synergy value and purchase price.
24. All types of investments involve sacrifice of present consumption.
25. Buying the units of a mutual fund is an indirect investment.
26. When price rise, last in first out (LIFO) results in lower earnings.

27. A market is efficient when trading oriented strategies can beat the market.
28. A levered portfolio provides increasing returns with increased risk.
29. Market capitalization refers to the total market value of all the equity shares issued by a company.
30. Systemic risk of a portfolio is diversifiable.
31. The CAPM is appealing in its elegance and logic but its assumptions are not entirely correct.
32. Stock dividends and stock splits may increase the stock price but not the value of business.
33. If the investor's required rate of return is greater than the annual interest on the bond, the value of the bond is greater than its par value.
34. A brand is nothing but a glorified product name, hence it has no value.
35. A stock with low price – earnings ratio shows that it is undervalued and may earn excess return.
36. Intrinsic value and market price of equity shares are always equal.
37. For companies, which are not expected to pay dividends, equity shares cannot be valued.
38. In constant growth model, the value of equity share is sensitive to growth rates.
39. Diversification is an important strategic alternative to growth.
40. Zero coupon bonds have no coupon rate, hence no yield.
41. Floating rate loans have interest payments that increase as market rates fall and fall as rates rise.
42. Existence of strong form of market efficiency requires a well developed stock exchange network.
43. Gordon's model and constant growth model are one and the same.
44. In Walter's model, the value of equity share depends upon the dividend payout ratio.
45. The dividend discount model generally tends to undervalue stock when the overall market is depressed.
46. Under DCF method, in general, higher the risk level, higher will be the discount rate.
47. Land and Building is an example of financial asset.
48. Market value per share is expected to be lower than the book value per share in case of profitable and growing firms.
49. Firms tend to be more profitable when there is higher real growth in the underlying market than when there is lower real growth.
50. A lower discount would be applied to the cash flows of the government bond.

Ans : 1. [A]

1. False
2. False
3. True
4. False
5. True
6. False
7. True
8. True
9. True
10. True
11. True
12. False
13. True
14. False

15. True
16. False
17. True
18. False
19. True
20. True
21. False
22. False
23. False
24. True
25. True
26. True
27. False
28. True
29. True
30. False
31. True
32. True
33. False
34. False
35. True
36. False
37. False
38. True
39. True
40. False
41. False
42. True
43. True
44. True
45. True
46. True
47. False
48. False
49. True
50. True

Q. 1. [B] Fill in the blanks by using the words/phrases during in the bracket:

1. While valuing the leasehold land of a company, one subject it to amortization (Should/Should not).
2. The most appropriate method of determining the cost of equity for calculating the Weighted Average Cost of Capital is (The Dividend Discount Model/The Capital Asset Pricing Model).

3. LIFO as a method of inventory valuation allowed as per Indian Accounting Standards (Is/Is not).
4. A ratio between the market value of a company to the replacement value of its assets is known as Ratio (Market Value to Book Value/Market Value to replacement Value/Tobin's Q/Price to book Value).
5. requires that the expected profit stream of an acquired business provides an attractive return on the total acquisition cost and on any new capital investment needed to sustain or expand the operations (The Cost of Entry Test/The profit Principle of Investment).
6. The Assets Monitor of management tool for organisations that wish to track and value their assets (tangible/intangible).
7. The cash flows associated with common stock are to evaluate due to the uncertainty and variability associated with them (easy/difficult).
8. When a corporation's shares are owned by individuals who are associated with the firm's managements, we say that the firm is "closely held" (Few/many).
9. Post-merger control and the are two of the most important issues in agreeing on the terms of a merger (negotiated price/calculated price).
10. A theory that explains why the total value from the combinations resulted from a merger is a greater than the sum of the values of the component companies operating independently is known as theory (synergy/hubris/agency).
11. A is essentially a container for a customer's complete experience with the offer and the company (good will/brand).
12. A is contractual agreement under which one party grants the other party the right to sell certain products or services or to use certain trade names or trademarks (licence/franchise).
13. is a research the purpose of which in mergers and acquisitions is to support valuation process, arm the negotiator, test the accuracy of representations and warranties contained in the merger agreement, fulfil disclosure requirements and inform the planners of post-merger integration(Due diligence/Certification).
14. In a debt for equity swap, a firm replacing equity with debt its average ratio (increases/decreases).
15. Operating department in manufacturing firms is a productions department that adds value to a product or service that is observable by the (production manager/customer).
16. Revaluation of assets is undertaken to attract (creditors/investors) by indicating them the value of the assets (current/future).
17. The commonly used bass for revaluation of freehold land would be (current replacement cost/present value of future earnings).
18. Dividend yield is the dividend per share as a % of the (book/market) value of the share.
19. Estimated fair value of an asset is based on the (current/discounted/future) operating cash flows.
20. DCF analysis requires the revenue and expenses of (past/future).
21. Current liabilities are payable (within/beyond) a period of one year.
22. Key to income-based approach of valuation is (capitalization rate/ internal rate of return).
23. Capital Asset Pricing Model helps in determining of return (fixed rate/required rate).
24. risk is the objective of risk-return trade-off (sufficient/insufficient).
25. Yield to maturity of a bond depends upon the price of the bond (market/issue).
26. Existence of strong form of market efficiency requires a stock exchange network (developed/ underdeveloped).
27. In order to calculate the holding period return on equity shares, the selling price is (required/ not required).

28. In Walter's model, the value of equity share depends upon the _____ (dividend payout ratio/price earnings ratio).
29. ? factor does not measure _____ risk (systematic/unsystematic).
30. In case of Deep Discount Bonds, the issue price is always _____ the face value (less than/more than).
31. Super profit is the excess of future maintainable profits over _____ expected profits (normally/abnormally).
32. Current liabilities are anything that are due and payable within a _____ period (twelve months/twenty four months).
33. Value of a business is _____ the aggregate value of its assets (equal to/different from).
34. The _____ the market price and the 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).
35. In a finance lease the _____ assumes some of the risks of ownership and enjoys some of the benefits (lessor/lessee).
36. The value of the patent does not show up if it is _____ generated. (internally/externally).
37. The risk that the cash flows will not be delivered is called _____ (liquidity risk/default risk).
38. Normal yield curves indicate that short term borrowing costs are _____ long term borrowing costs (above/below).
39. Organizational capital is a _____ component of intellectual capital (primary/secondary).
40. _____ method of valuation is used. (direct capitalization/yield capitalization).
41. In _____, a firm separates out assets or a division, creates shares with claims on these assets, and sells them to the public (spin-off, split-up, equity carve out).
42. _____ companies have volatile earnings and high-growth potential choose low-debt ratios (telephones/software).
43. _____ measures the variation of distribution for the expected returns (standard deviation/regression).
44. Shares of listed companies which are traded on the stock exchange are _____ (quoted/unquoted).
45. A negative economic value added indicates that the firm is _____ value (creating/destroying).
46. An investment is risk free when actual returns are always _____ the expected returns (less than/equal to/more than).
47. In valuing a firm, the _____ tax rate should be applied to earnings of every period (marginal/effective/average).
48. If a company's share is priced at Rs. 20 and EPS is Rs. 5, then P/E ratio will be _____ (0.25/4/400).
49. Dividend yield ratio is equal to dividend per share divided by _____ and the quotient multiplied by 100. (EPS/market price per equity share).
50. If EPS of a company is Rs. 15 and the P/E ratio of other similar company is Rs. 10, then market value of the share of this company will be Rs. _____ (150/1.5/.67).

Ans: 1. [B]

1. Should
2. The Capital Asset Pricing Model
3. Is not
4. Tobin's Q

5. The Cost of Entry Test
6. Intangible
7. Difficult
8. Few
9. Negotiated Price
10. Synergy
11. Brand
12. Franchise
13. Due diligence
14. Increases
15. Customer
16. Investors
17. Current replacement cost
18. Market value of the share
19. Discounted
20. Future
21. With in
22. Capitalization rate
23. Required rate
24. Sufficient
25. Market
26. Developed
27. Required
28. Dividend payout ratio
29. Unsystematic
30. Less than
31. Normally
32. Twelve months
33. Different from
34. Difference between
35. Lessee
36. Internally
37. Default risk
38. Below
39. Primary
40. Yield capitalization
41. Equity carve out
42. Software
43. Standard division
44. Quoted
45. Destroying
46. Equal to
47. Marginal
48. 4
49. Market price per equity share
50. Rs. 150

Q. 1. [C] In each of the questions given below one out of the four options is correct. Indicate the correct answer :

1. Which of the following items would not be included in a WACC calculation?
 - (i) Proportion or weight of debt
 - (ii) Proportion or weight of equity
 - (iii) Personal tax rate on interest payments
 - (iv) Cost of equity
2. If a firm's market to book value ratio is currently greater than 1.0, it implies:
 - (i) The firm's equity is currently valued at less than what the stockholders invested in the firm.
 - (ii) The firm's equity is currently valued at more than what the stockholders invested in the firm.
 - (iii) The firm is currently a poor buy in the marketplace.
 - (iv) None of the above.
3. Valuing target firms for cross-border merger may include which of the following?
 - (i) The basic discounted cash flow model.
 - (ii) The multiples of earnings models (earnings or cash flow)
 - (iii) Industry specific models
 - (iv) Any one of the above
4. Shareholders of target companies are typically paid in
 - (i) Government bonds held by the target company
 - (ii) Government bonds held by the acquiring company
 - (iii) Cash and/or shares of the acquiring company
 - (iv) None of the above
5. Which of the following statements is false?
 - (i) There are two potential sources of cash flows from owning a stock.
 - (ii) An investor will be willing to pay a price today for a share of stock up to the point that this transaction has a zero NPV.
 - (iii) An investor might generate cash by choosing to sell the shares at some future date.
 - (iv) Because the cash flows from stock are known with certainty, we can discount them using the risk-free interest rate.
6. Which of the following statements is most correct?
 - (i) Actions which increase net income will always increase net cash flow.
 - (ii) One way to increase EVA is to maintain the same operating income with less capital.
 - (iii) One drawback of EVA as a performance measure is that it mistakenly assumes that equity capital is free.
 - (iv) Answer (1) and (2) are correct.
7. Which of the following statements is most correct?
 - (i) The constant growth model takes into consideration the capital gains earned on a stock.
 - (ii) It is appropriate to use the constant growth model to estimate stock value even if the growth rate never becomes constant.
 - (iii) Two firms with the same dividend and growth rate must also have the same stock price.
 - (iv) Statements (1) and (3) are correct.
8. Which of the following statements is correct?
 - (i) Although some methods of estimating the cost of equity capital encounter severe difficulties, the CAPM is a simple and reliable model that provides great accuracy and consistency in estimating the cost of equity capital.

- (ii) The DCF model is preferred over other models to estimate the cost of equity because of the ease with which a firm's growth rate is obtained.
 - (iii) The bond-yield-plus-risk-premium approach to estimating the cost of equity is not always accurate but its advantages are that it is a standardized and objective model.
 - (iv) Depreciation-generated funds are an additional source of capital and, in fact, represent the largest single source of funds for some firms.
9. An increase in a firm's expected growth rate would normally cause the firm's rate of return to
- (i) Increase
 - (ii) Decrease
 - (iii) Fluctuate
 - (iv) Possibly increase, possibly decrease, or possibly remain unchanged.
10. If the expected rate of return on a stock exceeds the required rate
- (i) The stock is experiencing supernormal growth.
 - (ii) The stock should be sold.
 - (iii) The company is probably not trying to maximize price per share.
 - (iv) The stock is a good buy.
11. Which of the following best describes free cash flow?
- (i) Free cash flow is the amount of cash flow available for distribution to all investors after all necessary investments in operating capital have been made.
 - (ii) Free cash flow is the amount of cash flow available for distribution to shareholders after all necessary investments in operating capital have been made.
 - (iii) Free cash flow is the net change in the cash account on the balance sheet.
 - (iv) Free cash flow is equal to net income plus depreciation.
12. In defending against a hostile takeover, the strategy that involves the target firm creating securities that give their holders certain rights that become effective when a takeover is attempted is called the _____ strategy.
- (i) Shark repellent
 - (ii) Greenmail
 - (iii) Poison pill
 - (iv) Golden parachute
13. Trailing P/E is current market price divided by
- (i) Most recent four quarters' EPS
 - (ii) Current book value
 - (iii) Last year market price
 - (iv) Average of last 4 years EPS
14. The sale of security with a commitment by the seller to buy the same security back at a specified price at a designated future date defines :
- (i) Prepayment risk.
 - (ii) A repurchase agreement.
 - (iii) An adjustable price issue
 - (iv) A sinking fund provision
15. A wishes to sell his business. Business has been good. Revenues are growing each year. He desires to pick a best offer and have patience till he gets best price. In this situation he should value on the basis of :
- (i) Book value
 - (ii) NPV of future earnings

- (iii) Auction value
 - (iv) Fair Market Value
16. Marketing relating intangible asset is
- (i) Process patents
 - (ii) Software copyrights
 - (iii) Trade marks
 - (iv) None of the above
17. Which is not a human-capital related intangible asset?
- (i) Trained workforce
 - (ii) Employment agreements
 - (iii) Union contracts
 - (iv) Design patents
18. Customer related intangible asset is
- (i) Customer lists
 - (ii) Open purchase orders
 - (iii) Both (i) and (ii)
 - (iv) None of the above
19. If the operating profits of a company register a growth without employing more capital then
- (i) The economic value added will increase
 - (ii) The economic value added will decrease
 - (iii) The economic value added will remain constant
20. If unproductive capital of a firm is liquidated the economic value added
- (i) Will decrease
 - (ii) Will not be affected
 - (iii) Will increase
21. The strategy of increasing the economic value added of a firm by achieving growth using retained profits will work favourable as long as
- (i) Returns are equal to weighted average cost of capital
 - (ii) If the returns exceed the weighted average cost of capital
 - (iii) The percentage returns are less than the weighted average cost of capital of the firm
22. Firms that intend to buy only a small percentage of the outstanding stock can buy them in the market, in a process called
- (i) Repurchase tender offer
 - (ii) Open market purchase
 - (iii) Privately negotiated repurchase
23. Which of the following is not an input in calculating cash flow return on investment?
- (i) Gross investment
 - (ii) The salvage value of the asset
 - (iii) Commercial life of the asset
24. If the divestiture value is greater than the present value of the expected cash flows, the value of the divesting firm will
- (i) Increase on the divestiture
 - (ii) Decrease on the divestiture
 - (iii) Remains same on the divestiture

25. Which of the following is not a direct cost of bankruptcy?
- (i) Rise in legal and administrative costs
 - (ii) Present value effects of delays in paying out the cash flows
 - (iii) The loss in revenue that may occur due to the customer's perception that the firm is in trouble

Ans : 1. [C]

1. Personal tax rate on interest payments
2. The firm's equity is currently valued at more than what the stockholders invested in the firm.
3. Any of the above
4. Cash and/or shares of the acquiring company
5. Because the cash flows from stock are known with certainty, we can discount them using the risk-free interest rate.
6. One way to increase EVA is to maintain the same operating income with less capital.
7. The constant growth model takes into consideration the capital gains earned on a stock.
8. Depreciation-generated funds are an additional source of capital and, in fact, represent the largest single source of funds for some firms.
9. Possibly increase, possibly decrease, or possibly remain unchanged
10. The stock is a good buy
11. Free cash flow is the amount of cash flow available for distributing to all investor after all necessary investments in operating capital have been made
12. Poison pill
13. Most recent four quarters' EPS
14. A repurchase agreement.
15. Fair Market Value
16. Trade marks
17. Design patents
18. Both (i) and (ii)
19. The economic value added will increase
20. Will increase
21. If the returns exceed the weighted average cost of capital
22. Open market purchase
23. Commercial life of the asset
24. Increase on the divestiture
25. The loss in revenue that may occur due to the customer's perception that the firm is in trouble

Q. 1. [D] Attempt the questions by selecting the correct option:

1. If a bond is currently trading at a premium then—
 - (i) It's current yield is more than its yield-to-maturity.
 - (ii) It's current yield is less than its yield-to-maturity.
 - (iii) It's current yield is equal to its yield-to-maturity.
 - (iv) Nothing can be concluded.
2. A share, Y currently sells for RS. 50. It is expected that in one year it will either rise to Rs. 55 or decline to Rs. 45. The value of a European Call, if the strike price of the underlying share is

Rs. 48 and the risk free interest rate is 9% p.a. is :

- (i) Rs. 9.33
 - (ii) Rs. 11.33
 - (iii) Rs. 18.33
 - (iv) Rs. 20.50
3. Which one of the following statements is not true about Efficient Markets?
- (i) Share price behave randomly and do not show any systematic pattern in the behaviour
 - (ii) Shares prices fully reflect all available information.
 - (iii) Price of one share is independent of the price of other shares in the market.
 - (iv) None can earn abnormally high returns on a constant basis.
4. Hindustan Telecom, a national telecom company, is considering purchasing a smaller company, Tee Telecom. Analysis project that the merger will result in incremental free flows and interest tax saving with a combined present value of Rs 100 crores and they have determined that the appropriate discount rate for valuing Tee Telecom is 16 percent. Tee Telecom has 50 Lakh share outstanding. Tee Telecom's current price is Rs. 170. What is the maximum price per share that Hindustan should offer?
- (i) Rs. 150
 - (ii) Rs. 200
 - (iii) Rs. 250
 - (iv) Rs. 300
5. Bharat Gas Corporations has Rs. 100 crores worth of common equity on its balance sheet, and 50 lakhs shares of stock outstanding. The company's Market Value Added (MVA) is Rs. 24 crores. What is the company's stock price?
- (i) Rs. 230
 - (ii) Rs. 238
 - (iii) Rs. 248
 - (iv) Rs. 264
6. The price of a company's share is Rs. 100 and the value of growth opportunities is Rs. 25. The company's capitalization rate is 20%. The P/F ratio is
- (i) 15%
 - (ii) 11.25%
 - (iii) 20%
 - (iv) 5%
7. A firm has PAT of Rs. 33.6 lakh with extraordinary income of Rs. 6 lakh. Cost of capital is 20% and the applicable tax rate is 40%. The value of the firm is
- (i) Rs. 250 lakh
 - (ii) Rs. 150 lakh
 - (iii) Rs. 180 lakh
 - (iv) Rs. 168 lakh
8. Free Cash Flow to Equity (FCFE) at the end of last year of explicit forecast period is Rs. 10 lakh. If cost of capital is 15% and steady growth rate is 5%, the terminal value of the firm is
- (i) Rs. 100 lakh
 - (ii) Rs. 10 lakh
 - (iii) Rs. 10.5 lakh
 - (iv) Rs. 105 lakh

9. A share has a current market price of Rs. 30. One month call is available at a strike price of Rs. 29. It is known that after 1 month, this share price may be Rs. 32 or Rs. 28. If the risk free rate is 8%, the value of the call is
- Rs.3.
 - Nil
 - Re. 1
 - Re. 1.67
10. The number of shares outstanding as on 31.03.09 for a company is 10 lakh and it has reported net profit of Rs. 20 lakh for the year 2008-2009. The company decides to repurchase 20% shares at Rs. 32 per share. The P/E ratio remains unchanged after repurchase. The post-buyback price/share is
- Rs. 42
 - Rs. 32
 - Rs. 40
 - Rs. 25.6

Ans : 1. [D]

- It's a current yield is more than its yield-to-maturity.
- Rs. 11.33
- Price of one share is independent of the price of other shares in the market.
- Price per share = Rs. 100 crores/ 50 lakhs = Rs. 200.
- Rs. 248. $MVA = (\text{Shares Outstanding}) (\text{Stock Price}) - \text{Total Common Equity}$
Rs. 24crores = (50lakhs) PO – Rs. 100 crores
Rs. 124crores = (50lakhs) PO; So, Po = Rs. 248.
- 15%
- Rs. 150 lakh
- Rs. 105 lakh
- Rs. 1.67
- Rs. 40

Q. 2. (a) Explain the term 'fair market value'. State the assumptions on which it is based.

(b) Derive the fair value of share of DEF Ltd. based on Balance Sheet of the company as on 31st March, 2011 and other information given below :

Liabilities	Rs.	Assets	Rs.
Equity share capital (75,000 Shares of Rs. 100 each)	75,00,000	Patents and Trade marks	4,50,000
General Reserve	22,50,000	Land	21,00,000
Dedentures(14%)	15,00,000	Building	34,50,000
Sundry Creditors	7,50,000	Plant & Machinery	42,00,000
Cash Credits	6,00,000	Sundry Debtors	9,00,000
Provision for Taxation	1,50,000	Inventory	12,00,000
		Cash and Bank	3,00,000
		Preliminary Expenses	1,50,000
	1,27,50,000		1,27,50,000

The profits of the company for the past four years are as follows :

	Rs.
2008	18,00,000
2009	22,50,000
2010	31,50,000
2011	34,50,000

Every year the company transfers 30% of its profits to the General Reserve. The average rate of return for the industry is 22% of share value.

On 31st March, 2011 an independent expert valuer assessed the value assets as follows :

	Rs.
Land	3900000
Buildings	6000000
Plant and Machinery	4800000
Debtors(excluding bad debts)	750000
Patents and Trade marks	300000

Answer 2. (a)

'Fair market value' is defined as the price expressed in terms of cash equivalents, at which property would change hands between a hypothetical willing and able buyer and a hypothetical willing and able seller, acting at arm's length in an open market, when neither is under compulsion to buy or sell and when both have reasonable knowledge of the relevant facts.

From the definition itself it is clear that the concept of 'fair market value' is based on certain assumptions as follows :

- (i) The hypothetical buyer is reasonably prudent and rational but is not motivated by any synergistic influences.
- (ii) The business will continue as a going concern and not be liquidated.
- (iii) The hypothetical transaction will be conducted in cash or equivalents.
- (iv) The parties are willing and able to consummate the transaction.

These conditions are assumed because they yield a uniform standard of value after applying generally accepted valuation techniques which allows meaningful comparison between businesses similarly situated. It should be noted that there is no clear legal definition of fair market value. The onus is on the valuer to get the balance right as well as independent.

Answer 2. (b)

Calculation of share value based on net assets method :

Assets	Rs.
Land	39,00,000
Buildings	60,00,000
Plant and Machinery	48,00,000
Debtors(excluding bad debts)	7,50,000
Inventory	12,00,000
Cash & Bank	3,00,000
Patents and Trade marks	3,00,000
	1,72,50,000

<i>Less : Liabilities :</i>	
Debentures(14%)	15,00,000
Sundry Creditors	7,50,000
Cash Credits	6,00,000
Provision for Taxation	1,50,000
Net Assets	1,42,50,000

$$\begin{aligned} \text{Intrinsic value of share} &= \text{Net assets/No.of shares} \\ &= 1,42,50,000 \div 75,000 \\ &= \text{Rs. 190} \end{aligned}$$

Calculation of share value based on dividend yield method :

	Rs.
Total profits of last 4 years	1,06,50,000
<i>Less : Bad debts</i>	1,50,000
Total	1,05,00,000
Average profit (Rs. 1,05,00,000/4)	26,25,000
<i>Less : Transfer to reserve (30% of Rs. 2625000)</i>	7,87,500
Profit available for dividend	18,37,500

$$\begin{aligned} \text{Rate of dividend} &= \frac{18,37,500}{75,00,000} \times 100 \\ &= 24.5\% \end{aligned}$$

$$\begin{aligned} \text{Valuation of share based on yield method} &= \frac{\text{Rate of Dividend}}{\text{Normal Rate of Return}} \times \text{Nominal Value per Share} \\ &= \frac{24.5\%}{22\%} \times \text{Rs. 100} \\ &= \text{Rs. 111.36} \end{aligned}$$

$$\begin{aligned} \text{Fair value of share} &= \frac{\text{Rs. (190 + 111.36)}}{2} \\ &= \text{Rs. 150.68} \end{aligned}$$

Q. 3. (a) From the books of BCA Ltd. following information is available. Find the value of its equity shares (face value Rs. 100) based on ROCE (return on capital employed) method.

Year	Rs. in lacs	
	Capital employed	Profit
2007	40	6
2008	52	12
2009	66	16
2010	70	21
2011	82	28

The expected rate of return in market is 18%.

Answer 3. (a)

Year	Capital employed (Rs. In lacs)	Profit (Rs. in lacs)	Return on capital employed (%)	Weight assigned (most recent year highest weight)	Product
2007	40	6	15	1	15.0
2008	52	12	23.08	2	46.16
2009	66	16	24.24	3	72.72
2010	70	21	30.00	4	120.00
2011	82	28	34.15	5	170.75
				15	424.63

Weighted average rate of return on capital employed = $\frac{424.63}{15} = 28.31$

Value of share = $\frac{\text{Rate of Return}}{\text{Market expected rate of return}} \times \text{Nominal value per equity share}$

$$= \frac{28.31}{18} \times \text{Rs. } 100 = \text{Rs. } 157.28.$$

Q. 3. (b) Under the Discounting Cash Flow Method, companies are valued by discounting free cash flows. What do you understand by free cash flows?

Answer 3. (b)

Free cash flow is the post tax cash flow generated from operations of the company after providing for investments in fixed capital and net working capital required for operations of the firm. Thus it is the cash flow available for distribution to shareholders (by way of dividend and buyback of shares) and lenders (by way of interest payment and debt repayment). Symbolically, free cash flow = Net income (+) Depreciation (+/-) Non cash items (-) Changes in Working Capital (-) Capital expenditure (+) (New debt issues-repayment of debt) (-) preference dividends.

Q. 3. (c) Define EVA. List the steps in calculation of EVA.

Answer 3. (c)

EVA is a performance yard-stick that measures the creation of shareholder value. EVA is calculated by deducting cost of capital (both equity and debt) from operating profit. There are four steps in calculation of EVA.

1. Calculation of NOPAT (Net Operating Profit After Tax)
2. Calculation of Total Invested Capital (TC)
3. Determination of WACC (Weighted Average Cost of Capital)
4. Calculation of EVA = NOPAT - TC × WACC%

Q. 4. (a) A is considering takeover of B Ltd. and C Ltd. The financial data for the three companies are as follows :

Particulars	A Ltd.	B. Ltd	C .Ltd
Equity Share Capital of Rs. 10 each (Rs. Millions)	900	360	180
Earnings (Rs. Millions)	180	36	36
Market price of each share (Rs.)	120	74	92

Calculate :

- (i) Price earning ratios.
- (ii) Earning per share of A Ltd. after the acquisition of B Ltd. and C Ltd. separately. Will you recommend the merger of either/both of the companies? Justify your answer.

Q. 4. (b) List defensive strategies available to a company in case of hostile takeover.

Answer 4. (a)

Calculation of Price Earning ratios :

Particulars	A Ltd.	B. Ltd	C .Ltd
Earnings (Rs. Millions)	180	36	36
No. of shares (millions)	90	36	18
EPS (Rs.)	2	1	2
Market price per share (Rs.)	120	74	92
PE Ratio	60	74	46

EPS of A Ltd. after acquisition of B Ltd. and C Ltd.

Exchange ratio or rate = Buyer's PE Ratio/Seller's PE Ratio.

Particulars	A Ltd.	B. Ltd	C .Ltd
Exchange ratio in A Ltd.	—	0.81	1.30
Value of shares (Rs. millions)	10800	2664	1656
No. of shares of A Ltd. to be given (millions)	—	2664/120	1656/120
EPS (Rs.)	—	22.22	13.8
Total earning after acquisition (Rs. million)	—	216	216
Total number of shares		112.22	103.8
EPS after acquisition		1.93	2.08

EPS of A Ltd. after acquisition with C Ltd. is higher than EPS of A Ltd. itself. Hence merger with only C Ltd. is suggested to increase the value to shareholders of A Ltd.

Answer 4. (b)

The defensive strategies available in case of hostile takeover may be preventive measures and active measures.

- (i) Preventive measures are undertaken to reduce the chances of hostile takeover bids. They are as follows :
 - (A) Poison pill is a tactic to make a takeover more expensive or unattractive so that task of the bidder becomes more difficult.
 - (B) Golden parachutes- Unacceptably high compensation packages that must be paid to the senior managers in case of termination, so raider loses interest.
 - (C) Shark repellents-Amendments made in company charter to forestall takeover attempts.

- (D) Crown jewel option- is to sell the valuable assets of the firm at below market price.
- (ii) Active measures- are employed when hostile bids are launched.
- (A) White Knight- A friendly party saves the company from hostile takeover.
- (B) Greenmail-Premium paid by a target company to buy back its stock from a potential acquirer.
- (C) Standstill agreements- Target company reaches a contractual agreement with potential buyer that buyer will not increase his holding in the target firm for a particular period.
- (D) Capital structure changes-These includes ownership reorganization, employee stock ownership plans, leveraged buyouts etc.
- (E) Pac-Man defense- The company under attack turns table by bidding for the acquirer company.
- (F) Litigation- One of the most common antitakeover measures and used as a delaying tactic.
- (G) Trigger the application of state anti-takeover laws.

Q. 5. XY Pvt. Ltd., a retail florist, is for sale at asking price of Rs. 76,00,000. You have been contacted by a potential buyer who has asked you to give him opinion as to whether the asking price is reasonable. The potential buyer has only limited information about XY Pvt . Ltd He does not know that annual gross sales of XY Pvt. Ltd is about Rs. 4100,000 and that last year's tax return reported an annual profit of Rs. 420,000 before tax.

You have collected the following information from financial details of several retail florists that were up for sale in the past :

TABLE I

	Price- to- sale(P/S) Ratio	Price-to-earnings(P/E)
Number of firms	38	33
Mean Ratio	0.55	3.29
Coefficient of Variation	0.65	1.52
Maximum Ratio	2.35	6.29

TABLE II

Top 10 Players (in descending P/S order)

Firm	P/S Ratio	P/E Multiple
1	2.35	5.65
2	1.76	6.29
3	1.32	5.31
4	1.17	4.60
5	1.09	3.95
6	1.01	3.25
7	0.96	3.10
8	0.85	2.96
9	0.72	2.90
10	0.68	2.75

Offer your opinion on reasonableness of the asking price.

Answer 5.

Average P/S ratio of Industry = 0.55

Average P/E ratio of Industry = 3.29

Co-efficient of variation of P/S ratio = 0.65

Co-efficient of variation of P/E ratio = 1.52

The co-efficient of variation of P/S ratio is much lower than the co-efficient of variation of P/E ratio. From this we can infer that there is a wider dispersion in case of P/E ratio than P/S ratio. Therefore it would be better to take P/S ratio as a guideline.

Asking price of XY Pvt. Ltd = Rs. 76,00,000

Annual sales of XY Pvt. Ltd = Rs. 41,00,000

$$\text{Asking P/S Ratio} = \frac{76,00,000}{41,00,000} = 1.854$$

Thus P/S ratio of XY Ltd. is higher than industry average of 0.55.

However it is much lower than maximum P/S ratio of 2.35.

P/S ratio of XY Ltd. is between 1st and 2nd top players in the field.

If sales are likely to remain same in coming years the asking price may be = $\frac{(2.35+1.76)}{2} \times \text{Rs. } 41,00,000$
= Rs. 84,25,500.

Thus Rs. 76,00,000 appears to be reasonable if sales figure do not fall. However the buyer should make sure that the florist's accounts depicts true and fair view of the state of affairs of the business before arriving to a decision.

Q. 6. (a) Given $n = 25$ $\Sigma xy = 15.25$ $\Sigma x = 5.19$ $\Sigma y = 12.97$ $\Sigma x^2 = 17.03$ $\bar{y} = 0.50$ $\bar{x} = 0.20$. If the expected market return is 13% p.a.

Calculate expected weekly rate of return on stock using the equation.

$$R_s = a + b (R_m)$$

Answer 6. (a)

Where

a = required return if the markets is "flat" (i.e. neither going up nor going down)

b = Stock volatility as compared to market.

$$b = \frac{n \Sigma xy - (\Sigma x)(\Sigma y)}{n \Sigma x^2 - (\Sigma x)^2}$$

$$= \frac{(25)(15.25) - (5.19)(12.97)}{(25)(17.03) - (5.19)^2}$$

$$= 0.86$$

$$a = \bar{y} - b\bar{x}$$

$$= 0.50 - (0.86)(0.2)$$

$$= 0.328$$

$$R_s = a + b(R_m)$$

$$= 0.328 + 0.86(0.25)$$

$$= 0.543 \text{ per cent.}$$

$$\left[\begin{array}{l} \text{Yearly Return} = 13\% \\ \backslash \text{ Weekly return} = \frac{13\%}{52} \text{ weeks} \\ \qquad \qquad \qquad = 0.25\% \end{array} \right]$$

Q. 6. (b) Explain the following :

- (i) Take over by Reverse bid.
- (ii) Demerger.

Answer 6. (b)

(i) Take over by Reverse Bid :

Under normal circumstances, a 'take over' would mean that a larger company acquires a smaller company. However, there could be exceptional circumstances wherein a smaller company gains control of a larger one. Such a situation is referred to as 'take over by reverse bid'.

Take over by reverse bid could happen where already a significant per cent of the shareholding is held by the transfer company, to exploit economies of scale, to enjoy better trading advantages and other similar reasons.

The concept of take over by reverse bid has been successfully employed in schemes formulated for revival and rehabilitation of sick industrial companies.

(ii) Demerger :

The word 'demerger' is defined under the Income-tax Act, 1961. It refers to a situation where pursuant to a scheme for reconstruction/restructuring, an 'undertaking' is transferred or sold to another purchasing company or entity. The important point is that even after demerger, the transferring company would continue to exist and may do business.

Demerger is used as a suitable scheme in the following cases :

- Restructuring of an existing business
- Division of family-managed business
- Management 'buy-out'.

While under the Income tax Act there is recognition of demerger only for restructuring as provided for under sections 391 – 394 of the Companies Act, in a larger context, demerger can happen in other situations also.

Q. 7. Briefly discuss methods of valuation of intangibles :

Answer 7.

There are four methodologies for valuation of intangibles –Discounted cash flow, Relief from royalty, Comparable(Guideline) transactions, and Avoided cost. The first two are income approach and rest two are market and asset-replacement approach respectively.

- **Discounted cash flow method :** Under this methodology, the value of an asset reflects the present value of projected earnings that will be generated by the asset after taking into account the revenues and expenses of the asset, the relative risk of the asset, the contribution of other assets, and a discount rate that reflects the time value of invested capital.
- **Relief-from-royalty :** Under this method the value of an asset is equal to all future royalties that would have to be paid for the right to use the asset if it were not acquired. A royalty rate is selected based on the importance of the asset, effectiveness of constraints imposed by competing assets, ability of competitors to produce similar assets, and market licensing rates for similar assets. The royalty rate is applied to expected revenues generated or associated with the asset. The hypothetical royalties are then discounted to their present value.
- **Comparable (Guideline) Transactions :** A comparable transaction approach is typically employed to value marketing related intangible assets. The value of an asset is based on actual prices paid for assets with functional or technical attributes similar to the subject asset. Using this data, relevant market multiples or ratios of the total purchase price paid are developed and applied to the subject asset.
- **Avoided cost :** Under this method, the value of an asset is based on calculating the cost avoided by the acquiring company when obtaining pre-existing, fully functional asset rather than incurring costs to

build or assemble the asset. The savings realized may include actual and opportunity costs associated with avoided productivity losses.

Q. 8. NDA Corporation acquired Smith's Ltd. business on 31.03.2008 for Rs. 5,000 lakhs. The details of acquisition are as under :

For value of identifiable asset 4000 lakhs

Goodwill (to be amortised in 5 years) 1000 lahs

The anticipated useful life of acquired assets is 8 years. NDA uses straight-line method of depreciation with no residual values is anticipated. On 31.03.2010 NDA Corporation estimated the significant decline in production due to change Government policies, the net selling price of identifiable asset is not determinable. The cash flow forecast based on recent financial budget for next 6 years after considering changed Govt. policies are as follows, incremental financing cost is 10% which represent current market assessment of the time value of money.

(Rs. in lakhs)

Year	Cash flow	Year	Cash flow
2011	700	2014	500
2012	700	2015	500
2013	700	2016	500

Acquired business in a cash-generating unit required :

- (i) Value in use
- (ii) Impairment loss
- (iii) Revised carrying amount assets on 31.03.2010.

Answer 8.

Calculation of value in use

(Rs. in lakhs)

Year	Future cash flow	P.V. factor @ 10%	Discount cash flows
2011	700	0.909	636.3
2012	700	0.826	578.2
2013	700	0.751	525.7
2014	500	0.683	341.5
2015	500	0.621	310.5
2016	500	0.564	282.0
			2,674.2

Rounded off to Rs. 2,674 lakhs

Calculation of impairment loss

	Goodwill	Identifiable Asset	Total
Acquisition cost on 31.03.2008	1,000	4,000	
Depreciation/amortisation for 2 years	<u>400</u>	<u>1,000</u>	
Carrying amount	600	3,000	3,600
Recoverable amount (Value in use as net selling price is not available)			<u>2,674</u>
Impairment loss			926
Allocation of impairment loss	<u>600</u>	<u>326</u>	
Carrying amount after Impairment loss	<u>Nil</u>	<u>2,674</u>	<u>2,674</u>

Q. 9. The Balance Sheet of DST Ltd. as on 31st March, 2011 is as under :

(All figures are in lacs)

Liabilities	Rs.	Assets	Rs.
Equity Shares Rs. 10 each	3,000	Goodwill	744
Reserves (including provision for taxation of Rs. 300 lacs)	1,000	Premises and Land at cost	400
5% Debentures	2,000	Plant and Machinery	3,000
Secured Loans	200	Motor Vehicles (purchased on 1.10.06)	40
Sundry Creditors	300	Raw materials at cost	920
Profit & Loss A/c		Work-in-progress at cost	130
Balance from previous B/S	32	Finished Goods at cost	180
Profit for the year (After taxation)	<u>1,100</u>	Book Debts	400
	1,132	Investment (meant for replacement of Plant and Machinery)	1,600
		Cash at Bank and Cash in hand	192
		Discount on Debentures	10
		Underwriting Commission	16
	<u>7,632</u>		<u>7,632</u>

The resale value of Premises and Land is Rs. 1,200 lacs and that of Plant and Machinery is Rs. 2,400 lacs. Depreciation @ 20% is applicable to Motor Vehicles. Applicable depreciation on Premises and Land is 2%, and that on Plant and Machinery is 10%. Market value of the Investments is Rs. 1,500 lacs. 10% of book debts is bad. In a similar company the market value of equity shares of the same denomination is Rs. 25 per share and in such company dividend is consistently paid during last 5 years @ 20%. Contrary to this, DST Ltd. is having a marked upward or downward trend in the case of dividend payment.

Past 5 years' profits of the company were as under :

2005-06		Rs. 67 lacs
2006-07	(-)	Rs. 1,305 lacs (loss)
2007-08		Rs. 469 lacs
2008-09		Rs. 546 lacs
2009-10		Rs. 405 lacs

The unusual negative profitability of the company during 2006-07 was due to the lock out in the major manufacturing unit of the company which happened in the beginning of the second quarter of the year 2005-06 and continued till the last quarter of 2006-07.

Value the Goodwill of the Company on the basis of 4 years' purchase of the Super Profit. (Necessary assumption for adjustment of the Company's inconsistency in regard to the dividend payment, may be made by the examinee).

Answer 9.**1. Calculation of capital employed**

Present value of assets :	Rs. (in lacs)
Premises and land	1,200
Plant and machinery	2,400
Motor vehicles (book value less depreciation for ½ year)	36
Raw materials	920
Work-in-progress	130
Finished goods	180
Book debts (400 × 90%)	360
Investments	1,500
Cash at bank and in hand	<u>192</u>
	6,918
<i>Less: Liabilities:</i>	
Provision for taxation	300
5% Debentures	2,000
Secured loans	200
Sundry creditors	<u>300</u>
	<u>2,800</u>
Total capital employed on 31.3.11	<u>4,118</u>

2. Profit available for shareholders for the year 2010-11

Profit for the year as per Balance Sheet	1,100
<i>Less: Depreciation to be considered</i>	
Premises and land	24*
Plant & machinery	240*
Motor vehicles	<u>4</u>
	<u>268</u>
	832
<i>Less : Bad debts</i>	<u>40</u>
Profit for the year 2010-11	<u>792</u>

3. Average capital employed

Total capital employed	4118
<i>Less : ½ of profit for the current year [Refer point 2]</i>	<u>396</u>
Average capital employed	<u>3722</u>

* Depreciation on premises and land and plant and machinery have been provided on the basis of assumption that the same has not been provided for earlier.

		Rs. (in lacs)
4. Average profit to determine Future Maintainable Profits :		
Profit for the year 2010-11	792	
Profit for the year 2009-10	405	
Profit for the year 2008-07	546	
Profit for the year 2007-06	<u>469</u>	
	2212 / 4	<u>553</u>
5. Calculation of General Expectation :		
DST Ltd. pays Rs.2 as dividend (20%) for each share of Rs.10.		
Market value of equity shares of the same denomination is Rs.25 which fetches dividend of 20%.		
Therefore, share of Rs.10 (Face value of shares of DST Ltd.) is expected to fetch $(20/25) \times 10 = 8\%$ return.		
Since DST Ltd. is not having a stable record in payment of dividend, in its case the expectation may be assumed to be slightly higher, say 10%.		
6. Calculation of super profit :		
		Rs. (in lacs)
Future maintainable profit [See point 4]		553
Normal profit (10% of average capital employed as computed in point 3)		<u>372.2</u>
Super Profit		<u>180.8</u>
7. Valuation of Goodwill		
Goodwill at 4 years' purchase of Super Profit		723.20

Notes :

- (1) It is evident from the Balance Sheet that depreciation was not charged to Profit & Loss Account.
- (2) It is assumed that provision for taxation already made is sufficient.
- (3) While considering past profits for determining average profit, the years 2005-06 and 2006-07 have been left out, as during these years normal business was hampered.

Q. 10. From the following information in respect of KK Ltd. compute the value of employees of the organization by using Lev and Schwartz Model.

Age	House Keeping Staff		Administrative Staff		Professionals	
	No.	Average Annual Earnings (Rs.)	No.	Average Annual Earnings (Rs.)	No.	Average Annual Earnings (Rs.)
30-39	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 value of each class is to be taken. Annuity Factors at 10% are as follows :

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

Answer 10.

The value of employees have been computed as follows.

(A) Valuation in respect of House Keeping Staff :

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

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

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

Particulars	Computation	PV
Rs. 4,00,000 p.a for next 10 years	$4,00,000 \times 6.145$	24,58,000
Rs. 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
	Total	36,42,500

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

Particulars	Computation	PV
Rs. 5,00,000 p.a for next 10 years	$5,00,000 \times 6.145$	30,72,500
	Total	30,72,500

(B) Valuation in respect of Administrative Staff.

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

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

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

Particulars	Computation	PV
Rs. 5,00,000 for next 10 years	$(5,00,000 \times 6.145)$	30,72,500
Rs. 6,00,000 from 21-30 years.	$(6,00,000 \times 8.514) - (6,00,000 \times 6.145)$	14,21,400
	Total	44,93,900

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

Particulars	Computation	PV
Rs. 6,00,000 for next 10 years	$6,00,000 \times 6.145$	36,87,000
		36,87,000

(C) Valuation in respect of Professionals :

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

Particulars	Computation	PV
Rs. 5,00,000	$(5,00,000 \times 6.145)$	30,72,500
Rs. 6,00,000	$(6,00,000 \times 8.514) - (6,00,000 \times 6.145)$	14,21,400
Rs. 7,50,000	$(7,50,000 \times 9.427) - (7,50,000 \times 8.514)$	6,84,750
		51,78,650

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

Particulars	Computation	PV
Rs. 6,00,000	$6,00,000 \times 6.145$	36,87,000
Rs. 7,50,000	$(7,50,000 \times 8.514) - (7,50,000 \times 6.145)$	17,76,750
		54,63,750

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

Particulars	Computation	PV
Rs. 7,50,000	$7,50,000 \times 6.145$	46,08,750
		46,08,750

(D) Total Value of Employees :

Age No.	House Keeping Staff No. PV of future earnings	Administrative Staff PV of future earnings No.	Professionals No. PV of future earnings	Total PV of future earnings
30-39	100 3247600×100 = 324760000	60 3883050×60 = 232983000	40 5178650×40 = 207146000	200 764889000
40-49	50 3642500×50 =182125000	30 4493900×30 =134817000	20 5463750×20 =109275000	100 426217000
50-59	30 3072500×30 =92175000	20 3687000×20 =73740000	10 4608750×10 =46087500	60 212002500
Total	180 599060000	110 441540000	70 362508500	360 1403108500

Q. 11. Brand or real estate valuation.

- How would you value real estate?
- What is the methodology of brand valuation?

Answer 11. (a)

For evaluation of a real estate, one can use the cash flow technique. In order to use the Discounted cash flow technique the valuer should consider cash inflows like rent, reimbursement of rates and utility expenses, terminal value as well as cash outflows like property taxes, insurance, repairs and maintenance, advertising and utility expenses. Other simpler methods like Standardised Value Measures (e.g price per square metre) and Comparable Asset Values (gross income multiplier) are also used .

It should be noted that the CAPM(Capital Asset Pricing Model) and the APM(Arbitrage Pricing Model) cannot be used easily in valuing a real estate because of some inherent features in real estates, e.g. lack of regular trading in real estates, dissimilar nature of any two real estates, terminal value often differing between two real estates etc.

Answer 11. (b)

Brand valuation methodology is comprised of four elements :

- (i) **Financial analysis** : To identify business earnings and earnings from intangibles for each of the distinct segments being assessed.
- (ii) **X Market Analysis** : To measure the role that a brand plays in driving demand for services in the markets in which it operates and hence to determine what proportion of earnings from intangibles are attributable to the brand. This is measured by an indicator referred to as Role of Branding Index.
- (iii) **Brand Analysis** : To assess the competitive strengths and weaknesses of the brand and hence the security of future earnings expected from the brand. This is measured by an indicator referred to as Brand Strength Score.
- (iv) **Legal Analysis** : To establish that the brand is a true piece of property.

There are various methods including models like Inter Brand Model that deal with a number of factors including penetration, effectiveness, recall, international presence etc.

In ultimate analysis, the value of a brand depends on what difference it makes to capturing minds of customers and enabling differentiation of the products and making an impact on markets in terms of visibility, mind bending and effect on sales and profit/earnings. This in the ultimate analysis will be a true test of the strength of a brand vis-à-vis competing brands and products. The valuation technique thus involves assessing these and determining a numerical value based on a brand strength index multiplied by the above normal earnings multiplied by appropriate capitalization factor.

Q. 12. A conservative investor is analyzing the shares of PSEL which is currently trading at Rs. 1,180. For the year 1999-2000, the earnings per share (EPS) was Rs. 40. The investor has generated the following scenarios for the next year with the corresponding probabilities :

P/E ratio EPS	20	30
50	0.20	0.35
60	0.30	0.15

You are required to calculate the expected risk and return for the share of PSEL.

Answer 12.

The current price of PSEL is Rs. 1,180. The EPS is Rs. 40.

Hence, the P/E ratio is $\frac{1180}{40} = 29.5$

The various EPS and P/E ratios are given below :

(1) EPS	(2) P/E Ratio	(3) Probability	(4) Expected Price (1 × 2)	(5) Expected Return	(6) Expected Return (%)
50	20	0.20	1000	-180	(15.25)
50	30	0.35	1500	320	27.12
60	20	0.30	1200	20	1.69
60	30	0.15	1800	620	52.54

The expected return will be

$$\begin{aligned}
 E(P) &= (-15.25 \times 0.2) + (27.12 \times 0.35) + (1.69 \times 0.30) + (52.54 \times 0.15) \\
 &= -3.05 + 9.49 + 0.507 + 7.88 \\
 &= 14.827 \text{ or } 14.83\%
 \end{aligned}$$

The risk of the stock is found below :

X	$X - \bar{X}$	$(X - \bar{X})^2$	Prob.	$(X - \bar{X})^2 \times \text{Prob.}$
(15.25)	(30.08)	904.81	0.20	180.96
27.12	12.29	151.04	0.35	52.86
1.69	(13.14)	172.66	0.30	51.80
52.54	37.71	1422.04	0.15	213.31
				<u>498.93</u>

$$\begin{aligned}
 \sigma_{(P)}^2 &= 498.93(\%)^2 \\
 s &= (498.93)^{1/2} = 22.34\%
 \end{aligned}$$

Q. 13. A company distributed dividend of Rs. 12.50 and dividend pay-out ratio of company is 25%. The capital expenditure of company is Rs. 68 per share and depreciation per share is Rs. 40.00. Debt ratio is 0.23. Increase in working capital is 19% of EPS. Growth rate for first 8 years is 19% and after 8 years the company is expected to grow at constant growth rate of 12%, calculate the intrinsic value per share using free cash flow approach.

Answer 13.

Required rate of return

$$\begin{aligned}
 &= R_f + b(R_m - R_f) \\
 &= 7 + 1.5(15 - 7) = 19\%
 \end{aligned}$$

The growth rate of company from 9th year will be 12%.

$$\backslash \text{ FCFE in the 9th year will be} = 84.95 \times 1.12 = 95.144$$

$$\text{EPS} = \frac{\text{Dividend}}{\text{Dividend payment ratio}} = \frac{12.5}{0.25} = 50.$$

$$\text{Increase in working capital} = 50 \times 0.19 = 9.5 \text{ per share.}$$

Year	1	2	3	4	5	6	7	8	PV
1. Earning per share	59.5	70.81	84.26	100.27	119.32	142.00	169.00	201.07	
2. (Capital Expenditure— (Depreciation) (1 – b)	25.66	30.53	36.33	43.23	51.45	61.22	72.86	86.70	
3. (Increase in Working Capital (1 – b)	8.71	10.36	12.33	14.67	17.46	20.77	24.72	29.42	
Present value discounted at revised rate of return at 19%	25.13	29.92	35.60	42.37	50.41	60.00	71.42	84.95	169.04
	21.13	21.13	21.13	21.13	21.13	21.13	21.13	21.13	

$$\text{Present value of terminal value} = \frac{1}{(1.19)^8} \times \frac{95.144}{(0.19 - 12)} = 337.99.$$

Value of stock of price per share = 337.99 + 169.04 = Rs. 507.03 or Rs. 507.

Q. 14. Consider three bonds A, B and C. Their characteristics are shown below :

	Bond A	Bond B	Bond C
Face value	Rs. 500	Rs. 500	Rs. 500
Coupon rate	12%	12%	12%
Coupon payments		Semi-annually	
Term to maturity	3 years	5 years	7 years
Market value	Rs. 500	Rs. 500	Rs. 500

If the interest rates increase by 1 percentage point, what are the market values of these bonds? What do you observe regarding the percentage price change in these three bonds as the term to maturity increases?

Answer 14.

If the interest rates increase by 1 percentage point, the market value of bond A is Market value

$$= 30 \times \text{PVIFA} (6.55\%, 6) + 500 \times \text{PVIF} (6.5\%, 6) \quad \dots (1)$$

$$= 30 (4.841) + 500 (0.685) = 487.73$$

The market value of bond B is

$$= 30 \times \text{PVIFA} (6.5\%, 10) + 500 \times \text{PVIF} (6.5\%, 10)$$

$$= 30(7.1888) + 500 (0.5327)$$

$$= 482.01$$

The market value of Bond C is

$$= 30 \times \text{PVIFA} (6.5\%, 14) + 500 \times \text{PVIF} (6.5\%, 14)$$

$$= 30(9.013) + 500 (0.4141)$$

$$= 477.44$$

The percentage price change in case of Bond A is 2.454%, in case of Bond B it is 3.598% and in case of Bond C it is 4.512%. The marginal percentage price changes are 1.144% and 0.914% between A and B and between B and C respectively. That is, the percentage price change increases as term to maturity increases but the marginal percentage price change diminishes as term to maturity increases.

Q. 15. Goodway Industries Ltd. issued a convertible bond maturing in ten years. The bond carries a coupon of 8%, paid semi-annually. Similar "A" rated non-convertible bonds are currently yielding 10.25 percent to maturity. Each bond has a par value of Rs. 1,000 and can be converted into twenty shares of common stock. The bonds are callable at 106 percent of par two years from now. The common stock of the company is currently trading at Rs. 54 per share.

You are required to calculate the

- Straight value of the bond.
- Conversion value of the bond.
- Conversion premium if the market value of the bond is Rs. 1,150.

Answer 15.

- a. The straight debt value of the bond is calculated as follows :

$$\text{Straight value} = 40 \times \text{PVIFA}_{(5\%, 20)} + 1000 \times \text{PVIF}_{(5\%, 20)} = 875.38$$

- b. Conversion value = $20 \times 54 = 1,080$

c. Conversion premium = $\frac{1,150 - 1,080}{1,080} \times 100 = 6.48\%$

Q. 16. The data given below pertain to a convertible bond.

Face value of a bond	=	Rs. 250
Coupon rate	=	12%
Number of shares per bond	=	20
Market price of share	=	Rs. 12
Straight value of the bond	=	Rs. 235
Market price of the convertible bond	=	Rs. 265

Given this data, compute

- Stock value of the bond,
- The percentage of the downside risk,
- The conversion premium, and
- The conversion parity price of the stock.

Answer 16.

- a. Stock value or conversion value of the bond = Current market price \times Number of shares = $12 \times 20 = \text{Rs. } 240$

- b. Percentage of the downside risk

$$= \frac{(\text{Market Price of convertible}) - (\text{Price of an equivalent non - convertible bond})}{\text{Price of an equivalent non - convertible bond}}$$

$$= \frac{265.00 - 235.00}{235.00} = 0.1277 \text{ or } 12.77\%$$

This ratio gives the percentage price decline experience by the bond if the stock becomes worthless.

- c. Conversion Premium

$$\frac{\text{Market price} - \text{Conversion Value}}{\text{Conversion value}} \times 100$$

$$= \frac{265.00 - 240.00}{240.00} \times 100 = 10.42\%$$

This indicates that if the price of the underlying share should appreciate by 10.42% so that a parity is attained between the stock and the bond.

- d. Conversion parity price = $\frac{\text{Bond price}}{\text{Number of shares on conversion}} = \frac{265.00}{20} = \text{Rs. } 13.25$

This indicates that if the price of the share rises to Rs. 13.25 from Rs. 12.00 the investor will neither gain nor lose on buying the bond and exercising it. Observe that Rs. 1.25 is 10.42% of Rs. 12, the conversion premium.

- Q. 17. Dharmesh Pharmaceuticals Ltd. have recently come out with a Partly Convertible Debentures (PCDs) to part finance its Rs. 20 crore capacity expansion program. As per the terms of this issue, 12% PCDs of Rs. 200 each will be issued at par. The convertible part of the debenture (Part A) of Rs. 100 will be converted into 2 equity shares of face value Rs. 10 be redeemed after 7 years. Interest will be semi-annually.

	March, 2000	March, 2001	March, 2002	March, 2003
EPS (Rs.)	3.50	3.00	3.25	3.40
Bonus (Ratio)		1:3		

Month	Jan. 2003	April 2003	July 2003	Sep. 2003	Dec. 2003
Average P/E Ratio	15	14.8	14.5	14.0	13.8

The following additional information, and projections are available about the company :

Rakesh, an investor requires a rate of return of 14% p.a. compounded semi-annually.

You are required to advise Rakesh whether he should subscribe to the issue.

Answer 17.

The intrinsic value of the above PCD is calculated as under :

- a. Present value of interest payments
 $= 12 \times \text{PVIFA} (7\%, 3) + 6 \times \text{PVIFA} (7\%, 11)$
 $= 12 \times 2.6243 + 6 \times 7.4987 = 76.4838$
 $= 76.48.$

b.

Year Ended	2000	2001	2002	2003
Bonus adjusted EPS (Rs.)	3.50	4.00	4.33	4.53

Growth rate (g) implicit in the bonus adjusted EPS can be obtained from the equation

$$3.5 (1 + g)^3 = 4.53$$

$$\Rightarrow g = \left(\frac{4.53}{3.5} \right)^3 - 1 = 0.0898 \text{ i.e. } 8.98\%$$

$$\text{Projected EPS in July, 2003} = 3.4 \left(1 + \frac{0.0898}{3} \right) = \text{Rs. } 3.50$$

Average P/E ratio between January 2003 to July 2003 (6 months period prior to conversion)

$$= \frac{1.50 + 14.8 + 14.5}{3} = 14.77.$$

Therefore, projected market price of share after 18 months = $3.50 \times 14.77 = \text{Rs. } 51.70$

Present value of market value of conversion after eighteen months

$$= 51.70 \times 2 \times \text{PVIF} (7\%, 3)$$

$$= 103.40 \times 0.8163 = \text{Rs. } 38.78.$$

- d. Intrinsic value of the PCD = A + B + C
 $= 76.48 + 84.41 + 38.78$
 $= \text{Rs. } 199.67$

Therefore, it is not recommended to invest in the proposed PCD as it is just rightly priced whereas the projected declining P/E ratio may take the price of convertible portion further down.

- Q. 18. Assume the current market value of the bidding company is Rs.40 crores, and that of the target company is also Rs. 40 crores. Then, the sum of the values as independent companies is Rs. 80 crores. Suppose, as a combined entity, due to synergistic effects, the value increases to Rs. 100 crores. The amount of value created is Rs. 20 crores. How will the increase in value be shared or divided between the bidder and the target company?**

Answer 18.

Targets usually receive a premium. If the bidder pays the target a premium of less than Rs.20 crores, it will share in the value increases. If the bidder pays Rs.60 crores to the target, all gains will go the target company. The bidder achieves no value increase for itself. On the other hand, if the bidder pays Rs.70 crores to the target, the value of bidder will down to Rs.30 crores.

- Q. 19. X Ltd. is intending to acquire B Ltd. (by merger) and the following information is available in respect of the companies.**

Particulars	A Ltd.	B Ltd.
No. of Equity Shares	5,00,000	3,00,000
Earnings after tax (Rs.)	20,00,000	6,00,000
Market value per share (Rs.)	18	12

- (i) What is the present EPS of both the companies?
(ii) If the proposed merger takes place, what would be the new earnings per share for X Ltd. (assuming that the merger takes place by exchange of equity shares and the exchange ratio is based on the current market prices).
(iii) What should be exchange ratio, if B Ltd. wants to ensure the same earnings to members as before the merger takes place?

Answer 19.

$$(i) \text{ Earnings per share} = \frac{\text{Earnings after tax}}{\text{No. of Equity shares}}$$

$$\text{A Ltd.} = \frac{\text{Rs. } 20,00,000}{5,00,000} = \text{Rs. } 4$$

$$\text{B Ltd.} = \frac{\text{Rs. } 6,00,000}{3,00,000} = \text{Rs. } 2$$

(ii) Calculation of new EPS of X Ltd. after merger (Exchange ratio based on market prices)

Particulars	A Ltd.	B Ltd.
Earning after tax (Rs.)	20,00,000	6,00,000
No. of equity shares	5,00,000	3,00,000
Market value per share (Rs.)	18	12

No. of shares B Ltd. Shareholders will get in A Ltd. based on market price of shares is as follows:

$$= \frac{\text{Rs. } 12}{\text{Rs. } 18} \times 3,00,000 \text{ shares} = 2,00,000 \text{ shares}$$

For every three shares held in B Ltd., two shares of A Ltd. are given.

Then, the total number of equity shares of X Ltd. after merger is as follows :

$$= 5,00,000 + 2,00,000 = 7,00,000 \text{ shares}$$

Total Earnings of A Ltd. after merger = 20,00,000 + 6,00,000 = Rs. 26,00,000

$$\text{The new EPS of A Ltd. after merger} = \frac{\text{Rs. } 26,00,000}{7,00,000 \text{ Shares}} = \text{Rs. } 3.71$$

(iii) Calculation of exchange ratio to ensure B Ltd. to earn the same before the merger takes place :

Original EPS : A Ltd. = Rs. 4; B Ltd. = Rs. 2

The number of shares to be exchanged by A Ltd. with B Ltd. based on the EPS of the respective companies is as follows :

$$= \frac{\text{Rs. } 2}{\text{Rs. } 4} \times 3,00,000 = 1,50,000 \text{ shares}$$

Total number of shares of A Ltd. after merger = 5,00,000 + 1,50,000 = 6,50,000 shares

$$\text{EPS after merger} = \frac{\text{Rs. } 20,00,000 + \text{Rs. } 6,00,000}{6,50,000 \text{ shares}} = \text{Rs. } 4$$

The total earnings available to new shareholder of B Ltd.:

$$= 1,50,000 \text{ shares} \times \text{Rs. } 4 = \text{Rs. } 6,00,000$$

Recommendation : The exchange ratio based on market shares is beneficial to the shareholders of B Ltd.