

FINAL EXAMINATION

(REVISED SYLLABUS - 2008)

GROUP - IV

Paper-18 : BUSINESS VALUATION MANAGEMENT

Q1. State whether the following statements are 'True' or 'False'. No reasons or justifications need be given.

- (i) The book value of an asset is the historical cost less depreciation.
- (ii) Brands do not influence customers' demand.
- (iii) Possession of complimentary resources is one of the reasons for Merger negotiations.
- (iv) The provisions of Accounting Standards do not impact Mergers of companies.
- (v) Divestitures represent the sale of a part of the total undertaking.
- (vi) It is important to cross-check the financial statement information by studying financial statement.
- (vii) Valuing a firm using discounted cash flow method is conceptually different from valuing a capital project using present value method.
- (viii) Under DCF Method, in general, higher the risk level, higher will be the discount rate.
- (ix) Market value per share is expected to be lower than the book value per share in case of profitable and growing firms.
- (x) Land & Building is an example of financial asset.
- (xi) A lower discount rate would be applied to the cash flows of the Government Bond.
- (xii) Variable dividend feature makes the calculation of share value difficult.
- (xiii) Firms tend to be more profitable when there is higher real growth in the underlying market than when there is lower real growth.
- (xiv) Stock dividends and stock splits may increase the stock price but not the value of business.
- (xv) Intrinsic value and market price of equity shares are always equal.
- (xvi) In contrast growth model, the value of equity share is sensitive to growth rates.
- (xvii) Diversification is an important strategic alternative to growth.
- (xviii) For companies, which are not expected to pay dividends, equity shares can not be valued.
- (xix) A stock with low price-earnings ratio shows that it is undervalued and may earn excess return.
- (xx) A brand is nothing but a glorified product name, hence it has no value.
- (xxi) 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.
- (xxii) Internal Rate of Return (IRR) assumes reinvestment at the cost of capital.

- (xxiii) Value drivers for a business are the drivers of cash flow.
- (xxiv) Economic Value Added (EVA) is a measure to determine whether an investment contributes positively to the owner's wealth.
- (xxv) Yield capitalization method is an example of market approach of valuation.
- (xxvi) Under Walter's valuation model, the share price reflects only the present value of expected dividends in the long run.
- (xxvii) The value of a firm's equity is equal to the value of the firm less the value of non-equity claims.
- (xxviii) Corporate brands and service brands are often perceived to be interchangeable.
- (xxix) The opportunity cost of capital cannot be measured by price-earnings ratio.
- (xxx) Book value concept of valuation is based on accounting information.

Answer 1.

- (i) True.
- (ii) False.
- (iii) True.
- (iv) False.
- (v) True.
- (vi) True.
- (vii) False.
- (viii) True.
- (ix) False.
- (x) False.
- (xi) True.
- (xii) True.
- (xiii) True.
- (xiv) True.
- (xv) False.
- (xvi) True.
- (xvii) True.
- (xviii) False.
- (xix) True.
- (xx) False.
- (xxi) False.
- (xxii) False.
- (xxiii) True.
- (xxiv) True.
- (xxv) False.
- (xxvi) True.
- (xxvii) True.
- (xxviii) True.
- (xxix) False.
- (xxx) True.

Q2. Discuss the different methods of Brand Valuation. Explain cost-based approach of Brand Valuation. In valuing, a firm should you use the marginal or effective tax rate?

Answer 2.

Brand, being an intangible asset, does not have a unique valuation. Following brand valuation methods are used :

(i) Cost method :

The cost approach to valuation involves assessing the value of an asset by calculating its replacement cost i.e. cost of obtaining identical future benefits from an alternative asset. Under cost approach, aggregate of marketing, advertising, research and development expenditure related to a brand is used as the value of the brand. Under this method, a brand may be overvalued, eg, when the costs exceed the benefits.

(ii) Discounted Cash Flow Method (DCF) :

The value of a brand under this method is equivalent to present value of future cash flows expected, to be derived from ownership of the brand. The future cash flows are discounted by applying a discount rate, which should reflect the risk of the future cash flows being realized. However, this method suffers from the following limitations :

- (a) Quantification of brand – related future cash flows may be difficult,
- (b) Difficulty in estimating the life of a brand,
- (c) Assessment of appropriate discount rate for brand valuation purposes is very subjective.

Further, one should note that the inputs to the traditional discounted cash flow valuation incorporate the effects of brand name. Adding a brand name premium to this value would be double counting.

(iii) Earning Multiple Method :

According to this method, an appropriate multiple is to be applied to the earnings of the brand. So,

$$\text{Brand value} = \text{Brand earnings} \times \text{Applicable multiple.}$$

Brand earnings are estimated on the basis of past trend; the multiple actually implies the number of years the brand would be able to sustain the earnings.

This is a popular method among companies which disclose their brand value in the annual report and is also known as Interbrand model.

(iv) Premium Pricing Method :

The formula for this method is —

$$\text{Brand value} = (\text{Premium Amount}) \times \text{Volume} \times \text{Multiple}$$

Where the premium is an estimate of the excess profit earned over the profit earned by similar products sold as generic names; and the multiple is the number of years the product will enjoy the premium price. However, both these may be simple estimates.

Cost-based approach of Brand Valuation :

Under the cost-based approach method for 'Brand Valuation', the actual amount spent to build a brand is analyzed. This approach is a valuation technique that estimate value based on the cost incurred to create the item.

It is difficult to isolate and quantify all historic expenditures incurred in building the brand but it is often possible to identify external marketing costs, including media and promotion spending.

The next step is to adjust these expenditures for inflation.

The approach is often a highly conservative estimate of the brand value because the cost approach does not factor all costs incurred in building the brand.

Labour costs and other overheads may not be identifiable with any brand creation or maintenance.

However, it is possible to value a brand on the basis of what it actually costs to create or what it might theoretically cost to re-create.

Difficulty in valuing as per cost incurred is that many a times when creating a brand, a large part of long-term investments cannot be traced from advertisement expenditures. It lies on steps like Quality Control, accumulated know-how, specific expertise, involvement of personnel, etc.

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

$(\text{Taxes due}) / (\text{Taxable income})$

The second choice on tax rate is the 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 the same tax rate has to be applied to earnings of every period, the safer choice is the marginal tax rate.

Q3. Write Short Notes on :

- (i) **Brand Valuation,**
- (ii) **Valuation of unlisted companies**
- (iii) **Valuation of Preference shares**
- (iv) **Methods of Valuing Intellectual Capital**
- (v) **Models of maximizing shareholders value**
- (vi) **Fair Market Value of Intangible assets**
- (vii) **Mckinsey Model of maximizing the value of a firm**
- (viii) **Walter's Valuation Model**
- (ix) **Market approach for valuation**

Answer 3.

- (i) **Brand Valuation** : A Brand is an intangible asset. Some see it as a name or a symbol or a logo. It's associated tangible and emotional attributes is intended to identify the goods/services of one seller in order to differentiate them from those of competitors.

A Brand designates a product, as being different from competitors' products by signaling certain key values specific to a particular brand. It is the associations, which consumers make with the brand that establish an emotional and a rational pact between the supplier and the customer.

A Brand is the medium through which consumers identify their experiences with the product offerings of the company. The name of the company is often forgotten but the name remains in the mind of the consumers.

(ii) Valuation of unlisted companies : For companies which are not quoted and are closely held, we cannot calculate the P/E ratio as the market price of the shares of such a company is not available. Hence, a representative P/E ratio of a group of comparable quoted companies can be taken after suitable adjustment. Generally, a discount is applied for valuation to the P/E ratio of comparable listed company so found out.

The other factors that may be taken into consideration while making earnings approach to valuation of an unlisted company are :

- (a) Company analysis — shareholding pattern, voting powers, rights and obligations of shareholders in addition to other relevant factors.
- (b) Industry analysis — whether it is a high or low growth industry, nature of industry and influence on it of seasonal, volatile or cyclical business fluctuations, major competitors and their market share, etc.

(iii) Valuation of Preference Shares : In a going concern, preference shares are valued on yield basis.

The formula is :
$$\left(\frac{\text{Preference dividend rate}}{\text{Market expectation rate}} \right) \times 100.$$

With fluctuations in the normal rate of return in respect of preference shares, the value of preference shares of a company will fluctuate inversely. The yield-based valuation of preference shares hold good if (i) the company has paid preference dividends regularly and is expected to pay in future years as well and (ii) the total asset backing is equal to 4 to 5 times the preference capital.

If dividends on 'cumulative preference shares' are in arrear but there is the possibility of their payment, the present value of such arrears should be taken into account while valuing the preference shares.

Additional right as and where attached to preference shares to get additional share of profits or the right to get the shares converted into equity shares at a certain rate will probably increase the market value of the existing preference shares.

(iv) Methods of Valuating Intellectual Capital :

There are three broad methods of valuing Intellectual Capital—

- (i) market based method
- (ii) cost based method, and
- (iii) based on estimates of future economic benefits.

(v) Models of maximizing shareholder value : Basically three models are used for the maximisation of shareholder value. They are :

- (a) **Marakon Model** — It is based on the fact that a firm's value is measured by the ratio of its book value to its market value. An increase in this ratio depicts an increase in the firm's value. It can be maximized by using financial factors, strategic forces, strategy formulation and internal structures.
- (b) **Alcar Model**—It uses discounted cash flow analysis to identify value-adding strategies. This model uses seven value drivers that affect a firm's value e.g. the rate of growth of sales, operating profit margin, incremental investment in working capital and fixed assets, value growth duration, Income tax and cost of capital.

- (c) **McKinsey Models**—It focuses on the identification of key value drivers at various levels of the organization and places emphasis on these value drivers in all the areas.

(vii) Fair Market Value of Intangible assets :

Any intangible asset acquired is valued on the basis of the fair value of the asset.

Intangible assets include :

- (a) computer software
- (b) patents
- (c) copyrights
- (d) mining rights
- (e) quotas
- (f) marketing rights, etc.,

Three important criteria are used to identify an intangible asset. They are : identifiability, control and existence of future economic benefits.

Using the quoted market price in an active market could derive the fair market values of intangibles.

The appropriate market price is the current bid price. In the absence of such a price, quoted in a transaction for similar intangible asset can provide a basis for deriving fair value.

Otherwise, the amount, which the business unit would have paid in arm's length transaction between knowledgeable and willing parties, is taken as the fair market value.

However, finally it must be admitted that if the fair value of the intangible asset cannot be measured reliably, that asset is not recognized as separate intangible but included in the goodwill.

(viii) McKinsey Model of maximizing the value of a firm :

According to McKinsey Model, the key steps in maximizing the value of a firm are as follows—

- (a) Identification of value maximization as the supreme goal
- (b) Identification of the value drivers,
- (c) Development of strategy,
- (d) Setting of targets,
- (e) Deciding upon the action plan (budgets),
- (f) Setting up the performance measurement system/incentive system,
- (g) Implementation.

(ix) Walter's Valuation Model :

Prof. Walter's theory is that in the long-run the share prices reflect only the present value of expected dividends. Retentions influence stock price only through their effect on future dividends. In his view the investment policy of a firm cannot be separated from its dividend policy. The firm would have an optimum dividend policy which be determined by the relationship or r (its internal rate of return) and k (its cost of capital).

(x) Market approach of valuation :

Market approach of valuation has several alternative methods of valuation, they are—

- (a) *Sales transaction* method which takes note of the actual market transactions in an arm's length deal.

- (b) *Relief from Royalty method* —It applies for evaluating an intangible asset by using an appropriate market derived capitalization rate.
- (c) *Comparable Income Differential method*—Income generated by two similar operations; one using the intangible asset and one without—are compared.
- (d) *Market replacement cost method*—It considers the estimates of the cost by knowledgeable outsiders.

These methods are used to arrive at an estimate of the market value by using appropriate capitalization factor where necessary.

- Q4. (a) The price of a company's share is Rs. 80 and the value of growth opportunities is Rs. 20. If the company's capitalization rate is 15 percent, what is the earnings-price ratio? How much is earning per share?**
- (b) How would you value a real estate? What are the different levels of market efficiency?**
- (c) A company's current price of share is Rs. 60 and dividend per share is Rs. 4. If its capitalization rate is 12%, what is the dividend growth rate?**

Answer 4.

- (a) Earning price ratio = $0.15 [1 - 20/80] = 0.15 (1 - .25) = .1125 = 11.25\%$

Earning per share = EPS = $80 \times .1125 = \text{Rs. } 9.00$

- (b) For evaluation of a real estate, one can use the cash flow technique. Of course, 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 Standardized Value Measures (e.g. price per square meter) and Comparable Asset Values (gross income multiplier) are also used.

It should be noted 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 fetures in real estates e.g., lack of regular trading in real estates, dissimilar nature of any two real estates, terminal values often differing between two real estates, and the like.

Investors determine stock prices on the basis of the expected cash flows to be received from a stock and the risk involved. Rational investors should use all the information they have available or can reasonably obtain. The information set includes beliefs about the future (ie, information that can reasonably be inferred). A markets is efficient relative to any information set if investors are unable to earn abnormal profits (returns beyond those warranted by the amount of risk) by using that information set in their investing decisions.

An efficient market is defined as one in which all information is reflected in stock prices quickly and fully. If some types of information are not fully reflected in prices and there is some lag in the information being reflected in prices, the market is not perfectly efficient, though it is certainly not inefficient. According to the efficient market hypothesis (EMH), the market is classified as weak-form efficient, semistrong efficient and strong-form efficient. E. Fama describe these three levels of efficiency as follows :

Weak Form : This part of the efficient market hypothesis states that prices reflect all price and volume data which are all past. As a result, it gives no idea of future price changes. Technical analysis on the basis of past data is thus of little or no value.

Semistrong Form : It involves not only past known market data, but all publicly known and available data, such as earnings, dividends, stock split announcements, new product developments, financing difficulties, and accounting changes. If any lags exist in the adjustment of stock prices to certain announcements, smart investors can exploit these lags and earn abnormal returns.

Strong Form : This is the most stringent form of market efficiency. It asserts that stock prices fully reflect all information, public and nonpublic. The strong form focuses not only on the speed of reflection of the information into stock prices (as the semistrong form does), but considers the value of the information as well. In a strong form efficient market no group of investors should be able to earn, over a reasonable period of time, abnormal rates of return by using information in a superior manner.

$$(c) \quad 60 = \frac{4(1+g)}{(0.11-g)}$$

$$7.2 - 60g = 4 + 4g$$

$$-64g = -3.2$$

$$g = \frac{-3.2}{-64}$$

$$= .05$$

$$= 5\%$$

Dividend growth rate is 5%.

Q5. The following are the details of the two merged firms, Nylo Ltd. And Xylo Ltd :

	(Rs in Lakhs)	
	<u>Nylo Ltd.</u>	<u>Xylo Ltd.</u>
Revenues	4,400	3,125
Cost of Goods Sold (excluding depreciation)	87.5%	89.0%
Depreciation	200	74
Tax rate	35%	35%
Working capital	10% of Revenue	10% of Revenue
Market value of Equity	2000	1300
Outstanding Debt	160	250

Both firms are expected to grow 5% a year in perpetuity. Capital spending is expected to be offset by depreciation. The beta for both firms are rated BBB, with an interest rate on their debt of 8.5% (the risk-free rate is 7%)

As a result of the merger, the combined firm is expected to have a cost of goods sold of only 86% of total revenue. The combined firm does not plan to borrow additional debt.

- You are required to estimate the value of the combined firm, *with no synergy*,
- Estimate the value of the combined firm, *with synergy*.

Answer 5.

	(Rs in Lakhs)	
	Nylo Ltd.	Xylo Ltd.
(a) Expected revenue (105% of current revenue)	4,620	3,281
Less- Cost of Goods Sold (87.5% / 89%)	(4,043)	(2,920)
Less- Depreciation	(200)	(74)
EBIT	377	287
Less- Interest	(14)	(21)
EBT	363	266
Less-Tax	(127)	(93)
EAT (earnings to equity)	236	173
Cost of equity (236/2000/173/1300)	0.118	0.133
WACC		
(2000 × 0.118 + 160 × 0.055)/2160	0.113	
(1300 × 0.133 + 250 × 0.055)/1.550		0.120
FCFF (free cash flow to firm)		
[EBIT (1-Tax rate)-Addl. Working capital]		
For Nylo Ltd: 377 (1-0.35)-22	223	
For Xylo Ltd: 287 (1-0.35)-16		171
Firm value: 223/ (0.113-0.05)	3540	
171/ (0.120-0.05)		2443

The value of combined firm, **with no synergy** = Rs 3,540 + 2,443 = Rs. 5,983.

(b)

	(Rs in Lakhs)
	Nylo Ltd & Xylo Ltd. with synergy
Expected revenue	7,901
Less- Cost of goods sold	(6795)
Less- Depreciation	(274)
EBIT	832
Less- Interest	(35)
EBT	797
Less –Tax	279
EAT	518
Cost of equity 409* / (2000 + 1300)	=0.124
WACC : (3300 X 0.157 + 410 × .055) / 3710	= 14.5
FCFF : 832 (0.65)–38	=503

The value of combined firm **with synergy** : Rs. 503/(0.1164-0.05) = Rs. 7,575

With no change in capital structure, return expected by equity-holders remain as before, i.e. (Rs. 236 + 173 = Rs. 409).

Q6. Hira Ltd. wants to acquire Feri Ltd. and has offered a swap ratio of 1:2 (0.5 shares of Hira Ltd. for every one share of Feri Ltd.). Following information is provided :

	Hira Ltd.	Feri Ltd.
Profit after Tax	Rs. 18,00,000	Rs. 3,60,000
Equity shares outstanding	6,00,000	1,80,000
EPS	Rs. 3	Rs. 2
P/E Ratio	10 times	7 times
Market price per share	Rs. 30	Rs. 14

Required :

- (i) the number of equity shares to be issued by Hira Ltd. for acquisition of Feri Ltd.
- (ii) what is the EPS of Hira Ltd. after acquisition?
- (iii) what is the expected market price per share of Hira Ltd. after the acquisition, assuming its P/E multiple remains unchanged?
- (iv) Determine the market value of the merged firm.

Answer 6.

- (i) The number of shares to be issued by Hira Ltd.

$$1,80,000 \times 0.5 = 90,000 \text{ shares}$$

- (ii) EPS of Hira Ltd. after acquisition

$$\text{Total earnings (18,00,000 + 3,60,000) = Rs. 21,60,000}$$

$$\text{No. of shares (600,000 + 90,000) = 6,90,000}$$

$$\text{EPS} = \frac{21,60,000}{6,90,000} = \text{Rs. 3.13}$$

- (iii) New market price of Hira Ltd. (P/E remaining unchanged)

$$\text{Present P/E Ratio of Hira Ltd.} \quad 10 \text{ times}$$

$$\text{Expected EPS after merger} \quad \text{Rs. 3.13}$$

$$\text{Expected market price (3.13} \times 10) = \text{Rs. 31.30}$$

- (iv) Market value of merged firm

$$\text{Total No. of shares} \quad 6,90,000$$

$$\text{Expected Market price} \quad \text{Rs. 31.30}$$

$$\text{Total value (6,90,000} \times 31.30) \quad \text{Rs. 2,15,97,000.}$$

Q7. Explain the various methods of payment in case of mergers and amalgamations.

Answer 7.

Methods of payment in Mergers and Amalgamations :

- (i) **Cash :** Where one company purchases the shares or assets of another for cash the shareholders of the latter company cease to have any interest in the combined business.

The disadvantage is that they may be liable to capital gains tax.

- (ii) **Loan Stock** : In this case the shareholders of the selling company exchange their equity investment for a fixed interest investment in the other company. The advantage is that any liability to capital gains tax will be deferred until the disposal of the loan stock. In addition, interest on the loan stock is deductible in the hands of the company for tax purpose.
- (iii) **Ordinary shares** : Here the shareholder merely exchanges his shares in one company for shares in another company. The advantage is that the shareholders of the selling company continue to have an interest in the combined business and will not be subject to capital gains tax on the exchange. From the point of view of the combined companies a share exchange does not affect their liquidity.
- (iv) **Convertible loan stock** : The shareholders in one company exchange their shares for convertible loan stock in the other company. The selling shareholder exchanges an equity investment for a fixed interest security which is convertible into an equity investment at some time in the future if he so desires.

Q8. Write in Brief :

- (a) **Financial Synergy**
- (b) **Operational Synergy**
- (c) **Assumptions of Modigliani and Millar regarding dividend policy**
- (d) **Expansion and Diversification**
- (e) **Reasons for mergers and acquisitions**
- (f) **IRR & NPV**
- (g) **Causes of horizontal mergers**
- (h) **Causes of Vertical merger**

Answer 8.

- (a) **Financial Synergy** : It refers to (i) better use of excess cash (ii) a greater tax benefit from accumulated losses (ii) tax deductions and (iv) an increase in debt equity and finally, therefore, firm's value.

Financial synergy occurs as a result of the lower costs of internal financing versus external financing. A combination of firms with different cash flow positions and investment opportunities may produce a financial synergy effect and achieve lower cost of capital. Tax saving is another considerations. When the two firms merge, their combined debt capacity may be greater than the sum of their individual capacities before the merger.

The financial synergy theory also states that when the cash flow rate of the acquirer is greater than that of the acquired firm, capital is relocated to the acquired firm and its investment opportunities improve.

In a cross-border M&A framework, the question and measurement of financial synergy can be important in the analysis of the transaction and consideration needs to be given to whether the specific cross-border financial risks outweigh operational synergies.

- (b) **Operational Synergy** : Operating synergies are those synergies that allow firms to increase their operating income, increase growth or both. Operating synergies can be categorized into four types:

- (i) Economies of scale that may arise from the merger, allowing the combined firm to become more cost-efficient and profitable.
- (ii) Greater pricing power from reduced competition and higher market share, which should result in higher margins and operating income.
- (iii) Combination of different functional strengths, as would be the case when a firm with strong marketing skills acquires a firm with a good product line
- (iv) Higher growth in new or existing markets, arising from the combination of the two firms. This would be case when a US consumer products firm acquires an emerging market firm, with an established distribution network and brand name recognition, and uses these strengths to increase sales of its products.

Operating synergies can affect margins and growth, and through these the value of the firms involved in the merger or acquisition.

(c) Assumptions of Modigliani and Millar regarding dividend policy :

The dividends are decided by the firm's board of directors and paid to the shareholders who are registered on the "record date". If investors have to pay higher taxes on dividends than in capital gains, then firms that pay dividends should have a higher cost of equity than firms that do not pay dividends. It is important to remember that the value of the firm is equal to future cash flows discounted at the appropriate discount rate. There is no reason to think that the future cash flows will change with the dividend policy, and under the M&M assumptions, there is no reason to believe that the payment of dividends will change the discount rate.

Assumptions of Modigliani Millar Model are :

- (i) there are no stock floatation or transaction costs.
- (ii) dividend policy has not effect on the firm's cost of equity.
- (iii) The firm's capital investment policy is independent of its dividend policy.
- (iv) investors and managers have the same set of information (symmetric information) regarding future opportunities.

(d) Expansion and Diversification :

Before a company diversifies, the possibility of expanding in the existing product line should be considered as it may help in gaining a bigger market share for the present business of the company. In terms of implementation, expanding the existing activities of the company is generally much easier than starting a new activity as the managers are familiar with the existing business.

Both the alternatives should be carefully weighed against their returns—tangible as well as intangible. The return on investment should be compared for the two alternatives keeping in view the prevailing fiscal policies, taxation, depreciation, incentives for new investments etc.

If the existing product is likely to have a steady and significant growth in its market size, and there is larger, unfulfilled gap between supply and demand the company should consider further capacity expansion for its existing product(s), unless there are other strategic reasons against sole dependence on the product. Expansion may be more desirable because of advantages of familiarity with the technology and equipment required, higher marginal productivity of labour and capital, and the availability of the existing infrastructure. Often, there are possibilities of gaining additional production capacities by debottlenecking the manufacturing processes and adding balancing equipments.

However, before implementing an expansion, the company should consider the operational details of marketing the enlarged volume. It should review its existing marketing capabilities to take on the additional load. Otherwise, it must plan for augmenting and training its market force in advance i.e. before the product comes off the production line. If this is not feasible, company should diversify into other product lines which can provide synergy and also have an existing/ready unfulfilled market demand.

While considering expansion a company must also consider the image that customers carry with regard to its product lines. If the brand image is low, the company should be careful in expanding further and must check whether enough customers exist for its products. Diversification into product lines that will improve the brand image would be an option in such case. The possibility of the customers using the product more frequently or in higher quantities should also be explored.

(e) Reasons for mergers and acquisitions :

The key determinants for success in the global market are to achieve size, scale, integration and greater financial strength and flexibility, in the interests of maximizing overall shareholder value. Whatever the fundamental objective of the managers in acquiring or merging with other companies, such acquisitions or mergers must form part of the business and corporate strategies. Business strategy is aimed at creating sustainable competitive advantage for the firm. Such an advantage may stem from any of the following reasons :

- (i) Improving economics of scale
- (ii) Gaining managerial expertise
- (iii) Market leadership
- (iv) Acquiring a new product or brand name
- (v) Diversifying the portfolio
- (vi) Synergy
- (vii) Fast growth
- (viii) Tax benefits
- (ix) Quick entry

(f) IRR and NPV :

IRR stands for Internal Rate of Return and NPV represents Net Present Value of a project. IRR and NPV are two forms of Discounted Cash Flow (DCF) technique of capital budgeting. These techniques take into consideration the time value of money evaluating the costs and benefits of a project. They discount the cash flows at a certain rate, k , the cost of capital. The cost of capital is the minimum discount rate earned on a project that leaves the market value unchanged.

IRR is the maximum rate of interest that could be paid for the capital employed over the life of an investment without loss on the project. NPV is the total of the present value of cash flows (discounted cash flows) discounted at a given rate.

The IRR method would support projects in whose case the $IRR (r) > k$. Under the NPV method a project qualifies for acceptance when the $NPV > 0$ (ie, the discounted cash inflow exceeds the discounted cash outflow).

When the $IRR = k$ or the $NPV = \text{zero}$, the project may be accepted or rejected.

Both methods, generally, give consistent/concurrent results in the selection/rejection of capital projects. However, in situations like size-disparity, time-disparity and unequal lives of projects, they may lead to conflicting results. The IRR criterion implicitly assumes that the cash flow generated by the projects will be reinvested at the internal rate of return, ie, the same rate as the proposal itself offers. With the NPV method, the assumption is that the funds released can be reinvested at a rate equal to the cost of capital, ie, the required rate of return. With the IRR, the reinvestment rate may vary with different investment proposals, but with the NPV method the same cost of capital can consistently be applied to all investment proposals. Theoretically, therefore, the assumption of the NPV method is considered to be superior.

(g) Causes of horizontal mergers :

Horizontal merger takes place when two or more corporate firms dealing in similar lines of activity combine together. The main cause of horizontal merger may be to derive one or more of the following benefits :

- (i) Elimination or reduction in competition
- (ii) Putting an end to price-cutting
- (iii) Increasing monopoly and bargaining power
- (iv) Economies of scale — (i) real economies from a reduction in the factor inputs and (ii) pecuniary economies from paying lower prices for factor inputs due to bulk transactions.
- (v) Products and Services complementarities
- (vi) Acquisition of new products and brands
- (vii) Research and development
- (viii) Marketing and better Management opportunities.

(h) Causes of Vertical Mergers :

In a vertical merger, one firm acquires either a customer or a supplier. Because horizontal mergers pose a direct threat to competition, they have been regulated more aggressively by the federal government than vertical mergers. Firms vertically integrate for many reasons. Some of the most common are to reduce uncertainty over the availability or quality of supplies or the demand for output, to take advantage of available economies of integration, to protect against monopolistic practices of either suppliers or buyers with which the firm must otherwise deal, and to reduce transactions costs such as sales taxes and marketing expenses. Through a vertical merger, the acquiring firm may lower its cost of production and distribution and make more productive use of its resources. Vertical integration by merger does not reduce the total number of economic entities operating at one level of the market, but it may change patterns of industry behavior. Suppliers may lose a market for their goods, retail outlets may be deprived of supplies, and competitors may find that both supplies and outlets are blocked. Vertical mergers may also be anticompetitive because their entrenched market power may discourage new businesses from entering the market.

Some benefits of vertical mergers can be seen on the :

- (i) Value chain management,
- (ii) Technological & other economies,
- (iii) Tax benefits,
- (iv) Lesser investment in working capital,
- (v) Better control on the supply side.

Q9. You have been provided the financial data of two companies:

	Lava Ltd.	Kusha Ltd.
Earnings after taxes	Rs 7,00,000	Rs 10,00,000
Equity shares outstanding	Rs 2,00,000	Rs 4,00,000
Earnings per share	3.5	2.5
Price-earning ratio	10 times	14 times
Market price per share	Rs. 35	Rs. 35

Company Kusha Ltd. is acquiring the company Lava Ltd., exchanging its shares on a one-to-one basis for company Lava's shares. The exchange ratio is based on the market prices of the shares of two companies.

You are required to calculate:

- (i) The EPS subsequent to merger,
- (ii) Change in EPS for the shareholders of Kusha Ltd. and Lava Ltd.,
- (iii) The market value of the post-merger firm,
- (iv) The profits accruing to shareholders of both the companies.

Answer 9.

Exchange ratio	1:1
New shares to be issued	2,00,000
Total shares of Lava Ltd. (400,000 + 2,00,000)	6,00,000
Total earnings	17,00,000
New EPS (17,00,000 / 600,000)	Rs. 2.83
Existing EPS of Kusha Ltd	Rs. 2.50
Increase in EPS (2.83-2.50) of Kusha Ltd.	Rs. 0.33
Existing EPS of Lava Ltd.	Rs. 3.50
Decrease in EPS (3.50-2.83) of Lava Ltd.	Rs. 0.67
P/E ratio of new co.	14 times
New Market Price (14 × 2.83)	Rs 39.62
Total No. of shares	6,00,000
Total market capitalization (600,000 × 39.62)	2,37,72,000
Existing market capitalization (70,00,000 + 1,40,00,000)	2,10,00,000
Total Gain	<u>27,72,000</u>

	Total	Lava Ltd.	Kusha Ltd.
No. of shares after merger	6,00,000	4,00,000	2,00,000
Total market value	Rs 39.62	Rs 39.62	Rs 39.62
Existing market value	Rs 2,37,72,000	Rs 1,58,48,000	Rs 79,24,000
Gain shareholders	Rs 2,10,00,000	Rs 1,40,00,000	Rs 70,00,000
	<u>Rs 27,72,000</u>	<u>Rs 18,48,000</u>	<u>Rs 9,24,000</u>

Q10. What drives M & A activity? What are its key facilitators in India? What are its benefits?

Answer 10.

The **important drives of Mergers and Acquisitions** include economics of scale, complementary resources, utilization of surplus funds, tax shields, strategic benefits, and managerial effectiveness.

The Organization for Economic Cooperation and Development (OECD) in its report on 'Mergers and Competition Policy' has listed the following twelve most cited motives :

Category	Motives
A. Economies of Scale-related reasons	1. Obtain Real Economies of scale
B. B. Market share reasons	2. Acquire capacity at reduced prices
	3. Increase market power.
	4. Expand production without price reduction.
	5. Build an empire
	6. Rationalize production
C. Financial synergy-related reasons	7. Obtain tax advantages.
	8. Obtain monetary economics of scale.
	9. Use of complementary resources.
	10. Gain promotional profits.
D. Diversification of risk-related reasons	11. Spread risk by diversification.
	12. Avoid firm's failure.

Key facilitators of M & A activity in India : M & A activities are expected to witness a sharp rise in both number and size of transactions. Some of the key facilitators for M & A are :

- Conducive regulatory framework through increased deregulation
 - i. MRTP/FERA dilution
 - ii. Industry delicensing
 - iii. Enaction of take over code : Buy back regulations.
- Integration with the global economy
 - i. Gradual shift to free trade, currency convertibility, IPR regime etc.
- Disinvestment/Privatisation of PSUs.
- Financial and liquidity reasons
- Paper to paper transactions viz. share swaps.
- Low market valuations compared to book value replacement value.

Mergers in India are to abide by the Companies Act, Listing agreements (Stock exchanges), and SEBI code – the basic objective being to ensure a fair play between the related concerns and a good deal for the economy.

Benefits of M & A :

Benefits of M & A can be considered into two parts : The visible benefits and the invisible benefits.

They are given below :

The easily visible benefits :

- Increased market share
- Access to distribution Networks
- Acquisition of and access to needed brand product
- Increase in manufacturing capacity
- Enhanced product range
- Increased profitability\
- Tax benefits
- Leveraging capacity

Invisible benefits :

- Improved Organization skills
- Acquisition of Market knowledge
- Better Supplier chain
- Improvement of process skills
- Enhancement of R & D Capacity
- Acquisition to people assets and their knowledge base.

Q11. Sun Ltd. is studying the possible acquisition of Moon Ltd. and the following information is available :

	Sun Ltd.	Moon Ltd.
Profit after tax	Rs 3,00,000	Rs 75,000
Equity shares outstanding	Rs 50,000	Rs 10,000
P /E multiple	3	2

If the merger takes place by exchange of equity shares based on market price, what is the EPS of the new firm?

Answer 11.

Exchange of shares on the basis of market price:

Market price of shares of Sun Ltd. = Rs. 3,00,000 / 50,000 × 3 = Rs. 18

Market price of shares of Moon Ltd. = Rs. 75,000 / 10,000 × 2 = Rs. 15

Exchange Ratio = Rs. 15 / Rs 18 = 0.833

Number of shares to be issued by Sun Ltd. = 10,000 × 0.833 = 8330 shares

Total earnings of Sun Ltd. = Rs. 3,75,000

Earnings per share = Rs. 3,75,000 / 58,330 = Rs. 6,429 [say, Rs. 6.43 per share].

Q12. What are the possible causes of Horizontal and Vertical Mergers? What factors are considered for selecting a target in a business acquisition strategy?

Answer 12.

The causes of mergers of two firms in the same industry (horizontal/vertical mergers) :

Horizontal Mergers :

- (i) Economies of scale,
- (ii) Increase monopoly and bargaining power,
- (iii) Product & services complementaries,
- (iv) Management opportunity (i.e. weed out poor management),
- (v) Acquisition of new products and brands.

Vertical Mergrs :

- (i) Value chain management,
- (ii) Technological and other economies (thorough avoiding duplication),
- (iii) Tax benefits,
- (iv) Better control on the supply side.

Factors to be considered for selecting a target in a business acquisition strategy :

- (i) The target fits well with the acquisition objective;
- (ii) The target has growth potential but faces some solvable managerial problems;
- (iii) The market value of the target is lower than the acquirer;
- (iv) The target does not have too many on-going litigations with substantial financial impact;
- (v) The target's market-to-book ratio is less than one;
- (vi) The target has highly liquid balance-sheet with large amount of excess cash, a valuable securities portfolio, significant unused debt capacity and underutilized capacity;
- (vii) The target may have subsidiaries or assets which could be sold off without imparting cash flows;
- (viii) Avoidance of current cut-throat competition;
- (ix) Acquisition of brand names, patent rights, etc.;
- (x) Synergy, economies of scale, etc.

Q13. Toyo Ltd., a toy manufacturing company has aggressive plans for expanding its market share. To get faster market access the management of the company has decided in favour of takeover. The research wing of Toyo Ltd. has undertaken a detailed study of prospective takeover targets and finally identified Giggle Ltd., a company based in Baroda. Toyo Ltd. has already collected the following relevant information about Giggle Ltd. It is now to assess the value of Giggle's to start negotiation for the takeover.

Balance Sheet of Giggle Ltd. as on 31st March, 2008

Liabilities	Amount (Rs)	Assets	Amount (Rs)
Share capital	80	Land	4
Reserves	6	Buildings	40
Term loan:		Plant & Machinery	100
IDBI	100	Other fixed assets	<u>6</u>
Other	20	Gross fixed assets	150
Current liabilities	300	Less- Accumulated Depn	<u>64</u>
			86
		Add- Capital WIP	<u>16</u>
		Total fixed assets	102
		Inventories	120
		Receivables	160
		Other	<u>124</u>
	<u>506</u>		<u>506</u>

Capital Expenditure of Rs 86 lakhs will be incurred in 2003 and Rs. 280 lakhs in 2004.

Other information :

Particulars	2002	2003	2004	2005	2006	2007
Net sales	1100	1160	1600	2100	2400	2500
Raw materials cost	480	500	660	880	940	960
Power	20	23	32	43	44	48
Employee related cost	56	61	80	88	100	110
Administrative expenses	21	24	32	37	39	41
Depreciation	10	14	41	42	42.4	42.8

The tax rate for the company is 30%. There is no charge on deferred taxes. The stock is currently trading at Rs. 25 per share. The cost of equity is 20%.

Bank finance carries an interest rate of 20%. Based on the information given use the discounted cash flow approach to value Giggle Ltd.

Note : Additional capital (issued at par)

Rs. 260 lakhs

Term loan

Rs. 220 lakhs

Answer 13.

(Rs in lakhs)

Particulars	2002	2003	2004	2005	2006	2007
Net Sales	1100	1160	1600	2100	2400	2500
Less- Expenses						
Raw Mat Cost	480	500	600	880	940	960
Power	20	23	32	43	44	48
Administrative Exp	21	24	32	37	39	41
Employer related Cost	56	61	80	88	100	110
Total expenses	577	608	804	1048	1123	1159
EBDIT	523	552	796	1052	1277	1341
Depreciation	10	14	41	42	42.4	42.8
NOPLAT	513	538	755	1010	1234.6	1298.2
[EBIT (1-t)]	359.1	376.6	528.5	707	864.2	908.7
Gross CF	369.1	390.6	569.5	749	906.6	951.5
Gross investment	—	86	280	—	—	—
Free cash flow	369.10	304.60	289.50	749	906.6	951.50

$$\text{Number of equity share} = \frac{(\text{Rs. } 80 + \text{Rs. } 260)}{10} = 34 \text{ Lakhs.}$$

Market value of equity $34 \times \text{Rs. } 25 = \text{Rs. } 850 \text{ Lakhs}$

Market value of debt $\text{Rs. } 100 + \text{Rs. } 20 + \text{Rs. } 220 = \text{Rs. } 340 \text{ Lakhs}$

Cost of equity = 20%

Cost of debt = $20\% \times 0.70 = 14\%$

WACC = $20\% \times 850 / 1190 + 14\% \times 340 / 1190 = 18.285\%$

Computation of Terminal value:

$$CV_6 = 951.5 \times 1.16 / (0.1828 - 0.16) = \text{Rs. } 48,409.65 \text{ lakh}$$

Value of company + Present value of cash flows + Non-operating assets – Debt

$$\begin{aligned}
 &= 369.10 / (1.1828) + 304.6 / (1.1828)^2 + 289.5 / (1.1828)^3 + 749 / (1.1828)^4 + 906 \\
 &\quad (1.1828)^5 + 951.5 / (1.1828)^6 + 48,409.65 / (1.1828)^6 - 340 \\
 &= \text{Rs. } 19,495-340 \\
 &= \text{Rs. } 19,155.75 \text{ lakh.}
 \end{aligned}$$

Q14. (a) A firm had paid dividend at Rs. 2 per share last year. The estimated growth of the dividends from the company is estimated to be 5% p.a. Determine the estimated market price of the equity share if the estimated growth rate of dividends —

(i) rises to 8% and

(ii) falls to 3%.

Also, find out the present market price of the share given that the required rate of return of the equity investors is 15.5%.

(b) Simplex Ltd. is trying to estimate its debt ratio. It has 1 million equity shares outstanding, trading at Rs. 50 per share. Simplex has Rs. 250 million in straight debt outstanding (with a market interest rate of 9%). It has two other securities outstanding:

- 10,000 convertible bonds, with a coupon rate of 6% and 10 years to maturity.
- 2,00,000 warrants outstanding, conferring on its holders the right to buy stock in the Simplex Ltd. At Rs. 65 per share

These warrants are trading at Rs. 12 each. You are required to calculate the debt ratio in market value terms.

Answer 14. (a)

Determination of estimated market price of the equity share- In this case the company has paid a dividend of Rs 2 during the last year. The growth rate g is 5%. Then, the current year dividend (D_1) with the expected growth rate will be Rs. 2.10.

$$\begin{aligned}\text{The present share price in the market is } P_0 &= D_1 / K_e - g \\ &= 2.10 / .155 - .05 \\ &= \text{Rs. 20}\end{aligned}$$

In case growth rate rises to 8%,

$$\begin{aligned}\text{Market price} &= 2.16 / .155 - .08 \\ &= \text{Rs. 28.80}\end{aligned}$$

In case the growth rate falls to 3%,

$$\begin{aligned}\text{Market price} &= 2.06 / .155 - .03 \\ &= \text{Rs. 16.48}\end{aligned}$$

Market price of the shares is expected to vary in response to change in expected growth rate in dividends.

Answer 14. (b)

$$\text{Value of common stock} = 1 \text{ million} \times 50 = \text{Rs. 50 million}$$

$$\text{Value of warrants} = 2,00,000 \times \text{Rs. 12} = \text{Rs. 2.4 million}$$

$$\text{Value of straight debt} = \text{Rs. 250 million}$$

$$\begin{aligned}\text{Value of straight debt portion of convertible debt} &= 10,000 \times [60 \times (\text{PVA } 9\% \text{ } 10) + 1,000 / (1.09)^{10}] \\ &= \text{Rs. 1.925 million}\end{aligned}$$

$$\text{Value of conversion option} = 10,000 \times 1,000 - \text{Rs. 80,75,000} = \text{Rs. 1,925 million}$$

$$\text{Value of debt} = \text{Rs. 250} + \text{Rs. 8.075} = \text{Rs. 258.075 million}$$

$$\text{Value of equity} = (\text{Rs. 50} + \text{Rs. 2.4} + \text{Rs. 1.925}) \text{ million} = \text{Rs. 54.325 million}$$

$$\text{Debt ratio} = 258.075 / (258.075 + 54.325) = 82.61\%.$$

Q15. (a) Explain Tobin's Q. State the circumstances when it is most useful.

(b) Explain the concept of Human Resource Accounting (HRA) and outline the basic models for HRA.

Answer 15. (a)

Tobin's Q is a ratio comparing the value of the stocks of a company listed in the financial market with the value of a company's equity book value. James Tobin developed this ratio.

Traditionally Tobin's Q was used as a method for predicting investment behaviour. Tobin's Q compares the market value of a company with the replacement cost of its assets. It uses the ratio (the "Q") to predict the investment decisions of the firm, independent of macro-economic conditions such as interest rates. The replacement cost of fixed assets can be calculated as the reported value of a company's fixed assets plus the accumulated depreciation and adjusted for inflation.

As with market-to-book ratios, Tobin's Q is most revealing when like companies are compared over a period of several years. Use of both Tobin's Q and the market-to-book ratio are best suited to making comparisons of the value of intangible assets of firms within the same industry, serving the same market, that have similar types of hard assets.

When both the "Q" and the market-to-book ratio of a company are falling over time, it is a good indicator that the intangible assets of the firm are depreciating.

This provides a signal to investors that a particular company is not managing its intangible assets effectively and may cause them to adjust their investment portfolios towards companies with climbing or stable "Q"s.

An advantage to Tobin's Q over the market-to-book ratios, is that the Tobin's Q approach neutralizes the effects of different depreciation policies.

Tobin's Q can be a useful measure of intellectual capital because it can reflect the value markets place on assets, which are not typically reported in the conventional Balance Sheet.

By making intra-industry comparisons between a firm's primary competitors, these indicators can act as performance benchmarks that can be used to improve the internal management or corporate strategy of the firm.

The information provided by these ratios facilitates internal benchmarking; enabling the organization to track its progress in the area that it has defined as being integral to its success.

Answer 15. (b)

Human Resource Accounting (HRA) is a set of accounting methods that seek to settle and describe the management of a company's staff. It focuses on the employees' education, competence and remuneration. HRA promotes the description of investments in staff, thus enabling the design of HR management systems to follow and evaluate the consequences of various HR management Principles. There are four basic HRA models :

- (i) The anticipated financial value of the individual to the company. This value is dependent on two factors – the person's productivity and his/her satisfaction of being an employee in the company.
- (ii) The financial value of the group-describing the connection between motivation and organization on one hand and financial results on the other. This model does not measure value but concepts like motivation and welfare. Under this model, measurement of employee satisfaction is given great importance.

- (iii) Staff replacement costs describing the financial situation in connection with recruitment, reeducation and redeployment of employees. This model focuses on replacement costs related to the expenses connected with staff acquisition, training and separation. Acquisition covers expenses for recruitment, advertising etc., Training covers education, on-the-job training etc., Separation costs covers lost production when a person leaves a job. This model can be used to describe the development of costs in connection with replacements. In many firms, such replacement costs are included in accounts as an expression of staff value to the company.
- (iv) HR accounting and balancing as complete accounts for HR area. This model concentrates on cost-control, capitalization and depreciation of the historic expenses for HR. One effect of such a system is the visualization of the impacts of HR management—through revealing the consequences of inexpedient HR management routines.

The basic aims of HRA are very many.

First, HRA improves the management of HR from an organizational perspective-through increasing the transparency of HR costs, investments and outcomes in traditional financial statements.

Second, HRA attempts to improve the bases for investors and company valuation.

Unfortunately, for several reasons, the accuracy of HRA is often called into suspicion.

Q16. Sunfood Ltd., is considering to supply products- a special range of namkeens to a departmental store. The contract will last for 50 weeks and the details are given below :

<i>Material</i>	Rs.
X (in stock- at original price)	1,50,000
Y (on order- on contract)	1,80,000
Z (to be ordered)	3,00,000
<i>Labour</i>	
Skilled	5,40,000
Non-skilled	300,000
Supervisory	1,00,000
<i>General Overheads</i>	<u>10,80,000</u>
Total cost	26,50,000
Price offered by departmental store	<u>18,00,000</u>
Net loss	<u>8,50,000</u>

Should the contract be accepted if the following additional information is considered?

- (i) Material X is an obsolete material. It can only be used on another product, the material of which is available at price of Rs. 1,35,000 (Material X requires some adaptation to be used and costs Rs. 27,000)
- (ii) Material Y is ordered for some other product which is no longer required. It has now a residual value of Rs. 2,10,000
- (iii) Skilled labour can work on other contracts which are presently operated by semi-skilled labour at a cost of Rs. 5,70,000
- (iv) Non-skilled labour are specifically employed for this contract
- (v) Supervisory staff will remain whether or not the contract is accepted. Only two of them can replace the other positions where salary is Rs. 35,000.

- (vi) Overheads are charged at 200% of skilled labour. Only Rs. 1,25,000 would be avoidable, if the contract is not accepted.

Answer 16.

Statement of Relevant Cost of Sunfood Ltd. :

	Relevant Cost (if contract is accepted) Rs '000	Relevant Cost (if contract is rejected) Rs '000
<u>Cash Inflows</u>		
Contract price	1800	—
Sale of Material Y	—	210
Total Cash Inflow	<u>1800</u>	<u>210</u>
<u>Cash Outflow</u>		
Material X substitute		
Material X : adaptation cost if used for other product	—	27
Material Z	300	—
Semi-skilled labour : As will be replaced By skilled labour	570	—
Non-skilled labour	300	—
Supervisory staff (100 + 35 × 2)	170	—
Overheads: as avoidable	<u>125</u>	<u>—</u>
Total Cash Outflow	<u>1465</u>	<u>27</u>
Net Cash Inflow	<u>335</u>	<u>183</u>

Recommendation : The contract may be accepted as it will yield a net increment cash inflow of Rs. 1,52,000 [3,35,000 – 1,83,000].

Q17. Hindustan Lever Ltd., is run and managed by an efficient team that insists on reinvesting 60% of its earnings in projects that provide an ROE (Return of Equity) of 10%, despite the fact that the firm's capitalization rate (K) is 15%. The firm's current year's earnings is Rs 10 per share.

- At what price will the stock of HLL sell?
- What is the present value of growth opportunities?
- Why should such a firm be a takeover target?

Answer 17.

Given current management's investment policy, the dividend growth rate will be

$$G = \text{ROE} \times b, \text{ where } b = 1 - \text{Payout ratio}, g = 10\% \times 0.60 = 6\%$$

Stock price of ABC Ltd. should be $= (10 \times 0.4) / (0.15 - 0.06) = \text{Rs. } 44.44$

The present value of growth opportunities (PVGO) is:

$\text{PVGO} = \text{Market price per share} - \text{No-growth value per share}$

$= \text{Rs. } 44.44 - (\text{Rs. } 10 / 0.15) = \text{Rs. } 44.44 - \text{Rs. } 66.66 = (-) \text{Rs. } 22.22$, i.e. negative

Negative PVGO implies that the net present value of the firm's project is negative; the rate of return on those assets is less than the opportunity cost of capital. Such a firm would be subject to takeover target because another firm could buy the firm for the market price of Rs. 44.44 per share and increase the value of the firm by changing its investment policy. For example, if the new management simply paid out all earning as dividend, the value of the firm would increase up to its no growth value of Rs. 66.66.

Q18. Discuss various aspects of computation of Economic Value Added and its application in business planning and valuation. When the EVA will increase?

Answer 18.

The EVA presents the analysis of the Economic Value Added, an advanced evaluation method that measures the performance and the profitability of the business, taking in account the cost of capital that the business employs.

This method, invented by Stern Stewart & Co. is used today by more and more companies as a framework for their financial management and their incentive compensation system for the managers and the employees.

The EVA is calculated by the following formula :

$$\text{EVA} = \text{NP} - \text{TC} \times \text{WACC}$$

Where :

NP = Net Operating Profit after Tax

TC = Total Capital Employed = Total Equity and Liabilities of the Company

WACC = Weighted Average Cost of Capital

The Weighted Average Cost of Capital (WACC) is calculated as follows:

$$\text{WACC} = (E \times \text{CE} + \text{SL} \times \text{CS} + \text{LL} \times \text{CL}) / \text{TC}$$

Where :

E = Owners Equity

CE = Average cost of Owners Equity

SL = Short Term Liabilities

CS = Average cost of Short Term Liabilities

LL = Long Term Liabilities

CL = Average cost of Long Term Liabilities

EVA will rise if operating efficiency is improved, if value adding investments are made, if uneconomic activities are curtailed, and if the cost of capital is lowered. In more specific terms, EVA rises when :

- The rate of return on existing capital increases because of improvement in operating performance. This means that operating profit increases without infusion of additional capital in the business,
- Additional capital is invested in projects that earn a rate of return greater than the cost of capital,
- Capital is withdrawn from activities which earn inadequate returns,
- The cost of capital is lowered by altering the financing strategy.

The EVA financial management system is based on the premise that EVA provides a single, unified, and accurate measure of value as well as performance. It links well forward looking valuation and capital budgeting analysis with actual performance measurement. For these reasons and more, EVA is considered as the right measure for goal setting and business planning, performance evaluation, bonus determination, investor communication, capital budgeting and valuation.

Economic Value Added will increase if :

- (i) Operating profits can be made to grow without employing capital, ie, with increase in efficiency & without using additional resources,
- (ii) Additional capital is invested in projects that return more than the cost of obtaining new capital, ie, in projects with profitable growth,
- (iii) Capital is curtailed that do not cover the cost of capital, ie, by liquidating unproductive capital,
- (iv) Growth is maintained by retained profit so long as its return will exceed the Weighted Average Cost of Capital,
- (v) Better financing policy is adopted with reduced cost of capital.

Q19. Why might discounted cash flow valuation be difficult to do for the following types of firms viz; (a) Private firms, (b) Firms with patent or product options (c) Cyclical firms during recession (d) Firms in trouble (e) Firms in process of restructuring (f) Firms with unutilized assets.

Answer 19.

- (a) **Private Firms** : The biggest problem in using discounted cash flow valuation models to value private firms is the measurement of risk (to use in estimating discount rates), since most risk return models require that risk parameters be estimated from historical prices of the asset being analyzed. Since securities in private firms are not traded, this is not possible. One solution is to look at the riskiness of comparable firms that are publicly traded. The other is to relate the measure of risk to accounting variables, which are available for the private firm.
- (b) **Firms with Patents or Product options** : Firms often have unutilized patents or licenses that do not produce any current cash flows and are not expected to produce cash flows in the near future, but nevertheless are valuable. If this is the case, the value obtained from discounting expected cash flows to the firm will understate the true value of the firm. Again, the problem can be overcome, in this case by valuing these assets in the open

market or by using option pricing models, and then adding the value obtained from discounted cash flow valuation.

- (c) **Cyclical Firms during recession** : The earnings and cash flows of cyclical items tend to follow the economy using during economic booms and falling during recessions. If discounted cash flow valuation is used on these firms, expected future cash flows are usually smoothed out, unless the analyst wants to undertake the onerous task of predicting the timing and duration of economic recession and recoveries. In the depths of a recession many cyclical firms look like troubled firms, with negative earnings and cash flows. Estimating future cash flows then becomes entangled with analyst predictions about when the economy will turn and how strong the upturn will be, with more optimistic analysts arriving at higher estimates of value. This is unavoidable, but the economic biases of the analysts have to be taken into account before using these valuations.
- (d) **Firms in trouble** : A distressed firm generally has negative earnings and cash flows and expects to lose money for some time in the future. For these firms, estimating future cash flows is difficult to do, since there is a strong probability of bankruptcy. For firms that are expected to fail, discounted cash flow valuation does not work very well, since the method values the firm as a going concern providing positive cash flows to its investors. Even for firms that are expected to survive, cash flows will have to be estimated until they turn positive, since obtaining a present value of negative cash flows will yield a negative value for equity or for the firm.
- (e) **Firms in the Process of Restructuring** : Firms in the process of restructuring often sell some of their assets, acquire other assets, and change their capital structure and dividend policy. Some of them also change their ownership structure (going from publicly traded to private status and vice versa) and management compensation schemes. Each of these changes makes estimating future cash flows more difficult and affects the riskiness of the firm. Using historical data for such firms can give a misleading picture of the firm's value. However, these firms can be valued, even in the light of the major changes in investment and financing policy, if future cash flows reflect the expected effects of these changes and the discount rate is adjusted to reflect the new business and financial risk in the firm.
- (f) **Firms with Unutilized Assets** : Discounted cash flow valuation reflects the value of all assets that an unutilized (and hence do not produce any cash flows), the value of these assets will not be reflected in the value obtained from discounting expected future cash flows. The same caveat applies, in lesser degree, to underutilized assets, since their value will be understated in discounted cash flow valuation. While this is a problem, it is not insurmountable. The value of these assets can always be obtained externally and added to the value obtained from discounted cash flow valuation. Alternatively, the assets can be valued as though they are used optimally.

Q20. Calculate the value of equity share from the following information:

Equity share capital (Rs. 20.00 each)	50,00,000
Reserve & surplus	5,00,000
15% secured loans	25,00,000
12.5% Unsecured loans	10,00,000

Fixed Assets	30,00,000
Investments	5,00,000
Operating profit	25,00,000
Tax rate is 50%	
P/E Ratio is 12.5	

Answer 20.

Value of the share = EPS X P /E Ratio

	Rs.
EBIT	25,00,000
Less- Interest on 15% secured loans	3,75,000
Less- Interest on 12.5% unsecured loans	<u>1,25,000</u>
PBT	20,00,000
Less- Tax @ 50%	<u>10,00,000</u>
PAT	<u>10,00,000</u>

No. of equity shares $50,00,000 / 20 = 250,000$

EPS = Rs. $10,00,000 / 2,50,000 = \text{Rs. } 4.00$

P/E = 12.5

Therefore value of share = Rs. $4 \times 12.5 = \text{Rs. } 50.$

Q21. Write in Brief :

- (a) Net Realizable value of Inventories
- (b) Features of a future contract
- (c) Assumptions of Modigliani and Millar regarding dividend policy
- (d) Expansion and Diversification
- (e) IRR & NPV
- (f) Option pricing
- (g) Investment implications of the efficient market theory
- (h) Important assumptions of Black and Scholes formula
- (i) Limitations of EVA
- (j) Limitations of EPS as a performance measure
- (k) Levels of market efficiency according to Eugene Fama.

Answer 21.

- (a) Inventories are valued at a lower of the cost and net realisable value. This principle is based on the view that assets should not be carried in excess of amounts expected to be realized from their sale.

Cost of inventories may not be recoverable for various reasons like :

- (i) inventories being damaged,
- (ii) inventories becoming obsolete,

- (iii) market price having declined,
- (iv) production cost has increased, etc.,

Thus, Net Realizable Value of Inventories is defined as the estimated selling price in the ordinary course of business less the estimated cost of completion and the estimated cost necessary to make the sale. It is estimated on the basis of the most reliable evidence at the time of valuation.

It would be preferable to collect market price of various items of inventories as on the balance sheet date from different markets in which the goods are sold.

A weighted average price should then be determined. However, here, it is necessary to keep in view the volatility in price in general and the future prices of inventories.

An estimate of the marketing expenses should also be made while valuing the inventories.

(b) Features of a future contract :

A future contract is a firm's legal commitment between a buyer and a seller in which they agree to exchange something at a specified price at the end of a designated period of time. The buyer agrees to take delivery of something and the seller agrees to make delivery through open outcry on the floor of an organized future exchange.

The important features of a futures contract are :

- (i) Standard volume,
- (ii) Liquidity,
- (iii) Counterpart Guarantee by Exchange,
- (iv) Intermediate cash flows.

(c) Assumptions of Modigliani and Miller regarding dividend policy :

Assumptions of Modigliani Miller Model are :

- (i) there are no stock floatation or transaction costs,
- (ii) dividend policy has no effect on the firm's cost of equity,
- (iii) The firm's capital investment policy is independent of its dividend policy,
- (iv) investors and managers have the same set of information (symmetric information) regarding future opportunities.

(d) Expansion and Diversification :

Before a company diversifies, the possibility of expanding in the existing product line should be considered as it may help in gaining a bigger market share for the present business of the company. In terms of implementation, expanding the existing activities of the company is generally much easier than starting a new activity as the managers are familiar with the existing business.

Both the alternatives should be carefully weighed against their returns—tangible as well as intangible. The return on investment should be compared for the two alternatives keeping in view the prevailing fiscal policies, taxation, depreciation, incentives for new investments etc.

If the existing product is likely to have a steady and significant growth in its market size, and there is larger, unfulfilled gap between supply and demand, the company should consider further capacity expansion for its existing product(s), unless there are other strategic reasons against sole dependence on the product. Expansion may be more desirable because of

advantages of familiarity with the technology and equipment required, higher marginal productivity of labour and capital, and the availability of the existing infrastructure. Often, there are possibilities of gaining additional production capacities by debottlenecking the manufacturing processes and adding balancing equipments.

However, before implementing an expansion, the company should consider the operational details of marketing the enlarged volume. It should review the existing marketing capabilities to take on the additional load. Otherwise, it must plan for augmenting and training its market force in advance i.e. before the product comes off the production line. If this is not feasible, company should diversify into other product lines which can provide synergy and also have an existing/ready unfulfilled market demand.

While considering expansion a company must also consider the image that customers carry with regard to its product lines. If the brand image is low, the company should be careful in expanding further and must check whether enough customers exist for its products. Diversification into product lines that will improve the brand image would be a option in such case. The possibility of the customers using the product more frequently or in higher quantities should also be explored.

(e) IRR and NPV :

IRR stands for Internal Rate of Return and NPV represents Net Present Value of a project. IRR and NPV are two forms of Discounted Cash Flow (DCF) technique of capital budgeting.

These techniques take into consideration the time value of money evaluating the costs and benefits of a project. They discount the cash flows at a certain rate, k , the cost of capital.

The cost of capital is the minimum discount rate earned on a project that leaves the market value unchanged.

IRR is the maximum rate of interest that could be paid for the capital employed over the life of an investment without loss on the project. NPV is the total of the present value of cash flows (discounted cash flows) discounted at a given rate.

The IRR method would support projects in whose case the $IRR (r) > k$. Under the NPV method a project qualifies for acceptance when the $NPV > 0$ (ie, the discounted cash inflow exceeds the discounted cash outflow).

When the $IRR = k$ or the $NPV = \text{zero}$, the project may be accepted or rejected.

Both methods, generally, give consistent/concurrent results in the selection/rejection of capital projects. However, in situations like size-disparity, time-disparity and unequal lives of projects, they may lead to conflicting results. The IRR criterion implicitly assumes that the cash flow generated by the projects will be reinvested at the internal rate of return, ie, the same rate as the proposal itself offers. With the NPV method, the assumption is that the funds released can be reinvested at a rate equal to the cost of capital, ie, the required rate of return. With the IRR, the reinvestment rate may vary with different investment proposals, but with the NPV method the same cost of capital can consistently be applied to all investment proposals. Theoretically, therefore, the assumption of the NPV method is considered to be superior.

(f) Option Pricing :

An option is a contract between two parties under which the buyer of the option buys the right (but carries no obligation) to buy or sell, a standardized quantity (contract size) of a

financial instrument (underlying asset) at or before a pre-determined date (expiry date) at a price, which is decided in advance (exercise price or strike price). Normally, the underlying asset is a share. It could be any other asset.

The right to buy is called 'call option', and the right to sell is called 'put option'. The buyer or the holder of right can demand performance; he is not obliged to perform. In contrast, the writer is obliged to perform; he cannot demand performance. The price paid for acquiring the right is called option premium or option price.

The valuation of Option takes several lanes but ultimately leads to the same road. The models of valuation are :

- (i) Portfolio replication model.
- (ii) Risk neutral model.
- (iii) Binomial model.
- (iv) Black — Scholes model.

(g) Investment implications of the efficient market theory :

- (i) The substantial evidence in favour of the randomness of stock price behaviour suggests that technical analysis, which is based on the premise that stock prices follow certain patterns, represents useless market folklore.
- (ii) Routine and conventional fundamental analysis is not of much help in identifying profitable courses of action, more so when you are looking at actively traded securities. The efficiency of the market place depends on the presence of numerous investors who make competent efforts to analyse information and take appropriate actions on their analysis.
- (iii) The key levers for earning superior rate of return are —
 - Early action on any new development,
 - Sensitivity to market imperfections and anomalies,
 - Use of original unconventional and innovative modes of analysis,
 - Access to inside information and its sensible interpretation.

(h) In order to incorporate volatility and the probabilities of option prices into the model, the following assumptions are needed :

- (a) Returns are normally distributed,
- (b) Share price changes are log normally distributed,
- (c) Potential price changes follow a random model,
- (d) Volatility is constant over the life of the option.

The Black-Scholes formula is also based on the following other important assumptions :

- (aa) Traders can trade continuously,
- (bb) Financial markets are perfectly liquid,
- (cc) Borrowing is possible at the risk-free rate,
- (dd) There is no transaction costs,
- (ee) Investors are risk-neutral.

(i) **Limitations of EVA :**

The EVA is an effective proxy for firm value, for firms that obtain a significant portion of their value from future growth. However, there is the risk that the increased return on assets may be obtained by sacrificing future growth opportunities and thus may lower value in the long run. This danger is compounded when managers are reimbursed on the basis of EVA.

- (j) Although EPS is believed to have a real influence on the market price of shares, it has several important limitations as a performance measure :
- (a) It does not take account of inflation. Apparent growth in earnings may not be real growth,
 - (b) It is based on historic information and therefore it does not necessarily provide predictive value. High earnings and growth in earnings may not be achieved at the expense of investment which may generate increased earnings in the future,
 - (c) An entity's earnings are affected by the choice of its accounting policies and by its capital structure. Therefore it is not appropriate to compare EPS of different companies, though their rate of growth of EPS may be validly compared.

(k) **Levels of market efficiency (FAMA, 1971) :**

The 3 generally discussed forms of the efficient-market hypothesis are —

- (a) **Weak Form.** The weak form says that the current prices of stocks already fully reflect all the information that is contained in the historical sequence of prices. Therefore, there is no benefit-as far as forecasting the future is concerned — in examining the historical sequence of prices. The weak form of the efficient market hypothesis is popularly known as the random-walk theory.
- (b) **Semi-strong Form.** The semi-strong form of the efficient-market hypothesis says that current prices of stocks not only reflect all informational content of historical prices but also reflect all publicly available knowledge about the corporations being studied. Furthermore, the semi-strong form says that efforts by analysts and investors to acquire and analyze public information will not yield consistently superior returns. Examples of the type of public information that will not be of value on a consistent basis to the analyst are corporate reports, corporate announcements, information relating to corporate dividend policy, forthcoming stock splits, and so forth.
- (c) **Strong Form.** The strong form of the efficient-market hypothesis maintains that not only is publicly available information useless to the investors or analyst but all information is useless. Specifically, no information that is available, be it public or "inside", can be used to earn consistently superior investment returns.

Q22. The financial data of Sun Pharma Ltd. is as follows:

Paid up capital (4 lakh shares)	Rs 40 lakhs
Reserve & surplus	Rs 180 lakhs
Profit after tax	Rs 32 lakhs

The P/E multiple of the shares of Sun Pharma is 7. The company has taken up an expansion project at Ghaziabad. The cost of the project is Rs. 200 lakhs. It proposes to fund it within a term loan of Rs. 100 lakhs from ICICI and balance by a rights issue. The rights will be priced at Rs. 25 per share (Rs. 15 premium).

You are required to calculate :

- (i) **The value of the rights and the market capitalization of Sun Pharma after the rights issue, and**
- (ii) **The Net Asset Value (NAV) of the shares after the rights issue.**

Answer 22.

- (i) Amount needed by rights issue = Rs. 200 – Rs. 100 = Rs. 100 lakhs

Subscription price / right share = Rs. 25

Number of rights share on offer = Rs. 100,00,000 / 25 = 4,00,000 shares

Hence ratio of rights is 1 share for every share held.

P/E multiple = 7

Market price = Rs. 8 × 7 = Rs. 56 per share

Value of the rights, $R = P_0 - S / N + 1$ [where P_0 = cum-rights market price per share

S = subscription price of a rights share;

N = number existing shares required for a rights issue]

$$\text{Or, } R = 56 - 25 / 1 + 1$$

$$= \text{Rs. } 15.50$$

Market value after the rights issue : $NP_0 + S / N + 1 = 1 \times 56 + 25 / 2 = \text{Rs. } 40.50$

Number of shares outstanding after rights issue = 4 + 4 = 8 lakhs

Market capitalisation = Ex- rights price × Number of outstanding shares

$$= \text{Rs. } 40.5 \times 8$$

$$= \text{Rs. } 324 \text{ lakhs}$$

- (ii) Net Asset Value (NAV) per share after the rights issue: (Rs. in lakh)

Paid-up Capital	80	
Reserve & Surplus :		
Existing	180	
Premium on right issue	60	240
Net worth of the company		320

Number of shares outstanding = 8 lakh shares

NAV per share = Rs. 320 lakh / 8 lakh = Rs. 40 per share.

Q23. Explain what is “Calculated Intangible Value (CIV)”. What are the limitations of this method.

Answer 23.

“Calculated Intangible Value (CIV)” : is a method of valuing a company’s intangible values. Developed by NCI Research, “Calculated Intangible Value (CIV)” allows us to place a monetary value on intangible assets. This method allows us to calculate the fair value of the intangible assets. CIV computes the value of intangible assets by comparing the firm’s performance with an average competitor that has similar tangible assets. An advantage of the CIV approach is that it allows firm-to firm comparisons using audited financial data and as such, CIV can be used as a tool for benchmarking.

How to determine CIV?

Finding a company's CIV involves 7 steps : These are—

Step-1 : Calculate the average pre-tax earnings for the past three years,

Step-2 : Calculate the average year-end tangible assets for the past three years,

Step-3 : Calculate the company's return on assets (ROA),

Step-4 : Calculate the Industry average ROA for the same three year period as in step-2 above,

Step-5 : Calculate excess ROA by multiplying the industry average ROA by the average tangible assets calculated in step 2. Subtract the excess return from the pre-tax earnings from step 1,

Step-6 : Calculate the three-year average corporate tax rate and multiply by the excess return. Deduct the result from the excess return,

Step-7 : Calculate the net present value of the after-tax excess return. Use the company's cost of capital as a discount rate. This final figure will represent the calculated intangible value.

Limitations of CIV method :

Understanding the calculated intangible value of the company's intangible assets for the period cited is a valuable means of helping to assign an accurate and stable value to those assets. However, opponents of the whole process associated with determining a calculated intangible value believed that the figure is not of any lasting importance, since even intangible assets are subject to depreciation and will fluctuate in their real value.

Further, the CIV uses average industry ROA as a basis for determining excess returns. By nature, average values suffer from outlier problems and could result in excessively high or low ROA.

Further the NPV of intangible assets will depend on the company's cost of capital. However, for comparability within and between industries, the industry average cost of capital should be used as a proxy for the discount rate in the NPV calculation. Again, the problem of averages emerges and one must be careful in calculating an average that has adjusted for outliers.

Q24. The chief executive of a company thinks that shareholders always look for the earnings per share. Therefore, he considers maximization of the earning per share (EPS) as his company's objective. His company's current net profits are Rs. 80 lakh and EPS is Rs. 4. The current market price is Rs. 42. He wants to buy another firm which has current income of Rs. 15.75 lakh, EPS of Rs. 10.50 and the market price per share of Rs. 85.

- (i) What is the maximum exchange ratio which the chief executive should offer so that he could keep EPS at the current level?
- (ii) If the chief executive borrows funds at 15 per cent rate of interest and buys out the other company by paying cash, how much should he offer to maintain his EPS? (Assuming the Tax rate of 52%)

Answer 24.

- (i) Combined net profit / No. of shares = 4.00
 $(80 + 15.75) / (20 + x) = 4$; $95.75 = 80 + 4x$; $x = 3.9375$ lakh
 Share exchange ratio = $3.9375 / 1.5 = 2.625$

For 1 share of the target company the acquiring company should at the maximum offer 2.625 shares.

Working Notes :

Total shares of acquiring company are $80 / 4 = 20$ lakh

Total shares of target company are $15.75 / 10.50 = 1.5$ lakh.

$$(ii) \left[\frac{80 + 15.75 - 0.15 (\text{debt}) (1 - 0.5^2)}{20} \right] = 4$$

$$\text{or, } \left[\frac{95.75 - 0.072 (\text{debt})}{20} \right] = 4$$

$$\text{debt} = \frac{4 \times 20 - 95.75}{0.072}$$

$$\text{debt} = 218.75.$$

Note : The earnings would be reduced by 15% of the debt amount. Since the entire payment for shares is to be out of debt, the net earnings of the merged company after providing interest on debt should yield an EPS of Rs. 4.00 per share.

Q25. X and Y are two fast growing companies in the engineering industry. They are close competitors and their asset composition, capital structure and profitability records have been very similar for several years. The primary difference between the companies from a financial management perspective is their dividend policy. Company X tries to maintain a non-decreasing dividend per share while company Y maintains a constant dividend payment ratio. Their recent earnings per share (EPS) , dividend per share (DPS) and share price (P) history are as follows:

Company X (in Rs.)				Company Y (in Rs.)		
Year	EPS	DPS	P (Ranges)	EPS	DPS	P (Ranges)
1	9.30	2.00	75-90	9.50	1.90	60-80
2	7.40	2.00	55-80	7.00	1.40	25-65
3	10.50	2.00	70-110	10.50	2.10	35-85
4	12.75	2.25	85-135	12.25	2.45	80-120
5	20.00	2.50	135-200	20.25	4.05	110-225
6	16.00	2.50	150-190	17.00	3.40	140-180
7	19.00	2.50	155-210	20.00	4.00	130-190

The Management of Company 'Y' is puzzled as to why their share prices are lower than those of Company X in spite of the fact that profitability record of the company 'Y' is slightly better (particularly of past three years)

As a financial consultant, how would you explain the situation?

Answer 25.

Year	Company X		Company Y	
	DP Ratio	P/E Ratio	DP Ratio	P/E Ratio
1	21.5	8.87	20	7.37
2	27.0	9.12	20	6.43
3	19.0	8.57	20	5.48
4	17.6	8.63	20	8.16
5	12.5	8.37	20	8.27
6	15.6	10.62	20	9.41
7	13.2	9.60	20	8.00
Average	16.6	9.16	20	7.88

Company X is following the stable dividend policy whereas company Y is following the stable dividend payment ratio policy, sporadic dividend payment occur which make its owners very uncertain about the returns they can expect from their investment in the firm and therefore generally depress the share prices. It is probably for this reason that company X is average price per share exhibited a stable increasing behaviour vis-à-vis that of company Y. Volatile pattern of earnings of both companies (during the last three years), notwithstanding, company Y is advised to follow a stable dividend policy, which will result in an improvement in its share prices.

Q26. Maruti Enterprise is to acquire a personal computer complete with multi-media kit and a printer, Its price is Rs. 60,000. Maruti can borrow Rs. 60,000 from Canara Bank at 12% interest p.a. to finance the purchase. The principal sum is to be repaid in 5 equal yearly instalments. Maruti Enterprise can also have the computer on lease for 5 years and seeks your advice to know the maximum lease rent per year payable at the end of each year.

You are given the following additional information :

- (i) Interest on bank loan is payable at the end of each year.
- (c) The full cost of the computer will be written off over the effective life of computer on a straight line basis. This is allowed for tax purposes.
- (d) At the end of the 5th year, the computer may be sold for Rs 1500 through second hand dealer who will charge 8% commission on the sale proceeds.
- (e) The co's effective tax rate is 30%
- (f) The cost of capital is 11%.

Suggest the maximum lease rental for Maruti Enterprise.

Answer 26.

Workings :

- | | | |
|----|---|-----------------|
| f. | Annual loan repayment = Rs. 60,000 / 5 = Rs. 12,000 | |
| g. | Residual sale value at the end of year 5 | = Rs. 1,500 |
| | Less- Commission @ 8% | = <u>Rs 120</u> |
| | | 1,380 |
| | Less- Tax @30% | = <u>414</u> |
| | | <u>Rs 966</u> |
| h. | Net Cash Outflow under loan option: | |

Year	1 Rs.	2 Rs.	3 Rs.	4 Rs.	5 Rs.	Total Rs.
Principal	12000	12000	12000	12000	12000	60000
Repayment						
Payment of Interest	<u>7200</u>	<u>5760</u>	<u>4320</u>	<u>2880</u>	<u>1440</u>	<u>21600</u>
	19200	17760	16320	14880	13440	81600
Less-Tax savings :						
(i) on Depn.	3600	3600	3600	3600	3600	18000
(ii) on Intt.	<u>2160</u>	<u>1728</u>	<u>1296</u>	<u>864</u>	<u>432</u>	<u>6480</u>
Net Outflow	13440	12432	11424	10416	9408	57120
Using discount Factor @11%	0.901	0.812	0.731	0.659	0.593	
PV of cash Outflow	12109	10095	8351	6864	5579	42998
Less- PV of Post Tax inflow						
At the end of						
Year 5 ($966 \times .593$)						<u>573</u>
PV of Net Cash outflow						
in five years						<u>42,425</u>

PV of post-tax annual lease rentals in 5 years should not exceed Rs. 42,425

PV of post-tax lease rental for one year should not exceed Rs. $42,425 / 3.696 =$ Rs. 11,480

$$\text{PV of pre-tax rental per year} = \text{Rs. } 11,480 / (1-t) = \text{Rs. } 11,480 / (1-0.3) = \text{Rs. } 16,400$$

Maximum pre-tax annual rental should be Rs 16,400.

Q27. The following information is given for Oxfam Ltd., a leading pharmaceutical company :

Year	After Tax Earning (Rs in lakhs)	Dividends (Rs in Lakhs)	Issued Shares (Rs in Lakhs)	Price per share (In paise)
2000	129.3	51.75	270	540
2001	138.6	54.30	270	615
2002	148.95	56.40	270	518
2003	201.60	77.40	360	689
2004	222.90	79.95	360	672

Year	All shares Index	Inflation rate
2000	4343	6%
2001	4950	5%
2002	4268	4%
2003	3915	3%
2004	3458	3%

Oxfam's cost of equity is estimated to be 12%.

- (i) Explain with numerical workings, the current dividend policy of the co. and also discuss whether or not this appears to be successful.
- (ii) Identify and consider additional information that might assist managers of Oxfam Ltd., in assessing whether the dividend policy has been successful.
- (iii) Evaluate whether or not the company's share price at the end of the year 2001 was what might have been expected from the Dividend Growth Model. Briefly discuss the validity of your findings.

Answer 27.

(i)	Year	Post Tax earnings (per share)	Growth% share (paise)	Dividend per	Growth%	Inflation%
	2000	47.9	—	19.2	—	—
	2001	51.3	7.1	20.1	4.7	5
	2002	55.2	7.6	20.9	4	4
	2003	56.0	1.4	21.5	2.9	3
	2004	61.9	10.5	22.2	3.3	3
	Overall	6.6	3.7			
	Compound growth					

Year	All share index	Growth%	Share price	Growth%
2000	4343	—	540	—
2001	4950	14	615	13.9
2002	4268	-13.8	518	-15.8
2003	3915	-8.3	689	33
2004	3458	-11.7	672	-2.5
Overall Compound Growth		-5.5		5.6

The company is following a stable dividend policy with moderate growth, although the growth itself is not fixed. Oxfam's share price has increased over the four years period by an annual compound rate of 5.6%, much better than the annual fall of 5.5% suffered by all-share index. This does not prove that the dividend policy has been successful. The share price might be influenced by many other factors, especially the potential long-term cash flow expectations of the shareholders. Admittedly, comparison with the all-share index does not measure the performance of Oxfam Ltd. relative to companies in its own industry / sector.

(ii) Additional information might include :

- i. Direct feedback from shareholders, especially institutional shareholders, stating whether or not they are happy with the current dividend policy.
- ii. Full details of the registered shareholders and sizes of holding. Oxfam might have a desired spread of shareholders, which could be influenced by the dividend policy adopted.
- iii. Knowledge of the impact of taxation of dividends on shareholders' attitude and specially on their preferences between dividends and capital gains.
- iv. The impact of dividend payments on corporate liquidity position.
- v. The signals provided by dividend payments about the future financial health of the company. For example, would the fact that the dividend growth is lagging behind the earnings growth be considered a positive or a negative signal.

(iii) $K_e = D_{2000} / P_{2000} = 19.2 / 540 + .053 = .089$

$P_2 = D_{2000} (1 + g) / (K_e - g) = 19.2 (1.053) / (.089 - .053) = 561 \text{ paise}$

[where, K_e = Cost of equity

D = dividend per share = Rs 51.75L / 270 shares = 19.2 paise

P = price of share

G = growth rate of dividend = $r.b = EPS^* / P \times (EPS - DPS^{**}) / EPS$
 $= (47.9 / 540) \times (47.9 - 19.2) / 47.9$
 $= 0.053$

$$\text{EPS} = \text{Rs. } 129.3\text{L} / 270 \text{ L shs} = 47.9 \text{ paise}$$

$$** \text{ DPS} = \text{Rs. } 51.75 \text{ L} / 270 \text{ L shs} = 19.2 \text{ paise}$$

The actual share price of 615 paise as at the end of 2001 in the context of Dividend Growth Model (Gordon's) is obviously overvalued.

Q28. A company invested in a 5 year bond issue of another company in 2000 carrying a coupon rate of 10% per annum. The interest payable at half-yearly rates and the principal repayable after 5 years in 2004 end. The current market yield has fallen to 9% during 2001. The investor company wanted to take advantage of the fall in market yield by selling the bond to any willing buyer. Compute the value of the bond at the end of 2001.

Answer 28.

Par value of each bond is Rs. 1,000

Coupon rate (%) 10 per annum

Value of the bond as at the end of 2001 is equivalent to present value of future cash flow streams from the bond till its maturity discounted at the prevailing market yield (9%). The bond holder will receive half-yearly interests for 2002, 2003 and 2004 and the principal at the end of 2004. Given the market yield in 2001 at 9%.

Value of the bond of Rs. 1000 with a half-yearly interests of Rs. 50 each and repayment of principal of Rs. 1000 at year end 6

$$= 50/1.045 + 50 / (1.045)^2 + 50 / (1.045)^3 + 50 / (1.045)^4 + 50 / (1.045)^5 + 50 / (1.045)^6$$

$$= \text{Rs. } 1025.79.$$

Q.29. Estimate the brand value of the following information technology firm :

(Rs in crores)

Year ended March 31,	2001	2000	1999
PBIT	696.03	325.65	155.86
Non-branded income	53.43	35.23	3.46
Inflation compounded factor @ 8%	1.000	1.087	1.181
Remuneration of capital (5% of average capital employed)	55.57		
Tax @ 39.55%	158.58		
Multiple applied	22.186		

Answer 29.

The computation of Brand value for the IT firm is as follows:

Year end March 31	2001	2000	1999
PBIT	696.03	325.65	155.86
Less- Non-brand income	<u>53.43</u>	<u>35.23</u>	<u>3.46</u>
Adjusted profits	642.60	290.42	152.40
Inflation compound factor @8%	1.00	1.087	1.181
Present value of profits			
Inflation compound factor @8%	1.00	1.087	1.181
Present value of profits			
for the brand	642.60	315.69	179.98
Weightage factor	3	2	1
Weightage profits	1927.80	631.38	179.98
Three years average			
weighted profits	456.53	—	—
Remuneration of Capital			
(5% of average capital Employed)	55.57		
Brand related profits	400.96		
Tax at 39.55%	158.58		
Brand earnings	242.38		
Multiple applied	22.18		
Brand value	Rs. 1336.2 Crore		

Note : The earnings would be reduced by 15% of the debt amount. Since the entire payment for shares is to be out of debt the net earnings of the merged company after providing interest should yield an EPS of Rs. 4 per share.

Q30. (a) A company is considering, raising Rs. 100 lakh by one of the two alternative methods viz; 14 per cent institutional term loan and 13% non-convertible debentures. The term loan portion would attract no major incidental cost. The debentures would have to be issued at a discount of 25% and would involve Rs. 1,00,000 as cost of issue. Advise the company as to the better option based on the effective cost of capital in each case. Assume a tax rate of 35%.

Answer 30. (a)

(i) Cost of 14% institutional term loan = $14 / 100 \times (1 - 0.35) = 9.1\%$

(ii) Cost of 13% non-convertible debentures = $13 / 96.5 \times (1 - 0.35) = 0.0876 = 8.76\%$

Decision : Raising of funds through non-convertible debenture is a better option.

Q30. (b) The managing director of a company decides that his company will not pay any dividends till he survives. His current life expectancy is 20 years. After that time it is expected that the company could pay dividends of Rs. 30 per share indefinitely. At present the firm could afford to pay Rs. 5 per share forever. The required rate of return of this company's shareholders is 10%.

i. What is the current value of the share?

ii. What is the cost to each shareholder of the managing director's policy?

Answer 30. (b)

The value of the share at the end of 20 years is : $P_{20} = 30 / 0.10 = \text{Rs. } 300$

The value today will be : $P_0 = 300 / (1.1)^{20} = 300 (.1486) = \text{Rs. } 44.58$

If the company could pay dividends of Rs 5 per share forever from the beginning, the price would be :

$P_0 = 5 / 0.10 = \text{Rs. } 50$

Thus the cost to each shareholder is the loss arising out of the difference between two prices :

$\text{Rs. } (50 - 44.58) = \text{Rs. } 5.42 \text{ per share.}$

of variation of (P/S) Ratio (0.65) is much lower than that of P/E Ratio (1.52). This means that there is substantially less dispersion of P/S Ratio about the mean than is the with P/E Ratio. Accordingly, we select P/S Ratio as preferable for defining the market.

On the basis of the Rs. 31,00,000 asking price and the Rs. 41,00,000 annual sales, the asking P/S Ratio of Flora Pvt Ltd. is 0.76 (31,00,000 / 41,00,000). Although the asking P/S Ratio of 0.76 for Flora Pvt Ltd. is substantially higher than the 0.55 average for the industry, it is still well below the maximum P/S Ratio of 2.35.

From Table II (given in the question), it can be observed that P/S Ratio of Flora Pvt Ltd. is between 8th and 9th highest of top ten players of the industry. In other words, Flora Pvt Ltd would need to be among the 22% ($8.5 / 35 * 100$) most desirable florist business to justify the asking price of Rs. 31,00,000 with annual gross sales of Rs. 41,00,000. If the sales are likely to hold in the coming years, the price may be $(.85 + .72) / 2 * \text{Rs. } 41 \text{ lakhs} = \text{Rs. } 32.18 \text{ lakhs.}$

Provided the buyer believes that Flora Pvt Ltd. is a superior retail florist (among the top quartile), and the future sales are not likely to fall, the asking price of Rs. 31 lakhs, appears to be reasonable. However the buyer should make sure that the florist's accounts reflect a true and fair view of the business before he arrives at a final decision.