FINAL EXAMINATION

(REVISED SYLLABUS - 2008)

GROUP - IV

Paper-18 : BUSINESS VALUATION MANAGEMENT

Q1. (a) Choose the correct alternative.

(i) P/E rises when :

(A) Growth rises, discount rate falls, reinvestment rate is flat.

(B) Growth falls, discount rate falls, reinvestment rate rises.

(C) Growth exceeds, discount rate and reinvestment rate falls short of growth.

(D) Discount rate falls and reinvestment rate rises.

(ii) The optimal policy for liquidation or divestiture of poor investment is :

(A) Divest when the unit divested is worth more as a stand alone business.

(B) Liquidate when liquidation value > continuing value.

(C) Divest when divestiture value< continuing value.

(D) Liquidate when continuing value>liquidation value.

(iii) In an efficient market the market price is an 'unbiased estimate' of true value of the stocks (shares). This implies that—

(A) The market price always equals the true value.

(B) The market value has no relation to the true value.

(C) Markets make mistakes about true value, which can be exploited by investors to earn profit.

(D) Market prices contain errors, but these being random cannot be exploited by investors.

(iv) The annual coupon bond with duration of 9 years, coupon of 14% and YTM of 15% will have a modified duration of

(A) 6.9 years

(B) 8.18 years

(C) 7.83 years

(D) 9.78 years

(v) Which of the following would be an appropriate model to value a company in the Indian software industry?

(A) Constant growth DDM

(B) Three stage DDM

(C) Two stage DDM

(D) Both (B) and (C) above.

(vi) A major advantage of Price/Sales ratio is that

(A) It can be used to value firms with negative earnings

(B) It can be used to value firms with negative net worth.

(C) Both (A) and (B) above.

(D) It can be used effectively in cyclical industries.

(vii) Under _____ method, increasing shareholders wealth is given maximum importance.

(A) Economic Value Added

(B) Constant growth FCFE model

(C) Dynamic true growth model

(D) Variable growth FCFE model

(viii) Net Present Value of growth investments is zero under

(A) Expansion model

(B) Simple growth model

(C) Negative growth model

(D) H-model

(ix) A company with PAT of ₹ 40 lacs, Tax rate 50%, RONW of 100%, Reserves of ₹ 30 lac and a par value of ₹ 5 will have pre-tax EPS of

(A) ₹ 4.00

(B) ₹ 80.00

(C) ₹ 40.00

(D) Insufficient information.

(x) An increase in which of the following variables will increase the value of a put option and decrease the value of call option.

(A) Current stock price.

(B) Stock volatility

(C) Interest rates.

(D) Cash dividend

Answer 1. (a)

(i) **— (D) Discount rate falls and reinvestment rate rises.**

The P/E ratio (price-to-earnings ratio) of a stock also called its "P/E", or simply "multiple" is a measure of the price paid for a share relative to the annual Earnings per Share. Price of stock will rise if discount rate falls and reinvestment rate increases which in turn will increase the P/E ratio.

(ii) **— (B) Liquidate when liquidation value > continuing value.**

If the liquidated value is greater than the present value of the expected cash flows, the value of the divesting firm will increase on the liquidation.

(iii) **— (D) Market prices contain errors, but these being random cannot be exploited by investors.**

(iv) **— (C) 7.83 years.**

Modified duration = {9/(1+0.15)}

(v) — **(A) Constant growth DDM**

Since the growth of the Indian software industry is abnormal and uneven, constant growth DDM which assumes a constant growth rate in dividend cannot be used to estimate the value of a software company

(vi) — **(C) Both (A) and (B) above.**

Price /Sales ratio is the multiplication of P/E ratio to profit margin. It can be used to value firms with negative earnings and negative net worth

(vii) — **(A) Economic Value Added.**

The theory of Economic Value Added has traditionally suggested that every company's primary goal is to maximize the wealth of shareholders

(viii) — **(A) Expansion model.**

In this model, the rate of return on investment is equal to cost of capital. Therefore the NPV of growth investments is zero.

(ix) — **(C) ₹ 40.00.**

PBT = 80 lac, i.e 40/.5, RONW = PAT/NW = 40/NW = 100%, So NW = 40 lac, Value of equity shares = 40-30 = 10 lac,No. of shares = 10/5 = 2 lac, So Pre tax EPS = 80/2=40 lac)

(x) — **(D) Cash dividend.**

Once cash dividends are paid, the stock prices will come down. As a result, the values of put option and call option on stock increases and decreases respectively.

Q 1. (b) State whether following statements are True (T) or False (F).

(i) An option is a wasting asset.

(ii) Price/Bok value ratio is negative function of ROE.

(iii) Immunisation refers to elimination of reinvestment risks and price risks.

(iv) A growth stock is usually indicated by very high EPS.

(v) Premium paid by a target company to buy back its stock from a potential acquirer is called whitemail.

(vi) Brand value need not be amortized.

(vii) Intrinsic value of share is a subjective concept and cannot be measured.

(viii) Employee benefits are treated as long-term liabilities.

(ix) The CAPM model assumes perfect market competition.

(x) Insurable Value of real property doesnot include site value.

Answer 1. (b)

(i) **True.** In investing, options are the most common type of wasting asset. An option's value has two components: a time value and an intrinsic value. As the option's expiration date nears, the time value of the option gradually declines to zero. At expiration, an option is worth only its intrinsic value.

(ii) **False.** Price-to-book value (P/B) is the ratio of market price of a company's shares (share price) over its book value of equity. P/B ratio is positively related to ROE.

(iii) **True.** The aim of the immunization strategy is to match the duration of assets to the duration of liabilities, with the two ultimately being offset by each other. In the case of fixed-income instruments, such as bonds, immunization seeks to limit changes to the price and reinvestment risk.

(iv) **False.** A growth stock is usually indicated by high market discounting.

(v) **False.** It is called greenmail.

(vi) **True.** Brands may be deemed to have an indefinite useful life and are therefore not subject to amortization.

(vii) **False.** Intrinsic value is measured as Net Assets of a Company /No. of shares.

(viii) **True.** Employers provide benefits in form of wages and salaries as well as pensions, life insurance, and other perquisites and obligations created by these benefits are extensive, and need to be treated as long term liabilities.

(ix) **True.** The Capital Asset Pricing Model (CAPM) is an economic model for valuing stocks, shares and securities.All assets are perfectly divisible and priced in a perfectly competitive market. In this model another assumption is that the number of assets are fixed in a portfolio.

(x) **True.** It is the value of real property covered by an insurance policy. Generally it does not include the site value.

Q 1.(c) Fill in the blanks with appropriate words :

(i) In valuing a firm, the _____ tax rate should be applied to earnings of every period.(marginal/effective/average)

(ii) An investment is risk-free when actual returns are always _____ the expected returns. (less than/equal to/more than)

(iii) Shares of listed companies which are traded on the stock exchange are ———————(quoted/unquoted).

(iv) A negative Economic Value Added indicates that the firm is _____ value. (creating/destroying)

(v) In _____ , a firm separates out assets or division, creates shares with claims on these assets and sells them to public. (spin off/split up/equity carve out).

(vi) Organisational Capital is a _____ component of Intellectual Capital. (primary/secondary)

(vii) β factor does not measure unsystematic risk _____ . (systematic/unsystematic)

(viii) In balance sheet, equity and fixed assts are expressed in terms of their _____ (market value/book value/replacement value)

(ix) Assets held as stock in trade are not _____ (investments/disinvestments).

(x) Post merger control and the _____ are two of the most important issues in agreeing on the terms of merger. (calculated price/negotiated price)

Answer 1. (c)

(i) **marginal** — The marginal tax rate is assumed to say constant over time.

(ii) **equal to**

(iii) **quoted** — Quoted shares are valued and reported at market values.

(iv) **destroying**

(v) **equity carve out** — The creation of an independent company through the sale or distribution of new shares of an existing business/division of parent company. A spinoff is a type of divestiture. Split up is a corporate action in which a single company splits into two or more separately run companies.

(vi) **primary** —Organizational capital includes the organization philosophy and systems for leveraging the organization's capability.

(vii) **unsystematic** — Unsystematic risk is measured through the mitigation of the systematic risk factor through diversification of your investment portfolio. The systematic risk of an investment is represented by the company's beta coefficient.

(viii) **book value**

(ix) **investments**

(x) **negotiated price**

Q. 2. (a) What do you mean by valuation bias? How do you minimize valuation bias?

(b) Derive the fair value of share of DEF Ltd. based on Balance Sheet of the company as on 31st March, 2012 and other information given below :

Liability	₹	Assets	₹
Equity share capital (5 lac Shares @ ₹ 15 each)	75,00,000	Land	21,00,000
General Reserve	22,50,000	Building	34,50,000
Debentures (14%)	15,00,000	Plant & Machinery	42,00,000
Sundry Creditors	7,50,000	Sundry Debtors	9,00,000
Bank O/D	6,00,000	Inventory	12,00,000
Provision for Taxation	1,50,000	Cash and Bank	3,00,000
		Patents and Trade marks	4,50,000
		Prelimijnary Expenses	1,50,000
	1,27,50,000		1,27,50,000

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

2009	1800000
2010	2250000
2011	3150000
2012	3450000

Every year the company transfers 30% of its profits to the General Reserve.The average rate of return for the industry is 27% of share value.

On 31st March ,2012 an independent expert valuer assessed the value of assets as follows :

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

Answer 2. (a)

We start valuing a firm with certain assumptions and preconceived conditions. All too often, our views on a company are formed before we start inserting the numbers into the financial/econometric models that we use and not surprisingly, our conclusions tend to reflect our biases.

The bias in valuation starts with the companies we choose to value. These choices are almost never random, and how we make them can start laying the foundation for bias. It may be that we have read something in the press (good or bad) about the company or heard from an expert that it was under or overvalued. Thus, we already begin with a perception about the company that we are about to value. We

add to the bias when we collect the information we need to value the firm. The annual report and other financial statements include not only the accounting numbers but also management discussions of performance, often putting the best possible spin on the numbers. With many larger companies, it is easy to access what other analysts following the stock think about these companies.

Bias cannot be regulated or legislated out of existence. Analysts are human and bring their biases to the table. However, there are ways in which we can mitigate the effects of bias on valuation :

Reduce institutional pressures : A significant portion of bias can be attributed to institutional factors. Equity research analysts in the 1990s, for instance, in addition to dealing with all of the standard sources of bias had to grapple with the demand from their employers that they bring in investment banking business. Institutions that want honest sell-side equity research should protect their equity research analysts who issue sell recommendations on companies, not only from irate companies but also from their own sales people and portfolio managers.

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

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

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

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

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

Answer 2. (b)

Calculation of share value based on net assets method :

Assets	₹
Land	39,00,000
Buildings	60,00,000
Plant and Machinery	48,00,000
Debtors(excluding bad debts)	7,50,000
Inventory	12,00,000
Cash & Bank	3,00,000
Patents and Trade marks	3,00,000
	1,72,50,000
Less : **Liabilities :**	
Debentures (14%)	15,00,000
Sundry Creditors	7,50,000
Bank O/D	6,00,000
Provision for Taxation	1,50,000
Net Assets	1,42,50,000

Intrinsic value of share = Net assets/No.of shares
= ₹ 14250000/500000
= ₹ 28.50

Calculation of share value based on dividend yield method :

	₹
Total profits of last 4 years	1,06,50,000
Less : Bad debts	1,50,000
Total	1,05,00,000
Average profit (₹ 10500000/4)	26,25,000
Less : Transfer to reserve (30% of ₹ 2625000)	7,87,500
Profit available for dividend	18,37,500

Rate of dividend = 1837500/7500000 × 100 = 24.5%

Valuation of share based on yield method = $\frac{\text{Rate of dividend}}{\text{Normal rate of return}}$ × Normal value of share.
= 24.5/27 × 15
= ₹ 13.61

Fair value of share = ₹ (28.50+13.61)/2
= ₹ 21.06

Q. 3. (a) How would you value a firm?

(b) PQR Ltd., has undertaken a project for expansion of capacity as per the following details :

	Plan ₹	Actual ₹
April, 2011	**2,00,000**	**2,00,000**
May, 2011	**2,00,000**	**3,00,000**
June, 2011	**10,00,000**	**–**
July, 2011	**1,00,000**	**–**
August, 2011	**2,00,000**	**1,00,000**
September, 2011	**5,00,000**	**7,00,000**

The company pays to its bankers at the rate of 12% p.a., interest being debited on a monthly basis. During the half year company had ₹ 10 lacs overdraft upto 31st July, surplus cash in August and again overdraft of over ₹ 10 lacs from 1.9.2011. The company had a strike during June and hence could not continue the work during June. Work was again commenced on 1st July and all the works were completed on 30th September. Assume that expenditure were incurred on 1st day of each month.

Calculate :

(i) Interest to be capitalised.

(ii) Give reasons wherever necessary.

Assume :

(a) Overdraft will be less, if there is no capital expenditure.

(b) The Board of Directors based on facts and circumstances of the case has decided that any capital expenditure taking more than 3 months as substantial period of time.

Answer 3. (a)

Enterprise Valuation :

Valuation of the enterprise, which includes all equity, preference shareholders and debt holders. The value of the firm is obtained by discounting expected cash flows to the firm, i.e., the residual cash flows after meeting all operating expenses, reinvestment needs and taxes, but prior to any payments to either debt or equity holders, at the weighted average cost of capital, which is the cost of the different components of financing used by the firm, weighted by their market value proportions.

$$\textit{Value of Firm} = \sum_{t=1}^{t=n} \frac{\text{CF to Equity} - t}{(1+\text{WACC})^t}$$

Where,

CF to Firm = Expected Cash flows to Firm in period *t*

And WACC = Weighted average cost of capital

Answer 3. (b)

XYZ Ltd.

Month	Actual Expenditure ₹	Interest Capitalised ₹	Cumulative Amount ₹	
April, 2011	2,00,000	2,000	2,02,000	
May, 2011	3,00,000	5,020	5,07,020	
June, 2011	–	5,070	5,12,090	Note 2
July, 2011	–	5,120	5,17,210	
August, 2011	1,00,000	–	6,17,210	Note 3
September, 2011	7,00,000	10,000	13,27,210	Note 4
	13,00,000	27,210	13,27,210	

Note :

1. There would not have been overdraft, if there is no capital expenditure. Hence, it is a case of specific borrowing as per AS 16 on Borrowing Costs.
2. The company had a strike in June and hence could not continue the work during June. As per para 14 (c) of AS 16, the activities that are necessary to prepare the asset for its intended use or sale are in progress. The strike is not during extended period. Thus during strike period, interest need to be capitalised.
3. During August, the company did not incur any interest as there was surplus cash in August. Therefore, no amount should be capitalised during August as per para 14(b) of AS 16.
4. During September, it has been taken that actual overdraft is ₹ 10 lacs only. Hence, only ₹ 10,000 interest has been capitalised even though actual expenditure exceeds ₹ 10 lacs.

   Alternatively, interest may be charged on total amount of (₹ 6,17,210 + ₹ 7,00,000 = 13,17,210) for the month of September, 2011 as it is given in the question that overdraft was over ₹ 10 lacs from 1.9.2011 and not exactly ₹ 10 lacs. In that case, interest amount ₹ 13,172 will be capitalised for the month of September.

Q. 4. (a) In May, 2011 SDC Ltd. took a bank loan to be used specifically for the construction of a new factory building. The construction was completed in January, 2012 and the building was put to its use immediately thereafter. Interest on the actual amount used for construction of the building till its completion was ₹ 18 lacs, whereas the total interest payable to the bank on the loan for the period till 31st March, 2012 amounted to ₹ 25 lacs.

Can ₹ 25 lacs be treated as part of the cost of factory building and thus be capitalized on the plea that the loan was specifically taken for the construction of factory building?

(b) S Ltd. expects that a plant has become useless which is appearing in the books at ₹ 20 lacs gross value. The company charges SLM depreciation on a period of 10 years estimated life and estimated scrap value of 3%. At the end of 7th year the plant has been assessed as useless. Its estimated net realizable value is ₹ 6,20,000. Determine the loss/gain on retirement of the fixed assets.

(c) M Ltd. has equity capital of ₹ 40,00,000 consisting of fully paid equity shares of ₹ 10 each. The net profit for the year 2004-05 was ₹ 60,00,000. It has also issued 36,000, 10% convertible debentures of ₹ 50 each. Each debenture is convertible into five equity shares. The tax rate applicable is 30%. Compute the diluted earnings.

Answer 4. (a)

AS 16 clearly states that capitalization of borrowing costs should cease when substantially all the activities necessary to prepare the qualifying asset for its intended use are completed. Therefore, interest on the amount that has been used for the construction of the building upto the date of completion (January, 2012) i.e. ₹ 18 lacs alone can be capitalized. It cannot be extended to ₹ 25 lacs.

Answer 4. (b)

Cost of the plant	₹ 20,00,000
Estimated realizable value	₹ 60,000
Depreciable amount	₹ 19,40,000
Depreciation per year	₹ 1,94,000

Written down value at the end of 7th Year = 20,00,000-(1,94,000×7) = ₹ 6,42,000.

As per Para 14.2 of AS-10, items of fixed assets that have been retired from active use and are held for disposal are stated at the lower of their net book value and net realizable value and are shown separately in the financial statements. Any expected loss is recognized immediately in the profit and loss statement. Accordingly, the loss of ₹ 22,000 (6,42,000 – 6,20,000) to be shown in the profit and loss account and asset of ₹ 6,20,000 to be shown in the balance sheet separately.

Answer 4. (c)

Interest on Debentures @ 10% for the year $= 36,000 \times 50 \times \frac{10}{100}$

= ₹ 1,80,000

Tax on interest @ 30% = ₹ 54,000

Diluted Earnings (Adjusted net profit) = (60,00,000 + 1,80,000 – 54,000)

= ₹ 61,26,000

Q. 5. (a) P Ltd. is considering the proposal to acquire Q Ltd. and their financial information is given below :

Particulars	P Ltd.	Q Ltd.
No. of Equity shares	10,00,000	6,00,000
Market price per share (₹)	30	18
Market Capitalization (₹)	3,00,00,000	1,08,00,000

P Ltd. intend to pay ₹ 1,40,00,000 in cash for Q Ltd., if Q Ltd.'s market price reflects only its value as a separate entity. Calculate the cost of merger : (i) When merger is financed by cash (ii) When merger is financed by stock.

(b) (i) Explain the term 'Demerger'?

(ii) What do you mean by Reverse Merger?

Answer 5. (a)

(i) **Cost of Merger, when Merger is Financed by Cash = (Cash – MVQ) + (MVQ – PVQ)**

Where,

MVQ = Market value of Q Ltd.

PVQ = True/intrinsic value of Q Ltd.

Then, = (1,40,00,000 – 1,08,00,000) + (1,08,00,000 – 1,08,00,000) = ₹ 32,00,000

If cost of merger becomes negative then shareholders of P Ltd. will get benefited by acquiring Q Ltd. in terms of market value.

(ii) **Cost of Merger when Merger is Financed by Exchange of Shares in P Ltd. to the shareholders of Q Ltd.**

Cost of merger = PVPQ – PVQ

Where,

PVPQ = Value in P Ltd. that Q Ltd.'s shareholders get.

Suppose P Ltd. agrees to exchange 5,00,000 shares in exchange of shares in Q Ltd., instead of payment in cash of ₹ 1,40,00,000. Then the cost of merger is calculated as below :

= (5,00,000 × ₹ 30) – ₹ 1,08,00,000 = ₹ 42,00,000

PVPQ = PVP + PVQ= 3,00,00,000 + 1,08,00,000 = ₹ 4,08,00,000

Proportion that Q Ltd.'s shareholders get in P Ltd.'s Capital structure will be :

= 500000/(10,00,000+5,00,000) = 0.333

True Cost of Merger = PVPQ – PVQ

= (0.333 × 4,08,00,000) – 1,08,00,000 = ₹ 28,00,000

The cost of merger i.e., ₹ 42,00,000 as calculated above is much higher than the true cost of merger ₹ 28,00,000. With this proposal, the shareholders of Q Ltd. will get benefited.

Note :

(1) When the cost of merger is calculated on the cash consideration and when cost of merger is unaffected by the merger gains.

(2) But when merger is based on the exchange of shares then the cost of merger depends on the gains which has to be shared with the shareholder of Q Ltd.

Answer 5. (b)

(i) It has been defined as a split or division. As the same suggests, it denotes a situation opposite to that of merger. Demerger or spin-off, as called in US involves splitting up of conglomerate (multi-division) of company into separate companies.

This occurs in cases where dissimilar business are carried on within the same company, thus becoming unwieldy and cyclical almost resulting in a loss situation. Corporate restructuring in such situation in the form of demerger becomes inevitable. Merger of SG chemical and Dyes Ltd. with Ambalal Sarabhai enterprises Ltd. (ASE) has made ASE big conglomerate which had become unwieldy and cyclic, so demerger of ASE was done.

A part from core competencies being main reason for demerging companies according to their nature of business, in some cases, restructuring in the form of demerger was undertaken for splitting up the family owned large business empires into smaller companies.

The historical demerger of DCM group where it split into four companies (DCM Ltd., DCM Shriram Industries Ltd., Shriram Industrial Enterprise Ltd. and DCM Shriram Consolidated Ltd.) is one example of family units splitting through demergers. Such demergers are accordingly, more in the nature of family settlements and are affected through the courts order.

Thus, demerger also occur due to reasons almost the same as mergers i.e. the desire to perform better and strengthen efficiency, business interest and longevity and to curb losses, wastage and competition. Undertakings demerge to delineate businesses and fix responsibility, liability and management so as to ensure improved results from each of the demerged unit.

Demerged Company, according to Section (19AA) of Income Tax Act, 1961 means the company whose undertaking is transferred, pursuant to a demerger to a resulting company.

Resulting company, according to Section2(47A) of Income Tax Act,1961 means one or more company, (including a wholly owned subsidiary thereof) to which the undertaking of the demerged company is transferred in a demerger, and the resulting company in consideration of such transfer of undertaking issues shares to the shareholders of the demerged company and include any authority or body or local authority or public sector company or a company established, constituted or formed as a result of demerger.

(ii) Normally, a small company merges with large company or a sick company with healthy company. However in some cases, reverse merger is done. When a healthy company merges with a sick or a small company is called reverse merger. This may be for various reasons. Some reasons for reverse merger are :

(a) The transferee company is a sick company and has carry forward losses and Transferor Company is profit making company. If Transferor Company merges with the sick transferee company, it gets advantage of setting off carry forward losses without any conditions. If sick company merges with healthy company, many restrictions are applicable for allowing set off.

(b) The transferee company may be listed company. In such case, if Transferor Company merges with the listed company, it gets advantages of listed company, without following strict norms of listing of stock exchanges.

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

Q. 6. (a) RST Ltd., is considering merger with PQR Ltd. RST Ltd.'s shares are currently traded at ₹ 20. It has 2,50,000 shares outstanding and its earnings after taxes (EAT) amount to ₹ 5,00,000. PQR Ltd., has 1,25,000 shares outstanding; its current market price is ₹ 10 and its EAT are ₹ 1,25,000. The merger will be effected by means of a stock swap (exchange). PQR Ltd., has agreed to a plan under which RST Ltd., will offer the current market value of PQR Ltd.'s shares :

(i) What is the pre-merger earnings per share (EPS) and P/E ratios of both the companies?

(ii) If PQR Ltd.'s P/E ratio is 6.4, what is its current market price? What is the exchange ratio? What will RST Ltd.'s post-merger EPS be?

(iii) What should be the exchange ratio, if RST Ltd.'s pre-merger and post-merger EPS are to be the same?

(b) ABC 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 currently year's earnings is ₹ 10 per share.

At what price will the stock of ABC Ltd. sell? What is the present value of growth opportunities? Why would such a firm be a takeover target?

Answer 6. (a)

(i) Pre-merger EPS and P/E ratios of RST Ltd. and PQR Ltd.

Particulars	RST Ltd.	PQR Ltd.
Earning after taxes	5,00,000	1,25,000
Number of shares outstanding	2,50,000	1,25,000
EPS	2	1
Market Price per share	20	10
P/E Ratio (times)	10	10

(ii) Current Market Price of PQR Ltd. if P/E ratio is 6.4 = ₹ 1 × 6.4 = ₹ 6.40

Exchange ratio = $\frac{₹\ 20}{6.40}$ = 3.125

Post merger EPS of RST Ltd.

$$= \frac{₹\ 5,00,000 + ₹\ 1,25,000}{₹\ 2,50,000 + (₹\ 1,25,000 / 3.125)}$$

$$= \frac{₹\ 6,25,000}{₹\ 2,90,000} = 2.16$$

(iii) Desired exchange ratio

Total number of shares in post-merged company

$$= \frac{\text{Post-merger earnings}}{\text{Pre-merger EPS of XYZ Ltd}} = \frac{₹\ 6,25,000}{2} = 3,12,500$$

Number of shares required to be issued

= 3,12,500 – 2,50,000 = 62,500

Therefore, the exchange ratio is

62,500: 1,25,000

$$= \frac{62,500}{1,25,000} = 0.50$$

Answer 6. (b)

Dividend growth rate (G)

G = ROE × b

Where,

b = 1 - Pay out ratio

G = 10% × 0.60 = 6%

Stock price of ABC Ltd.

= (10 × 0.4)/(0.15 × 0.06) = 4/0.009 = ₹ 44.44

Present Value of Growth Opportunities (PVGO)

= Market price per share - No growth value per share

= ₹ 44.44 - (₹ 10/0.15)

= ₹ 44.44 - ₹ 66.66 = ₹ 22.22 (negative PVGO)

Reasons for takeover target

Negative PVGO implies that the net present value of the firm's projects is negative: the rate of return on this asset 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 ₹ 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 ₹ 66.66.

Q. 7. (a) The following information is provided related to the acquiring company MM Limited and the target company PP Limited :

	MM Ltd.	*PP Ltd.*
Earning after tax (₹)	**2,000 lacs**	**400 lacs**
Number of shares outstanding	**200 lacs**	**100 lacs**
P/E ratio (times)	**10**	**5**

***Required* :**

(i) What is the Swap Ratio based on current market prices?

(ii) What is the EPS of MM Limited after acquisition?

(iii) What is the expected market price per share of MM Limited after acquisition, assuming P/E ratio of MM Limited remains unchanged?

(iv) Determine the market value of the merged firm.

(v) Calculate gain/loss for shareholders of the two independent companies after acquisition.

(b) Explain the term 'Buy-Outs'.

Answer 7. (a)

Particulars	**MM Ltd.**	**PP Ltd.**
EPS	₹ 2,000 Lacs/200 lacs = ₹ 10	₹ 400 lacs/100 lacs ₹ 4
Market Price	₹ 10 × 10 = ₹ 100	₹ 4 × 5 = ₹ 20

(i) The Swap ratio based on current market price is
₹ 20 / ₹ 100 = 0.2 or 1 share of MM Ltd. for 5 shares of PP Ltd.
No. of shares to be issued = ₹ 100 lac × 0.2 = ₹ 20 lacs.

(ii) EPS after merger

$$= \frac{₹\ 2{,}000\ \text{lacs} + ₹\ 400\ \text{lacs}}{200\ \text{lacs} + 20\ \text{lacs}}$$

= ₹ 10.91

(iii) Expected market price after merger assuming P / E 10 times.
= ₹ 10.91 × 10 = ₹ 109.10

(iv) Market value of merged firm
= ₹ 109.10 market price × 220 lacs shares = 240.02 crores

(v) Gain from the merger
Post merger market value of the merged firm ₹ 240.02 crores
Less : Pre-merger market value

MM Ltd. 200 Lacs × ₹ 100	= 200 crores	
PP Ltd. 100 Lacs × ₹ 20	= 20 crores	₹ 220.00 crores
Gain from merger	₹ 20.02 crores	

Appropriation of gains from the merger among shareholders :

	MM Ltd.	**PP Ltd.**
Post merger value	218.20 crores	21.82 crores
Less : Pre-merger market value	200.00 crores	20.00 crores
Gain to Shareholders	18.20 crores	1.82 crores

Answer 7. (b)

A very important phenomenon witnessed in the Mergers and Acquisitions scene, is one of buy - outs. A buy-out happens when a person or group of persons gain control of a company by buying all or a majority of its shares. A buyout involves two entities, the acquirer and the target company. The acquirer seeks to gain controlling interest in the company being acquired normally through purchase of shares. There are two common types of buy-outs: Leveraged Buyouts (LBO) and Management Buy-outs (MBO). LBO is the purchase of assets or the equity of a company where the buyer uses a significant amount of debt and very little equity capital of his own for payment of the consideration for acquisition. MBO is the purchase of a business by its management, who when threatened with the sale of its business to third parties or frustrated by the slow growth of the company, step-in and acquire the business from the owners, and run the business for themselves. The majority of buy-outs are management buy-outs and involve the acquisition

by incumbent management of the business where they are employed. Typically, the purchase price is met by a small amount of their own funds and the rest from a mix of venture capital and bank debt.
Internationally, the two most common sources of buy-out operations are divestment of parts of larger groups and family companies facing succession problems. Corporate groups may seek to sell subsidiaries as part of a planned strategic disposal programme or more forced reorganisation in the face of parental financing problems. Public companies have, however, increasingly sought to dispose off subsidiaries through an auction process partly to satisfy shareholder pressure for value maximisation.
In recessionary periods, buy-outs play a big part in the restructuring of a failed or failing businesses and in an environment of generally weakened corporate performance often represent the only viable purchasers when parents wish to dispose off subsidiaries.
Buy-outs are one of the most common forms of privatisation, offering opportunities for enhancing the performances of parts of the public sector, widening employee ownership and giving managers and employees incentives to make best use of their expertise in particular sectors.

Q. 8. (a) A conveyor system was capitalized on 01-01-11 with value of ₹ 82.74 lacs. The break-up of the capital cost was as follows :

	₹ in lacs
Civil & Mechanical structure	**23.44**
Driving units and pluming	**10.80**
Rope	**5.66**
Belt	**22.34**
Safety and electrical equipments	**12.30**
Other accessories	**8.20**
	82.74

During the financial year 2011-2012 due to wear and tear, the rope used in the conveyor system was replaced by a new one at cost of ₹ 16 crores. As new rope did not increase the capacity and is a component of the total assets. The company charged the full cost of the new rope to repairs and maintenance. Old rope continues to appear in the books of account and is charged with depreciation every year. Whether the above accounting treatment is correct. If not, give the correct accounting treatment with explanation.

(b) A Limited company has been including interest in the valuation of closing stock. In 2011-2012, the management of the company decided to follow AS 2 and accordingly interest has been excluded from the valuation of closing stock. This has resulted in a decrease in profits by ₹ 3,00,000. Is a disclosure necessary? If so, draft the same.

Answer 8. (a)

As per Para 23 of AS-10 - Subsequent" expenditure relating to an item of fixed asset

should be added to its book value only if it increases the future benefits from the existing asset beyond its previously assessed standard of performance. In the instant case, the new replaced rope does not increase the future benefits from the assets beyond their previously assessed performance, therefore the cost of replacement of rope should be charged to revenue, however in doing so the estimated scrap value of the old rope should be deducted from the cost of new rope.

Answer 8. (b)

As per AS 5 (Revised), change in accounting policy can be made for many reasons, one of these is for compliance with an accounting standard. In the instant case, the company has changed its accounting policy in order to conform with the AS 2 (Revised) on Valuation of Inventories. Therefore, a disclosure is necessary in the following lines by way of notes to the annual accounts for the year 2011-2012.

Q. 9. (a) An unquoted long term investment is carried in the books at a cost of ₹ 2 lacs. The published accounts of the unlisted company received in May, 2011 showed that the company was incurring cash losses with declining market share and the long term investment may not fetch more than ₹ 20,000. How would you deal with this in Financial Statements.

(b) Discuss the various kinds of Systematic and Unsystematic risk?

Answer 9. (a)

Investments classified as long term investments should be carried in the financial statements at cost. However, provision for diminution shall be made to recognize a decline, other than temporary, in the value of the investments, such reduction being determined and made for each investment individually. Para 17 of AS 13 'Accounting for Investments' states that indicators of the value of an investment are obtained by reference to its market value, the investee's assets and results and the expected cash flows from the investment. On these bases, the facts of the given case clearly suggest that the provision for diminution should be made to reduce the carrying amount of long term investment to ₹ 20,000 in the financial statements for the year ended 31st March, 2012.

Answer 9. (b)

There are two types of Risk - Systematic (or non-diversifiable) and unsystematic (or diversifiable) relevant for investment - also, called as general and specific risk.

Types of Systematic Risk

(i) *Market risk :* Even if the earning power of the Corporate sector and the interest rate structure remain more or less unchanged prices of securities, equity shares in particular, tend to fluctuate. Major cause appears to be the changing psychology of the investors. The irrationality in the security markets may cause losses unrelated to the basic risks. These losses are the result of changes in the general tenor of the market and are called market risks.

(ii) *Interest Rate Risk :* The change in the interest rate have a bearing on the welfare of the investors. As the interest rate goes up, the market price of existing fixed income securities falls and vice versa. This happens because the buyer of a fixed income security would not buy it at its par value or face value if its fixed interest rate is lower than the prevailing interest rate on a similar security.

(iii) *Social or Regulatory Risk :* The social or regulatory risk arises, where an otherwise profitable investment is impaired as a result of adverse legislation, harsh regulatory climate, or in extreme instance nationalization by a socialistic government.

(iv) *Purchasing Power Risk :* Inflation or rise in prices lead to rise in costs of production, lower margins, wage rises and profit squeezing etc. The return expected by investors will change due to change in real value of returns.

Types of Unsystematic Risk

(i) *Business Risk :* As a holder of corporate securities (equity shares or debentures) one is exposed to the risk of poor business performance. This may be caused by a variety of factors like heigthtened competition, emergence of new technologies, development of substitute products, shifts in consumer preferences, inadequate supply of essential inputs, changes in governmental policies and so on. Often of course the principal factor may be inept and incompetent management.

(ii) *Financial Risk :* This relates to the method of financing, adopted by the company, high leverage leading to larger debt servicing problem or short term liquidity problems due to bad debts, delayed receivables and fall in current assets or rise in current liabilities.

(iii) *Default Risk :* Default risk refers to the risk accruing from the fact that a borrower may not pay interest and/or principal on time. Except in the case of highly risky debt instrument, investors seem

to be more concerned with the perceived risk of default rather than the actual occurrence of default. Even though the actual default may be highly unlikely, they believe that a change in the perceived default risk of a bond would have an immediate impact on its market price.

Q. 10. (a) As an investment manager you are given the following information:

Investment in equity shares of		Initial price	Dividends	Market price at the end of the year	Beta risk factor
		₹	₹	₹	₹
X.	Cement Ltd.	25	2	50	0.8
	Steel Ltd.	35	2	60	0.7
	Liquor Ltd.	45	2	135	0.5
Y.	Government of India Bonds	1,000	140	1,005	0.99
	Risk free return may be taken at 14%				

You are required to calculate :

(i) Expected rate of returns of portfolio in each using Capital Asset Pricing Model (CAPM).

(ii) Average return of portfolio.

(b) An investor is holding 1,000 shares of FGB Ltd. Presently the rate of dividend being paid by the company is ₹ 2 per share and the share is being sold at ₹ 25 per share in the market. However, several factors are likely to change during the course of the year as indicated below :

	Existing	Revised
Risk free rate	12%	10%
Market risk premium	6%	4%
Beta value	1.4	1.25
Expected growth rate	5%	9%

In view of the above factors whether the investor should buy, hold or sell the shares? And why?

Answer 10. (a)

(i) Let us first calculate the Expected return on Market portfolio which is not given in the question paper.

		Total Investment ₹	Dividends ₹	Capital gains ₹
X.	Cement Ltd.	25	2	25
	Steel Ltd.	35	2	25
	Liquor Ltd.	45	2	90
Y.	Government of India Bonds	1,000	140	5
	Total	1,105	146	145

Expected return on market portfolio = $₹ \frac{146+145}{1,105}$ = ₹ 26.33%

Capital Asset Pricing Model :

E(Rp) = Rf + Bp [E (RM – Rf]

Where,

E(Rp) = Expected return of the portfolio

Rf = Risk free rate of return

Bp = Portfolio beta i.e. market sensitivity index

E (RM) = Expected return on market portfolio.

[E (RM – Rf] = Market risk premium.

By substituting the figures in the above equation we can calculate expected rate of returns of portfolio in each using Capital Assets Pricing Model (CAPM) as under :

Cement Ltd. = 14 + 0.8 (26.33 – 14) = 23.86%

Steel Ltd. = 14 + 0.7 (26.33 – 14) = 22.63%

Liquor Ltd. = 14 + 0.5 (26.33 – 14) = 20.17%

Government of India Bonds = 14 + 0.99 (26.33 – 14) = 26.21%

(ii) Average return of the portfolio

$$= \frac{23.86 + 22.63 + 20.17 + 26.21}{4} = 23.22\%$$

OR

Average of Betas

= (0.8 + 0.7 + 0.5 + 0.99)/4 = 0.7475

Average return = 14 + 0.7475 (26.33 – 14) = 23.22%

Answer 10. (b)

On the basis of existing and revised factors, rate of return and price of share is to be calculated.

Existing rate of return

$= R_f + \text{Beta}\ (R_m - R_f)$

= 12% + 1.4 (6%) = 20.4%

Revised rate of return

= 10% + 1.25 (4%) = 15%

Price of share (original)

$$P_o = \frac{D(1+g)}{K_e - g} = \frac{2(1.05)}{.204 - .05} = \frac{2.10}{.154} = ₹ 13.63$$

Price of share (Revised)

$$P_o = \frac{2(1.09)}{.15 - .09} = \frac{2.18}{.06} = ₹ 36.33$$

In case of existing market price of ₹ 25 per share, rate of return (20.4%) and possible equilibrium price of share at ₹ 13.63, this share needs to be sold because the share is overpriced (₹ 25 – 13.63) by ₹ 11.37. However, under the changed scenario where growth of dividend has been revised at 9% and the return though decreased at 15% but the possible price of share is to be at ₹ 36.33 and therefore, in order to expect price appreciation to ₹ 36.33 the investor should hold the shares, if other things remain the same.

Q. 11. (a) KMD Co. Ltd., has obtained an Institutional Loan of ₹ 680 lacs for modernisation and renovation of its plant & machinery, Plant & machinery acquired under the modernisation scheme and installation completed on 31.3.12 amounted to ₹ 520 lacs, 30 lacs has been advanced to suppliers for additional assets and the balance loan of ₹ 130 lacs has been utilized for working capital purpose. The total interest paid for the above loan amounted to ₹ 62 lacs during 2011-12.

You are required to state how the interest on the institutional loan is to be accounted for in the year 2011-12.

(b) The 6-months forward price of a security is ₹ 208.18. The borrowing rate is 8% per annum payable with monthly rests. What should be the spot price?

Answer 11. (a)

The treatment for total interest amount of ₹ 68 lacs can be given as follows :

Purpose	**Nature**	**Interest to be capitalized** ₹ in lacs	**Interest to be charged to profit and loss account** ₹ in lacs
Modernisation and renovation of plant and machinery	Qualifying asset*	$\frac{62\times520}{680}=47.41$	
Advance to suppliers for additional assets	Qualifying asset*	$\frac{62\times30}{680}=2.74$	
Working Capital	Not a qualifying asset		$\frac{62\times130}{680}$ = 11.85
		50.15	11.85

* As per para 6 of AS 16 'Borrowing Costs', borrowing costs that are directly attributable to the acquisition, construction or production of a qualifying asset should be capitalized as part of the cost of that asset. Other borrowing costs should be recognized as an expense in the period in which they are incurred. Borrowing costs should be expensed except where they are directly attributable to acquisition, construction or production of qualifying asset.

A qualifying asset is an asset that necessary takes a substantial period of time to get ready for its intended use or sale.

Answer 11. (b)

Calculation of spot price

The formula for calculating forward price is :

A = P (1+r/n) raised to nt Where A = Forward price
P = Spot Price
r = rate of interest
n = no. of compoundings
t = time

Using the above formula,

208.18 = P (1 + 0.08/12) raised to 6

Or 208.18 = P × 1.0409

P = 208.18/1.0409 = 200

Hence, the spot price should be ₹ 200

Q. 12. Given below is the Balance Sheet of KLM Ltd. as on 31.3.2012 :

Liabilities	₹ (in lacs)	Assets	₹ (in lacs)
Share capital	100	Land and building	40
(share of ₹ 10)		Plant and machinery	80
Reserves and surplus	40	Investments	10
Creditors	30	Stock	20
		Debtors	15
		Cash at bank	5
	170		170

You are required to work out the value of the Company's, shares on the basis of Net Assets method and Profit-earning capacity (capitalization) method and arrive at the fair price of the shares, by considering the following information :

(i) Profit for the current year ₹ 64 lacs includes ₹ 4 lacs extraordinary income and ₹ 1 lac income from investments of surplus funds; such surplus funds are unlikely to recur.

(ii) In subsequent years, additional advertisement expenses of ₹ 5 lacs are expected to be incurred each year.

(iii) Market value of Land and Building and Plant and Machinery have been ascertained at ₹ 96 lacs and ₹ 100 lacs respectively. This will entail additional depreciation of ₹ 6 lacs each year.

(iv) Effective Income-tax rate is 30%.

(v) The capitalization rate applicable to similar businesses is 15%.

Answer 12. (a)

	₹ lacs
Net Assets Method	
Assets : Land & Buildings	96
Plant & Machinery	100
Investments	10
Stocks	20
Debtors	15
Cash & Bank	5
Total Assets	246
Less: Creditors	30
Net Assets	216
Value per share	

(a) Number of shares $\frac{1,00,00,000}{10} = 10,00,000$

(b) Net Assets ₹ 2,16,00,000

$\frac{₹\ 2,16,00,000}{10,00,000} = ₹\ 21.6$

Profit-earning Capacity Method			**₹ in lacs**
Profit before tax			64.00
Less :	Extraordinary income	4.00	
	Investment income (not likely to recur)	1.00	5.00
			59.00
Less :	Additional expenses in forthcoming years		
	Advertisement	5.00	
	Depreciation	6.00	11.00
Expected earnings before taxes			48.00
Less :	Income-tax @ 30%		14.40
Future maintainable profits (after taxes)			33.60
Value of business			
Capitalisation factor	$\frac{33.60}{0.15} =$		224
Less:	External Liabilities (creditors)		30
			194

Value per share

$= \frac{1,94,00,000}{10,00,000} = ₹\ 19.4$

Fair Price of share	₹
Value as per Net Assets Method	21.6
Value as per Profit earning capacity (Capitalisation) method	19.4

Fair Price $= \frac{21.6 + 19.4}{2} = \frac{41}{2} = ₹\ 20.5.$

Q. 13. (a) A Ltd. has a total sales of ₹ 3.2 crores and its average collection period is 90 days. The past experience indicates that bad-debt losses are 1.5% on Sales. The expenditure incurred by the firm in administering its receivable collection efforts are ₹ 5,00,000. A factor is prepared to buy the firm's receivables by charging 2% Commission. The factor will pay advance on receivables to the firm at an interest rate of 18% p.a. after withholding 10% as reserve.

Calculate the effective cost of factoring to the Firm.

(b) X Ltd. presents the following information for the year ending 31.03.2011 and 31.03.2012 from which you are required to calculate the Deferred Tax Asset/Liability assuming tax rate of 30% and state how the same should be dealt with as per relevant accounting standard.

	31.03.2011 ₹ (lacs)	31.03.2012 ₹ (lacs)
Depreciation as per books	**4,010.10**	**4,023.54**
Unabsorbed carry forward business loss and depreciation allowance	**2,016.60**	**4,110.00**
Disallowance under Section 43B of Income tax Act, 1961	**518.35**	**611.45**
Deferred Revenue Expenses	**4.88**	**-**
Provision for Doubtful Debts	**282.51**	**294.35**

X Ltd. had incurred a loss of ₹ 504 lacs for the year ending 31.03.2012 before providing for Current Tax of ₹ 26.00 lacs.

Answer 13. (a)

	₹
Average level of Receivables = 3,20,00,000 × 90/360	80,00,000
Factoring commission = 80,00,000 × 2/100	1,60,000
Factoring reserve = 80,00,000 × 10/100	8,00,000
Amount available for advance = ₹ 80,00,000 – (1,60,000 + 8,00,000)	70,40,000
Factor will deduct his interest @ 18% :	
Interest = $\frac{₹\,70,40,000 \times 18 \times 90}{100 \times 360}$	= ₹ 3,16,800

∴ Advance to be paid = ₹ 70,40,000 – ₹ 3,16,800 = ₹ 67,23,200

Annual Cost of Factoring to the Firm :	₹
Factoring commission (₹ 1,60,000 ×360/90)	6,40,000
Interest charges (₹ 3,16,800 × 360/90)	12,67,200
Total	19,07,200

Firm's Savings on taking Factoring Service :	₹
Cost of credit administration saved	5,00,000
Cost of Bad Debts (₹ 3,20,00,000 × 1.5/100) avoided	4,80,000
Total	9,80,000
Net cost to the Firm (₹ 19,07,200 – ₹ 9,80,000)	9,27,200
Effective rate of interest to the firm = $\frac{₹\,9,27,200 \times 100}{67,23,200}$	13.79%

Note : The number of days in a year have been assumed to be 360 days.

Answer 13. (b)

		₹ in lacs 31.3.2011	₹ in lacs 31.3.2012
Carried Forward Business Loss and Depreciation Allowance		2,016.60	4,110.00
Add :	Disallowance under Section 43 B of Income Tax Act,1961	518.35	611.45
	Provision for Doubtful Debts	282.51	294.35
		2,817.46	5,015.80
Less :	Depreciation	4,010.10	4,023.54
		(-) 1,192.64	992.26
Less :	Deferred Revenue Expenditure*	4.88	-
Timing Differences		(-) 1,197.52	992.26
Deferred Tax Liability		359.26	
Deferred Tax Asset			297.68

Where an enterprise has unabsorbed depreciation or carry forward of losses under tax laws, deferred tax assets should be recognized only to the extent that there is virtual certainty supported by convincing evidence that future taxable income will be available against which such deferred tax assets can be realized. The existence of unabsorbed depreciation or carry forward of losses is strong evidence that future taxable income may not be available. Deferred Tax Asset of ₹ 297.68 lacs should not be recognized as an asset as per para 17 of AS 22 on 'Accounting for Taxes on Income'. Deferred Tax Liability of ₹ 359.26 lacs should be disclosed under a separate heading in the balance sheet of X Ltd., separately from current assets and current liabilities.

* It is assumed that the deferred revenue expenditure is actually incurred during the year ended 31st March, 2011 and it is fully allowed under the Income Tax Act.

Q. 14. (a) HIGLtd. Leased a machinery to PQR Ltd. on the following terms :

	(₹ in Lacs)
Fair value of the machinery	**20.00**
Lease term	**5 years**
Lease Rental per annum	**5.00**
Guaranteed Residual value	**1.00**
Expected Residual value	**2.00**
Internal Rate of Return	**15%**

Depreciation is provided on straight line method @ 10% per annum. Ascertain unearned financial income and necessary entries may be passed in the books of the Lessee in the First year.

(b) An equipment is leased for 3 years and its useful life is 5 years. Both the cost and the fair value of the equipment are ₹ 3,00,000. The amount will be paid in 3 instalments and at the termination of lease lessor will get back the equipment. The unguaranteed residual value at the end of 3 years is ₹ 40,000. The (internal rate of return) IRR of the investment is 10%. The present value of annuity factor of Re. 1 due at the end of 3rd year at 10% IRR is 2.4868. The present value of Re. 1 due at the end of 3rd year at 10% rate of interest is 0.7513.

(i) State with reason whether the lease constitutes finance lease.

(ii) Calculate unearned finance income.

Answer 14. (a)

As per AS 19 on Leases, ***unearned finance income*** is the difference between (a) the gross investment in the lease and (b) the present value of minimum lease payments under a finance lease from the standpoint of the lessor; and any unguaranteed residual value accruing to the lessor, at the interest rate implicit in the lease.

Where :

(a) Gross investment in the lease is the aggregate of (i) minimum lease payments from the stand point of the lessor and (ii) any unguaranteed residual value accruing to the lessor.

Gross investment = Minimum lease payments + Unguaranteed residual value
= (Total lease rent + Guaranteed residual value) + Unguaranteed residual value
= [(₹ 5,00,000 × 5 years) + ₹ 1,00,000] + ₹ 1,00,000
= ₹ 27,00,000

(b) Table showing present value of (i) Minimum lease payments (MLP) and (ii) Unguaranteed residual value (URV).

Year	MLP inclusive of URV ₹	Internal rate of return (Discount factor 15%)	Present Value ₹	
1	5,00,000	.8696	4,34,800	
2	5,00,000	.7561	3,78,050	
3	5,00,000	.6575	3,28,750	
4	5,00,000	.5718	2,85,900	
5	5,00,000	.4972	2,48,600	
	1,00,000 (guaranteed residual value)	.4972	49,720	
			17,25,820	(i)
	1,00,000 (unguaranteed residual value)	.4972	49,720	(ii)
		(i) + (ii)	17,75,540	(b)

Unearned Finance Income = (a) – (b)
= ₹ 27,00,000 – ₹ 17,75,540
= ₹ 9,24,460

Journal Entries in the books of PQR Ltd.

Particulars		₹	₹
At the inception of lease			
Machinery account	Dr.	17,25,820*	
To HIG Ltd.'s account			17,25,820*
(Being lease of machinery recorded at present value of MLP)			
At the end of the first year of lease			
Finance charges account (Refer Working Note)	Dr.	2,58,873	
To HIG Ltd.'s account			2,58,873
(Being the finance charges for first year due)			
HIG Ltd.'s account	Dr.	5,00,000	
To Bank account			5,00,000
(Being the lease rent paid to the lessor which includes outstanding liability of ₹ 2,41,127 and finance charge of ₹ 2,58,873)			
Depreciation account	Dr.	1,72,582	
To Machinery account			1,72,582
(Being the depreciation provided @ 10% p.a. on straight line method)			
Profit and loss account	Dr.	4,31,455	
To Depreciation account			1,72,582
To Finance charges account			2,58,873
(Being the depreciation and finance charges transferred to profit and loss account)			

Working Note :

Table showing apportionment of lease payments by PQR Ltd. between the finance charges and the reduction of outstanding liability.

Year	Outstanding liability (opening balance) ₹	Lease rent ₹	Finance charge ₹	Reduction in outstanding liability ₹	Outstanding liability (closing balance) ₹
1	17,25,820	5,00,000	2,58,873	2,41,127	14,84,693
2	14,84,693	5,00,000	2,22,704	2,77,296	12,07,397
3	12,07,397	5,00,000	1,81,110	3,18,890	8,88,507
4	8,88,507	5,00,000	1,33,276	3,66,724	5,21,783
5	5,21,783	5,00,000	78,267	5,21,783	1,00,050*
			8,74,230	17,25,820	

* The difference between this figure and guaranteed residual value (₹ 1,00,000) is due to approximation in computing the interest rate implicit in the lease.

* As per para 11 of AS 19, the lessee should recognise the lease as an asset and a liability at an amount equal to the fair value of the leased asset at the inception of lease. However, if the fair value of the leased asset exceeds the present value of minimum lease payments from the standpoint of lessee, the amount recorded should be the present value of these minimum lease payments. Therefore, in this case, as the fair value of ₹ 20,00,000 is more than the present value amounting ₹ 17,25,820, the machinery has been recorded at ₹ 17,25,820 in the books of B Ltd. (the lessee) at the inception of the lease. According to para 13 of the standard, at the inception of the lease, the asset and liability for the future lease payments are recognised in the balance sheet at the same amounts.

Answer 14. (b)

(i) Present value of residual value = ₹ 40,000 × 0.7513 = ₹ 30,052

Present value of lease payments = ₹ 3,00,000 – ₹ 30,052 = ₹ 2,69,948.

The present value of lease payments being 89.98% $\left(\frac{2,69,948}{3,00,000}\times 100\right)$ of the fair value, i.e. being a substantial portion thereof, the lease constitutes a finance lease.

(ii) Calculation of unearned finance income

	₹
Gross investment in the lease [(₹ 1,08,552* × 3) + ₹ 40,000]	3,65,656
Less : Cost of the equipment	3,00,000
Unearned finance income	65,656

Note : In the above solution, annual lease payment has been determined on the basis that the present value of lease payments plus residual value is equal to the fair value (cost) of the asset.

*Annual lease payments = $\frac{₹\,2,69,948}{2.4868}$ = ₹ 1,08,552 (approx.)

Q. 15. (a) A company with a turnover of ₹ 650 crores and an annual advertising budget of ₹ 3 crore had taken up the marketing of a new product. It was estimated that the company would have a turnover of ₹ 75 crores from the new product. The company had debited to its Profit and Loss account the total expenditure of ₹ 3 crore incurred on extensive special initial advertisement campaign for the new product.
Is the procedure adopted by the company correct?

(b) FMC Ltd is in the process of setting up a production line for manufacturing a new product. Based on trial runs conducted by the company, it was noticed that the production lines output was not of the desired quality. However, the company has taken a decision to manufacture and sell the sub-standard product over the next one year due to the huge investment involved.

In the background of the relevant accounting standard, advise the company on the cut-off date for capitalization of the project cost.

Answer 15. (a)

According to paras 55 and 56 of AS 26 'Intangible Assets', "expenditure on an intangible item should be recognised as an expense when it is incurred unless it forms part of the cost of an intangible asset".

In the given case, advertisement expenditure of ₹ 3 crores had been taken up for the marketing of a new product which may provide future economic benefits to an enterprise by having a turnover of ₹ 75 crores. Here, no intangible asset or other asset is acquired or created that can be recognised. Therefore, the accounting treatment by the company of debiting the entire advertising expenditure of ₹ 3 crores to the Profit and Loss account of the year is correct.

Answer 15. (b)

As per provisions of AS 10 'Accounting for Fixed Assets', expenditure incurred on start-up and commissioning of the project, including the expenditure incurred on test runs and experimental production, is usually capitalized as an indirect element of the construction cost. However, the expenditure incurred after the plant has begun commercial production i.e., production intended for sale or captive consumption, is not capitalized and is treated as revenue expenditure even though the contract may stipulate that the plant will not be finally taken over until after the satisfactory completion of the guarantee period. In the present case, the company did stop production even if the output was not of the desired quality, and continued the sub-standard production due to huge investment involved in the project. Capitalization should cease at the end of the trial run, since the cut-off date would be the date when the trial run was completed.

Q. 16. (a) Discuss the concept of Cost v/s Fair value with reference to Indian Accounting Standards.

(b) Distinguish between Intrinsic value and Time value of an option.

Answer 16. (a)

Cost *vs*. Fair value

Cost basis : The term cost refers to cost of purchase, costs of conversion on other costs incurred in bringing the goods to its present condition and location. Assets are recorded at the amount of cash or cash equivalents paid or the fair value of the other consideration given to acquire them at the time of their acquisition. Liabilities are recorded at the amount of proceeds received in exchange for the obligation, or in some circumstances (for example, income taxes), at the amounts of cash or cash equivalents expected to be paid to satisfy the liability in the normal course of business.

Fair value : Fair value of an asset is the amount at which an enterprise expects to exchange an asset between knowledgeable and willing parties in an arm's length transaction.

Indian Accounting Standards are generally based on historical cost with a very few exceptions :

AS 2 "Valuation of Inventories" – Inventories are valued at net realizable value (NRV) if cost of inventories is more than NRV.

AS 10 "Accounting for Fixed Assets" – Items of fixed assets that have been retired from active use and are held for disposal are stated at net realizable value if their net book value is more than NRV.

AS 13 "Accounting for Investments" – Current investments are carried at lower of cost and fair value. The carrying amount of long term investments is reduced to recognise the permanent decline in value.

AS 15 "Employee Benefits" – The provision for defined benefits is made at fair value of the obligations.

AS 26 "Intangible Assets" – If an intangible asset is acquired in exchange for shares or other securities of the reporting enterprise, the asset is recorded at its fair value, or the fair value of the securities issued, whichever is more clearly evident.

AS 28 "Impairment of Assets"– Provision is made for impairment of assets.

On the other hand IFRS and US GAAPs are more towards fair value. Fair value concept requires a lot of estimation and to the extent, it is subjective in nature.

Answer 16. (b)

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

Intrinsic value is the value that any given option would have if it were exercised today. This is defined as the difference between the option's strike price (X) and the stock actual current price (CP). In the case of a call option, one can calculate the intrinsic value by taking CP-X. If the result is greater than Zero (In other

words, if the stock's current price is greater than the option's strike price), then the amount left over after subtracting CP-X is the option's intrinsic value. If the strike price is greater than the current stock price. Then the intrinsic value of the option is zero – it would not be worth anything if it were to be exercised today. An option's intrinsic value can never be below zero. To determine the intrinsic value of a put option, simply reverse the calculation to X - CP.

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

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

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

Q. 17. The Balance Sheet of ABC Ltd. as at 31st March, 2012 is given below. In it, the respective shares of the company's two divisions namely X Division and Y Division in the various assets and liabilities have also been shown.

(All amounts in crores of Rupees)

	X Division	Y Division	Total
Fixed Assets:			
Cost	875	249	
Less: Depreciation	360	81	
Written-down value	515	168	683
Investments			97
Net Current assets:			
Current Assets	445	585	
Less: Current Liabilities	270	93	
	175	492	667
			1,447
Financed by:			
Loan funds		15	417
Own funds:			
Equity share capital: shares of ₹ 10 each			345
Reserves and surplus			685
			1,447

Loan funds included, inter alia, Bank Loans of ₹ 15 crore specifically taken for Y Division and Debentures of the paid up value of ₹ 125 crore redeemable at any time between 1st October, 2011 and 30th September, 2012.

On 1st April, 2012 the company sold all of its investments for ₹ 102 crore and redeemed all the debentures at par, the cash transactions being recorded in the Bank Account pertaining to X Division.

Then a new company named ZED Ltd. was incorporated with an authorized capital of ₹ 900 crore divided into shares of ₹ 10 each. All the assets and liabilities pertaining to Y Division were transferred to the newly formed company; ZED Ltd. allotting to ABC Ltd.'s shareholders its two fully paid equity shares of ₹ 10 each at par for every fully paid equity share of ₹ 10 each held in ABC Ltd. as discharge of consideration for the division taken over.

ZED Ltd. recorded in its books the fixed assets at ₹ 218 crore and all other assets and liabilities at the same values at which they appeared in the books of ABC Ltd.

You are required to :

(i) Show the journal entries in the books of ABC Ltd.

(ii) Prepare ABC Ltd.'s Balance Sheet immediately after the demerger and the initial Balance Sheet of ZED Ltd. (Schedules in both cases need not be prepared).

(iii) Calculate the intrinsic value of one share of ABC Ltd. immediately before the demerger and immediately after the demerger; and

(iv) Calculate the gain, if any, per share to the shareholders of ABC Ltd. arising out of the demerger.

Answer 17. (a)

In ABC Ltd.'s Books

(i) **Journal Entries**

(₹ in crores)

		Dr. Amount ₹	*Cr.* Amount ₹
Bank Account (Current Assets)	Dr.	102	
To Investments			97
To Profit and Loss Account (Reserves and Surplus)			5
(Sale of investments at a profit of ₹ 5 crore)			
Debentures (Loan Funds)	Dr.	125	
To Bank Account (Current Assets)			125
(Redemption of debentures at par)			
Current Liabilities	Dr.	93	
Bank Loan (Loan Funds)	Dr.	15	
Provision for Depreciation	Dr.	81	
Reserves and Surplus (Loss on Demerger)	Dr.	645	
To Fixed Assets			249
To Current Assets			585
(Assets and liabilities pertaining to Y Division taken out of the books on transfer of the division to ZED Ltd.)			

(ii) (a) ABC Ltd.'s Balance Sheet after demerger

	₹ in crores	₹ in crores
Fixed Assets		
Gross Block	875	
Less : Depreciation	360	515
Net Current Assets		
Current Assets	422	
Less : Current Liabilities	270	152
		667
Financed by		
Shareholders' Funds		
Equity Share Capital	345	
Reserves and Surplus	45	390
Loan Funds		277
		667

Working Notes :

		₹ in crores	₹ in crores
1.	Reserves and Surplus		
	Balance as on 31st March, 2012		685
	Add: Profit on sale of investments		5
			690
	Less: Loss on demerger		645
	Balance shown in balance sheet after demerger		45
2.	Loan Funds		
	Balance as on 31st March, 2012		417
	Less: Bank Loan transferred to Y Ltd.	15	
	Debentures redeemed	125	140
	Balance shown in balance sheet after demerger		277
3.	Current Assets		
	Balance as on 31st March, 2012		445
	Add: Cash received from sale of investments		102
			547
	Less: Cash paid to redeem debentures		125
	Balance shown in balance sheet after demerger		422

(b) Initial Balance Sheet of ZED Ltd.

	₹ in crores	₹ in crores
Fixed Assets		218
Net Current Assets		
Current Assets	585	
Less: Current Liabilities	93	492
		710
Financed by		
Shareholders' funds :		
Capital (Issued for acquisition of business)		690
Capital Reserve		5
Loan Funds		15
		710

(iii) Calculation of intrinsic value of one share of ABC Ltd.

	₹ in crores
Before demerger	
Fixed Assets	683
Net current assets ₹ (667 + 102 – 125)	644
	1,327
Less : Loan funds ₹ (417 – 125)	292
	1,035

Intrinsic Value per share = ₹ $\frac{1,035 \text{ crores}}{34.5 \text{ crores}}$ = ₹ 30 per share

After demerger

Fixed Assets	515
Net Current Assets Rs.(175 + 102 – 125)	152
	667
Less : Loan funds	277
	390

Intrinsic Value of one share = ₹ $\frac{390 \text{ crores}}{34.5 \text{ crores}}$ = ₹ 11.30 per share

(iv) Gain per share to Shareholders :

After demerger, for every share in ABC Ltd. the shareholder holds 2 shares in ZED Ltd.

	₹
Value of one share in ABC Ltd.	11.30
Value of two shares in ZED Ltd. (₹ 10 × 2)	20.00
	31.30
Less : Value of one share before demerger	30.00
Gain per share	1.30

The gain per share amounting ₹ 1.30 is due to appreciation in the value of fixed assets by ZED Ltd.

*Capital Reserve has been calculated as		₹ in crores
Purchase consideration		690
Less : Assets transferred		710
Loan funds transferred	(-15)	695
Capital reserve		5

Q. 18. Given below is the Balance Sheet of HLD Ltd. as on 31.3.2012 :

(Figures in ₹ lacs)

Equity share capital	**4.00**	**Block assets less depreciation to date**	**6.00**
(in equity shares of ₹ 10 each)		**Stock and debtors**	**5.30**
10% preference share capital	**3.00**	**Cash and bank**	**0.70**
General reserve	**1.00**		
Profit and loss account	**1.00**		
Creditors	**3.00**		
	12.00		**12.00**

MM Ltd. another existing company holds 25% of equity share capital of HLD Ltd. purchased at ₹ 10 per share.

It was agreed that MM Ltd. should take over the entire undertaking of HLD Ltd. on 30.09.2012 on which date the position of current assets (except cash and bank balances) and creditors was as follows :

Stock and debtors	**4 lacs**
Creditors	**2 lacs**

Profits earned for half year ended 30.09.2012 by HLD Ltd. was ₹ 70,500 after charging depreciation of ₹ 32,500 on block assets. HLD Ltd. declared 10% dividend for 2011-12 on 30.08.2012 and the same was paid within a week.

Goodwill of HLD Ltd. was valued at ₹ 80,000 and block assets were valued at 10% over their book value as on 31.3.2012 for purposes of take over. Preference shareholders of HLD Ltd. will be allotted 10% preference shares of ₹ 10 each by MM Ltd. Equity shareholders of HLD Ltd. will receive requisite number of equity shares of ₹ 10 each from MM Ltd. valued at ₹ 10 per share.

(a) Compute the purchase consideration.

(b) Explain, how the capital reserve or goodwill, if any, will appear in the Balance Sheet of MM Ltd. after absorption.

Answer 18.

(a) Calculation of Purchase Consideration (for net assets of HLD Ltd. taken over)

		₹
Assets taken over :		
	Goodwill as agreed	80,000
	Block Assets at 10% over their book value as on 31.3.2012 (agreed value for purposes of take over)	6,60,000
	Stock and Debtors	4,00,000
	Cash and Bank (See Working Note)	1,33,000
		12,73,000
Less :	Liabilities taken over :	
	Creditors	2,00,000
		10,73,000

Calculation of Shares Allotted :		₹
Net Assets taken over		10,73,000
Less :	Allotment of 10% preference shares to preference shareholders of HLD Ltd.	3,00,000
		7,73,000
Less :	Belonging to MM Ltd. (1/4 × 7,73,000)	1,93,250
	Payable to other equity shareholders	5,79,750

Number of equity shares of ₹ 10 each to be issued (valued at ₹ 10 each) = 57,975

Calculation of Capital Reserve :			₹
Net Assets taken over			10,73,000
Less :	Preference shares to be allotted	3,00,000	
	Equity shares to be allotted	5,79,750	
	Cost of investments	1,00,000	9,79,750
Capital Reserve			93,250

Alternatively, Capital Reserve may be computed as follows :

Value of investments in HLD Ltd.		1,93,250
Less :	Cost of investments	1,00,000
		93,250

(b) Balance Sheet of MM Ltd. as at 30th September, 2012

(Extract)

			₹
Capital Reserve		93,250	
Less :	Goodwill	80,000	13,250

Working Note :

Ascertainment of Cash and Bank Balances as on 30th September, 2012:

Balance Sheet as at 30th September, 2012

Particulars		₹	₹	Particulars		₹
Equity Share Capital			4,00,000	Block Assets	6,00,000	
10% Preference Share Capital			3,00,000	Less: Depreciation	32,500	5,67,500
General Reserve			1,00,000	Stock and Debtors		4,00,000
Profit and Loss Account:				Cash and Bank		1,33,000
Balance brought forward	1,00,000			(Balancing figure)		
Add: Profit for the first half	70,500	1,70,500				
Less : Dividend on preference share capital paid	30,000					
Less : Dividend on equity share capital paid	40,000	70,000	1,00,500			
Creditors			2,00,000			
			11,00,500			11,00,500

Q. 19. TUB Ltd. and VAM Ltd. propose to amalgamate. Their balance sheets as at 31st March, 2012 were as follows :

Liabilities	TUB Ltd. ₹	VAM Ltd. ₹	Assets	TUB Ltd. ₹	VAM Ltd. ₹
Share capital:			**Fixed assets**		
Equity shares of ₹ 10 each	**15,00,000**	**6,00,000**	**Less: Depreciation**	**12,00,000**	**3,00,000**
General reserve	**6,00,000**	**60,000**	**Investments (face value of ₹ 3 lacs, 6% tax free G.P. notes)**	**3,00,000**	**-**
Profit & Loss A/c	**3,00,000**	**90,000**	**Stock**	**6,00,000**	**3,90,000**
Creditors	**3,00,000**	**1,50,000**	**Debtors**	**5,10,000**	**1,80,000**
			Cash and bank balances	**90,000**	**30,000**
	27,00,000	**9,00,000**		**27,00,000**	**9,00,000**

Their net profits (after taxation) were as follows :

Year	TUB Ltd.	VAM Ltd.
2009-10	**3,90,000**	**1,35,000**
2010-11	**3,75,000**	**1,20,000**
2011-12	**4,50,000**	**1,68,000**

Normal trading profit may be considered as 15% on closing capital invested. Goodwill may be taken as 4 years' purchase of average super profits. The stock of TUB Ltd. and VAM Ltd. are to be taken at ₹ 6,12,000 and ₹ 4,26,000 respectively for the purpose of amalgamation. WWF Ltd. is formed for the purpose of amalgamation of two companies. Assume tax rate 40%

(a) Suggest a scheme of capitalization of WWF Ltd. and ratio of exchange of shares; and

(b) Draft the opening balance sheet of WWF Ltd.

Answer 19.

(a) Scheme of capitalization of WWF Ltd. and ratio of exchange of shares

Computation of Net Assets of amalgamating companies

	TUB Ltd. ₹	VAM Ltd. ₹
Goodwill (W.N.2)	3,19,200	1,21,200
Fixed Assets	12,00,000	3,00,000
6% investments (Non-trade)	3,00,000	-
Stock	6,12,000	4,26,000
Debtors	5,10,000	1,80,000
Cash and Bank Balances	90,000	30,000
	30,31,200	10,57,200
Less : Creditors	3,00,000	1,50,000
Net Assets	27,31,200	9,07,200
No. of Equity shares	1,50,000	60,000
Intrinsic value of a share	₹ 18.208	₹ 15.12

No of shares to be issued by WWF. Ltd to

TUB Ltd 1,50,000 × 18.208/10 2,73,120 shares

VAM Ltd 60,000 × 15.12/10 90,720 shares

In total 2,73,120 + 90,720 i.e. 3,63,840 shares will be issued by WWF Ltd.

Ratio of exchange of shares will be as follows :

1. Holders of 1,50,000 equity shares of TUB Ltd. will get 2,73,120 shares in WWF Ltd.
2. Similarly, holders of 60,000 equity shares of VAM Ltd. will get 90,720 shares in WWF Ltd.

(b) Opening Balance Sheet of WWF. Ltd.

Liabilities	₹	*Assets*	₹
Share Capital:		Fixed Assets :	
3,63,840 Equity shares of ₹ 10 each (Issued for consideration other than cash, pursuant to scheme of amalgamation)	36,38,400	Goodwill (W.N.2) (3,19,200 + 1,21,200)	4,40,400
		Other fixed Assets (12,00,000 + 3,00,000)	15,00,000
Current Liabilities:		Investments in 6% Tax free G.P. Notes	3,00,000
Creditors	4,50,000		
		Current Assets:	
		Stock (6,12,000 + 4,26,000)	10,38,000
		Debtors (5,10,000 + 1,80,000)	6,90,000
		Cash and bank balance (90,000 + 30,000)	1,20,000
	40,88,400		40,88,400

Working Notes :

1. Calculation of closing trading capital employed on the basis of net assets

	TUB Ltd. ₹	VAM Ltd. ₹
Fixed Assets	12,00,000	3,00,000
Stock 6,12,000	6,12,000	4,26,000
Debtors	5,10,000	1,80,000
Cash and Bank Balances	90,000	30,000
24,12,000	24,12,000	9,36,000
Less: Creditors	3,00,000	1,50,000
Net Assets	21,12,000	7,86,000

2. Calculation of value of goodwill

(i) Average Trading Profit	TUB Ltd. ₹	VAM Ltd. ₹
2009-10	3,90,000	1,35,000
2010-11	3,75,000	1,20,000
2011-12	4,50,000	1,68,000
Profit after tax	12,15,000	4,23,000
Profit before tax (40%)*	20,25,000	7,05,000
Add : Under valuation of closing stock	12,000	36,000
	20,37,000	7,41,000
Average of 3 years' profit before tax	6,79,000	2,47,000
Less:Income from non-trade investments (3,00,000 x 6%)	18,000	-
Average profit before tax	6,61,000	2,47,000
Less: 40% tax	2,64,400	98,800
Average profit after tax	3,96,600	1,48,200
(ii) Super Profits		
Average trading profit	3,96,600	1,48,200
Less : Normal Profit		
TUB Ltd. ₹ 21,12,000 × 15%	3,16,800	
VAM.Ltd ₹ 7,86,000 × 15%		1,17,900
	79,800	30,300
(iii) Value of goodwill at 4 years' purchase of super profits	3,19,200	1,21,200

Q. 20. From the following information in respect of KK Ltd. compute the value of employees of the organization by using Lev and Schwartz Model.

	House Keeping Staff		Administrative Staff		Professionals	
Age	**No.**	**Average Annual Earnings (₹)**	**No.**	**Average Annual Earnings (₹)**	**No.**	**Average Annual Earnings (₹)**
30-39	**100**	**300000**	**60**	**350000**	**40**	**500000**
40-49	**50**	**400000**	**30**	**500000**	**20**	**600000**
50-59	**30**	**500000**	**20**	**600000**	**10**	**750000**

The retirement age is 60 years. The future earnings have been discounted at 10%. For computing the total value of human factor, lowest value of each class is to be taken. Annuity Factors at 10% are as follows :

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

Answer 20.

The value of employees have been computed as follows :

(A) Valuation in respect of House Keeping Staff :

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

Particulars	Computation	PV
₹ 300000 for next 10 years	300000*6.145	1843500
₹ 400000 from next 11-20 years	(400000*8.514)-(400000*6.145)	947600
₹ 500000 from 21-30 years.	(500000*9.427)- (500000*8.514)	456500
	Total	**3247600**

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

Particulars	Computation	PV
₹ 400000 p.a for next 10 years	400000*6.145	2458000
₹ 500000 p.a from 11 to 20 years	(500000*8.514)-(500000-6.145)	1184500
	Total	**3642500**

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

Particulars	Computation	PV
₹ 500000 p.a for next 10 years	500000*6.145	3072500
	Total	**3072500**

(B) Valuation in respect of Administrative Staff.

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

Particulars	Computation	PV
₹ 350000 for next 10 years	350000*6.145	2150750
₹ 500000 from 11 to 20 years	(500000*8.514)-(500000*6.145)	1184500
₹ 600000 from 21-30 years.	600000*9.427)- (600000*8.514)	547800
	Total	**3883050**

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

Particulars	Computation	PV
₹ 500000 for next 10 years	(500000*6.145)	3072500
₹ 600000 from 21-30 years.	(600000*8.514)-(600000*6.145)	1421400
	Total	**4493900**

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

Particulars	Computation	PV
₹ 600000 for next 10 years	600000*6.145	3687000
	Total	**3687000**

(C) Valuation in respect of Professionals :

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

Particulars	Computation	PV
₹ 500000	(500000*6.145)	3072500
₹ 600000	(600000*8.514)-(600000*6.145)	1421400
₹ 750000	(750000*9.427)-(750000*8.514)	684750
	Total	**5178650**

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

Particulars	Computation	PV
₹ 600000	600000*6.145	3687000
₹ 750000	750000*8.514)-(750000*6.145)	1776750
	Total	**5463750**

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

Particulars	Computation	PV
₹ 750000	750000*6.145	4608750
	Total	**4608750**

(D) Total Value of Employees :

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

Q. 21. The Balance Sheets of RST Ltd. for the years ended on 31.3.2010, 31.3.2011 and 31.3.2012 are as follows :

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

	31.3.2000	31.3.2001	31.3.2002
Assets	₹	₹	₹
Goodwill	20,00,000	16,00,000	12,00,000
Building and Machinery(Less: Depreciation)	28,00,000	32,00,000	32,00,000
Stock	20,00,000	24,00,000	28,00,000
Debtors	40,000	3,20,000	8,80,000
Bank Balance	2,40,000	4,00,000	8,00,000
	70,80,000	79,20,000	88,80,000

Actual valuation were as under:

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

Capital employed in the business at market values at the beginning of 2009–2010 was ₹ 73,20,000, which included the cost of goodwill. The normal annual return on Average Capital employed in the line of business engaged by RST Ltd. is 12½%.

The balance in the General Reserve account on 1st April, 2009 was ₹ 20 lacs.

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

Goodwill is to be valued at 5 years purchase of super profits (Simple average method). Also find out the total value of the business as on 31.3.2012.

Answer 21.

Note :

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

	31.3.2010 ₹	31.3.2011 ₹	31.3.2012 ₹
Goodwill	20,00,000	16,00,000	12,00,000
Building and Machinery (revalued)	36,00,000	40,00,000	44,00,000
Stock (revalued)	24,00,000	28,00,000	32,00,000
Debtors	40,000	3,20,000	8,80,000
Bank Balance	2,40,000	4,00,000	8,00,000
Total Assets	82,80,000	91,20,000	1,04,80,000
Less: Creditors	12,00,000	16,00,000	20,00,000
Closing Capital	70,80,000	75,20,000	84,80,000
Opening Capital	73,20,000	70,80,000	75,20,000
	1,44,00,000	1,46,00,000	1,60,00,000
Average Capital	72,00,000	73,00,000	80,00,000

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

	31.3.2010 ₹	31.3.2011 ₹	31.3.2012 ₹
Net Profit as given	8,40,000	12,40,000	16,40,000
Less: Opening Balance	2,40,000	2,80,000	3,20,000
	6,00,000	9,60,000	13,20,000
Add: Under valuation of closing stock	4,00,000	4,00,000	4,00,000
	10,00,000	13,60,000	17,20,000
Less: Adjustment for valuation in opening stock		4,00,000	4,00,000
	10,00,000	9,60,000	13,20,000
Add: Goodwill written-off		4,00,000	4,00,000
	10,00,000	13,60,000	17,20,000
Add: Transfer to Reserves	4,00,000	4,00,000	4,00,000
	14,00,000	17,60,000	21,20,000
Less: 12½% Normal Return	9,00,000	9,12,500	10,00,000
Super Profit	5,00,000	8,47,500	11,20,000

Average super profits = (₹ 5,00,000 + ₹ 8,47,500 + ₹ 11,20,000) / 3
= 24,67,500 / 3 = ₹ 8,22,500

Goodwill = 5 years purchase = ₹ 8,22,500 × 5 = ₹ 41,12,500.

	₹
Total Net Assets (31/3/2012)	84,80,000
Less: Goodwill	12,00,000
	72,80,000
Add: Goodwill	41,12,500
Value of Business	1,13,92,500

Q. 22. The Balance Sheet of DD Ltd. as on 31st March, 2012 is as under :

(All figures are in lacs)

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

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

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

2006-07		**₹ 67 lacs**
2007-08	**(-)**	**₹ 1,305 lacs (loss)**
2008-09		**₹ 469 lacs**
2009-10		**₹ 546 lacs**
2010-11		**₹ 405 lacs**

The unusual negative profitability of the company during 2007-08 was due to the lock out in the major manufacturing unit of the company which happened in the beginning of the second quarter of the year 2006-07 and continued till the last quarter of 2007-08.

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

Answer 22.

1. Calculation of capital employed

			₹ (in lacs)
Present value of assets :			
Premises and land			1,200
Plant and machinery			2,400
Motor vehicles (book value less depreciation for ½ year)			36
Raw materials			920
Work-in-progress			130
Finished goods			180
Book debts (400 x 90%)			360
Investments			1,500
Cash at bank and in hand			192
			6,918
Less: Liabilities:			
Provision for taxation		300	
5% Debentures		2,000	
Secured loans		200	
Sundry creditors		300	2,800
Total capital employed on 31.3.12			4,118

2. Profit available for shareholders for the year 2011-12

Profit for the year as per Balance Sheet		1,100
Less: Depreciation to be considered		
Premises and land	24*	
Plant & machinery	240*	
Motor vehicles	4	268
		832
Less: Bad debts		40
Profit for the year 2011-02		792

3. Average capital employed

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

		₹ (in lacs)	₹ (in lacs)
4.	Average profit to determine Future Maintainable Profits		
	Profit for the year 2011-12	792	
	Profit for the year 2010-11	405	
	Profit for the year 2009-10	546	
	Profit for the year 2008-09	469	
		2212 / 4	553

5. Calculation of General Expectation :

DD Ltd. pays ₹ 2 as dividend (20%) for each share of ₹ 10.

Market value of equity shares of the same denomination is ₹ 25 which fetches dividend of 20%.

Therefore, share of ₹ 10 (Face value of shares of DD Ltd.) is expected to fetch (20/25) × 10 = 8% return.

Since DD Ltd. is not having a stable record in payment of dividend, in its case the expectation may be assumed to be slightly higher, say 10%.

6.	**Calculation of super profit**	₹ (in lacs)
	Future maintainable profit [See point 4]	553
	Normal profit (10% of average capital employed as computed in point 3)	372.2
	Super Profit	180.8
7.	Valuation of GoodwillGoodwill at 4 years' purchase of Super Profit	723.20

Notes :

(1) It is evident from the Balance Sheet that depreciation was not charged to Profit & Loss Account.

(2) It is assumed that provision for taxation already made is sufficient.

(3) While considering past profits for determining average profit, the years 2006-07 and 2007-08 have been left out, as during these years normal business was hampered.

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

Q. 23. (a) The following data is given to you regarding a company having a share in branded portion as well as unbranded portion:

Branded revenue	**₹ 500 per unit**
Unbranded revenue	**₹ 120 per unit**
Branded cost	**₹ 350 per unit**
Unbranded cost	**₹ 100 per unit**
Research and Development	**₹ 20 per unit**
Branded products	**1 lac units**
Unbranded products	**40000 units**

Tax rate is 39.55%, capitalization factor 18%

Calculate the brand value.

(b) Should homegrown brands be valued and amortized?

Answer 23. (a)

The net revenue from branded product = (revenue cost) × Quantity sold

= (₹ 500-₹ 350) × 100,000

= ₹ 150,00,000.

Net revenue from the unbranded product

= (₹ 120-₹ 100) × 40000

= ₹ 800000.

PAT for branded product

= (150,00,000 – 28,00,000) × (1-0.3955)

= (12200000)(0.6045)

= ₹ 7374900

Brand value = Returns/Capitalisation rate = ₹ 7374900/0.18

= ₹ 40971667.

Answer 23. (b)

In disallowing the capitalisation of homegrown brands, a degree of comparability between competing company is lost. Whether acquired or home grown, brands require considerable expenditure, generate substantial income and add substantial value to the company. Allowing home grown brands to be capitalised would eliminate this inconsistency.

Companies know more about homegrown brands. Thus it is easier to value them. If a business builds its own factory instead of buying one, we capitalize it; why should brands be treated differently?

If accounting laws force companies not to value home grown brands they could easily find a way out by selling the brands to another company and again buy back from them. Clearly this is the best evidence to show that homegrown brands have a value too.

IN USA : It is a standard practice to capitalise and amortise goodwill. No asset revaluation is permitted. All purchased intangibles must be treated in the same way as goodwill. Maintenance costs of goodwill and all other intangibles must be written off to expenses. Thus there is no incentive for US companies to distinguish brands from goodwill, as the resulting treatment would be identical.

IN AUSTRALIA : Acquired goodwill has to be amortised though the P&L account for a maximum period of 20 years. But unlike in UK and US, Australian has a modified historical cost accounting system, so that fixed assets may be revalued at market price every 3 to 5 years. Intangible assets like brands may be carried at market value. Acquired brands must initially be recorded at their cost of acquisitions. All brand names may be revalued with either upwardly or downwardly adjustments.

ELSEWHERE : In most countries the acquired brands are capitalised and then amortised through the P&L, the depreciation period varies considerably. Five years is the maximum in Japan, forty years in France, and the brands expected life in Germany.

The argument in favour of capitalising brand names is related to the old adage – out of sight (if it is written off) out of mind. If brands are capitalised, management is more likely to continue a process of maintaining the values.

A court appeal made a distinction between 'CAT' goodwill which is loyal to the business and stays with the buyer if it is sold and a 'DOG' goodwill which is loyal to the owner and thus is lost to the business in case of a sale. Hence 'DOG' goodwill must be written off while 'CAT' goodwill need to be.

IN INDIA : According to AS – 10, Accounting for Fixed Assets, , goodwill in general, should be recorded in the books only when some consideration in money or money's worth has been paid for it. As a matter of financial prudence goodwill is written off over a period. However this is not mandatory.

Major MNC's like Unilever group, Proctor and Gamble, Nestle and reputed Indian companies like Tatas, Reliance could benefit a great deal by valuing brands and including them in the balance sheet. Now that AS - 26 is applicable, the brands can be valued if and only if they are purchased and not self generated.

Q. 24. (a) Identify the risks involved in valuation of Intellectual Properties.

(b) (i) How do you value a self- constructed fixed assets?

(ii) How do you value fixed asset acquired in exchange?

Answer 24. (a)

Unlike most enterprise or fixed asset valuations, intellectual property assets have their own set of unique risk factors. Some of these risks are :

- **New Patent Issuance :** New patents can either make existing technology obsolete or, more likely, allow for another competitor in the same space. If a similar patent is issued the value of the underlying technology will decrease. One key difficulty of the patent process is that it is nearly impossible to know what has been filed with the U.S. Patent and Trademark Office (USPTO). Only issued patents are publicly available information and therefore the risk posed by pending patent claims cannot be easily foreseen.
- **Patent Challenges/Declared Invalid :** An issued patent remains open to attack for invalidity, and it is a common defense for an alleged infringer to assert that the patent is invalid. Typically, patents are challenged on the grounds that someone other than the named inventor invented the claimed property, that the invention is "obvious" to persons skilled in the relevant technology, or that the patent is not unique and too similar to existing methods. Successful challenges can immediately invalidate the patent and corresponding licenses. In principle, proper due diligence should turn up these potential problems.
- **Patent Infringement Suits :** Licensees could be held liable and ultimately pay three times damages. Again, due diligence should reveal any potential problems of overlapping, uncited prior or concurrent claims.
- **Trade Secrets :** Some patents are virtually worthless without the necessary trade secrets. An example of a "worthless" patent is a pharmaceutical patent for a specific drug that did not reveal the exact "recipe" for formulating the drug. The inventor(s) of the patent need to cooperate and share those trade secrets to maximize the value of the patent.
- **Foreign Governments failure to comply with Patent Cooperation Treaties :** This is a major issue for software patents, many of which are pirated in foreign countries and sold into the world market.

Answer 24. (b)

(i) In arriving at the gross book value of self-constructed fixed assets the same principles as applied for valuation of fixed assets. Included in the gross book value are costs of construction that relate directly to the specific asset and costs that are attributable to the construction activity in general and can be allocated to the specific asset. Any internal profits are eliminated in arriving at such costs.

(ii) When a fixed asset is acquired in exchange for another asset, its cost is usually determined by reference to the fair market value of the consideration given. It may be appropriate to consider also the fair market value of the asset acquired if this is more clearly evident. An alternative accounting

treatment that is sometimes used for an exchange of assets, particularly when the assets exchanged are similar, is to record the asset acquired at the net book value of the asset given up; in each case an adjustment is made for any balancing receipt or payment of cash or other consideration.

When a fixed asset is acquired in exchange for shares or other securities in the enterprise, it is usually recorded at its fair market value, or the fair market value of the securities issued, whichever is more clearly evident.

Q. 25. (a) Many Pharmaceutical firms have historically been able to maintain high returns on equity and earn surplus returns. Many have argued that this is due to the protection the patent system offers them against competition. Why would patents lead to higher returns on equity and capital? Assume that a law is passed weakening patent protection against competition. What implications would this law have for the profitability of pharmaceutical firms? In the absence of patent protection, what differential advantages would a pharma firm have over its competitors?

(b) The following table summarizes returns on equity and betas of major software firms in 2012.

Firm	Return on Equity-2012	Beta	Cost of Equity
Info soft	**14%**	**1.20**	**14.6%**
STS	**16%**	**1.10**	**14.05%**
Softech	**11.5%**	**1.15**	**14.33%**

Estimate the differential between return on equity and cost of equity in 2012. What conclusions would you draw about project choice of these companies in 2012? What concerns would you have about using this approach to measure project quality?

Answer 25. (a)

Patents provide explicit protection against allowing the firms that possess them to charge higher prices and earn higher returns.

If patent protection were weakened, excess returns in the pharmaceutical industry might drop.

If there is no patent protection, pharmaceutical firms will have to compete like all other consumer products firms- with advertising to create brand names- by reducing costs and establishing a cost advantage or by offering products tailored to market segments that are not being served. Firms with low cost structures and good marketing teams are likely to be winners.

There is also danger of more spurious drugs being marketed.

Answer 25. (b)

Firm	ROE	Cost of Equity	Differential
Info soft	14%	14.60%	- 0.6%
STS	16%	14.05%	1.95%
Softech	11.5%	14.33%	- 2.83%

It can be concluded that STS picked the best projects and Softech worst.

The return on equity is a flawed measure because it focuses on accounting income instead of cash flows and it also reflects all projects taken by the company rather than just the most recent ones. Furthermore, the book value of equity can be affected by actions such as buybacks.

Q. 26. (a) What is the value of a plot of land 7 kottahs (5040 sq. ft) in area in a poor locality let out for Rs. 100 per kottah (720 sq. ft.) per month?

The lessee has erected bustee dwelling on the land. The lessee is liable for property tax on the land and for the whole of the taxes on the structure thereon. Draft your answer based an following assumptions :

Assumptions :

(i) This is an unsecured ground rent but the lessee's interest is secured by law.
(ii) The rent is secured only by the structures.
(iii) The Years Purchase of 15.38 is sufficient as security.
(iv) Property tax is 10% on vacant land.

(b) Identify issues involved in diversification of real estate.Discuss its trends and implications.

Answer 26. (a)

Rent of land 7 kottah (5040 sq. ft.)			
@ ₹ 100 per kottah (720 sq. ft)	= ₹ 700 p.m.		
Gross Annual Rent	= ₹ 700 × 12	=	₹ 8,400
Deduction @ 10% for servicing, maintenance etc. on G.A.R.	= ₹ 840		
Further deduction @ 10% on G.A.R. towards property tax	= ₹ 840		
Net annual rent	= ₹ 8,400 – 840		
	– 840	=	₹ 6,720
Years' Purchase (Y.P) @ 6.5% for perpetuity	$= \frac{1}{i} = \frac{1}{0.065}$	=	15.384615
[i = rate of return on invested capital]			
Value to the lessore		=	₹ 1,03,385
		say	₹ 1,04,000

Answer 26. (b)

In valuation of real estates there are several risk factors, estimation errors, legal and tax changes, volatility in specific real estate markets – that are often built into discount rates and valuations, the rationale for diversification becomes stronger. A real estate firm that is diversified across holdings in multiple locations will be able to diversify away some of this risk. If the firm attracts investors who are diversified into other asset classes, it diversifies away even more risk, thus reducing its exposure to risk and its cost of equity.

Estimating Cash Flows :

Cash Inflows :

The cash flows from a real estate investment generally take the form of rents and lease payments. In estimating rents for future years, but have to consider past trends in rents, demand and supply conditions for space provided by the property and general economic conditions.

Cash Outflows :

Expenses on real estate investments include items such as property taxes, insurance, repairs and maintenance and advertising - which are unrelated to occupancy and are fixed, as well as items such as utility expenses, which are a function of occupancy and are variable. In addition, the following factors will affect projected expenses.

- *Reimbursability :* Some expenses incurred in connection with a property by the owner may be reimbursed by the tenant, as part of a contractual agreement.
- *Expense Stops :* Many office leases include provisions to protect the owner from increases in operating expenses beyond an agreed-upon level. Any increases beyond that level have to be paid by the tenant.

Expected Growth :

To estimate future cash flows, there is needed estimates of the expected growth rate in both rents/leases and expenses. A key factor in estimating the growth rate is the expected inflation rate. In a stable real estate market, the expected growth in cash flows should be close to the expected inflation rate. In tight markets with low vacancy rates, it is possible for the expected growth rate in rents to be higher than the expected inflation rate at least until the market shortages disappear. The reverse is likely to be true in markets with high vacancy rates.

Terminal Value :

In all discounted cash flow valuation models, a key input is the estimate of terminal value, i.e., the value of the asset being valued at the end of the investment time horizon. There are three basic approaches that can be used to estimate the terminal value.

1. The current value of the property can be assumed to increase at the expected inflation rate to arrive at a terminal value. Thus, the terminal value of a property, worth $10 million now, in ten years will be $13.44 million, if the expected inflation rate is 3% (Terminal Value = $10 * 1.0310). The danger of this approach is that it starts of with the assumption that the current value of the asset is reasonable and then tries to assess the true value of the asset.
2. An alternative to this approach is to assume that the cash flows in the terminal year (the last year of the investment horizon) will continue to grow at a constant rate forever after that. If this assumption is made, the terminal value of the asset is :

   Terminal Value of Equity/Asset = Expected CF $_{n+1}$ / r – g.

   Where r is the discount rate (cost of equity if it is the terminal value of equity and cost of capital if it is the terminal value of the asset) and CF_{n+1} is the cash flow (cash flow to equity if terminal value is for equity and to firm if terminal value is total terminal value).

   Thus, if the property described in the previous example had produced a net cash flow, prior to debt payments, of $1.2 million in year 10, this cash flow was expected to grow 3% a year forever after that and the cost of capital was 13%, the terminal value of the property can be written as follows :

   = $FCFF_{11}$ / WACC- g

   Terminal Value of Asset = (1.2)(1.03)/ 0.13-0.03= $12.36 million
3. A close variation on the infinite growth model is the 'capitalization rate' (cap rate) used by many real estate appraisers to value properties. In its most general form, the cap rate is the rate by which operating income is divided to get the value of the property. Property value = Capitalization rate/ Operating income after taxes.

Q. 27. The Finance Director of Green Field Ltd. is investing a potential ₹ 250 lacs investment. The investment would be in a bio-tech project away (rom existing mainstream activities of computer hardware manufacture. ₹ 60 lacs of investment would be financed by internal funds, ₹ 90 lacs by long term loans and ₹ 100 lacs by right issue. The investment is expected to generate pre-tax net cash flows of approximately ₹ 50 lacs a year, for a period of 10 years. The residual value at the end of year 10 is forecast to be ₹ 50 lacs after tax. Government loan of ₹ 40 lacs out of total 90 lacs is also available. This will cost 2% below the company's normal cost of long term debt finance which is 8%.

Green Field Ltd's financial gearing is 60% equity and 40% debt by market value and its equity beta is 0.85. The average equity beta in computer hardware industry is 1.2, and average gearing 50% debt and 50% equity by market value.

The risk free rate is 5.5% per annum and the market return is 12% per annum. Issue costs are estimated to be 1% for debt financing (excluding subsidized loan) and 4% for equity financing.

The corporate tax is 30%.

(Issue costs are not tax deductible).

(a) Estimate the adjusted present value of the proposed investment.

(b) Explain the circumstances under which Adjusted Present Value (APV) might be a better method of evaluating a capital investment than Net Present Value (NPV).

Answer 27.

(a) Assuming the risk of companies in the computer hardware industry is similar to that of Greenfield Ltd, the beta of computer hardware industry will be used as proxy to estimate the discount rate for the base case NPV.

Asset beta = Equity beta × E /{E + D(1-t)} = 1.2 × 50/{50 +50(1 – 0.30)} = 0.706

Using the capital asset pricing model :

Ke ungeared = 5.5 + (12 – 5.5) 0.706 = 10.09 => 10%.

Annual after tax cash flows = ₹ 50 lacs × (1 – 0.3) = ₹ 35,00,000

From the annuity table with a 10% discount rate :

	₹
PV of annual cash flows, ₹ 35,00,000 × 6.145	= 2,15,07,500
PV of residual value, ₹ 50,00,000 × 0.386	= 19,30,000
	2,34,37,500
(Less) initial investment	(2,50,00,000)
Net Present Value	₹ (15,62,500)

Subsidy :

The company saves 2% per year on ₹ 40,00,000 or ₹ 80,000.

The net of tax saving is ₹ 80,000 (1 – 0.3) = ₹ 56,000.

Since it is a government subsidy, it is assumed to be risk-free. It should be discounted at 5.5% per year. ₹ 56,000 × 7.541 = ₹ 4,22,296.

Tax relief :

Interest payable per year : on ₹ 50,00,000 @ 8% and on ₹ 40,00,000 @ 6%

= ₹ 6,40,000. Tax relief thereon@ 30% = ₹ 1,92,000 p.a. The PV of these reliefs (assumed to be tax-free) at the discount rate of 5.5% is ₹ 1,92,000 × 7.541 = ₹ 14,47,872

Issue costs : Debts ₹ 50 lacs × 1 % + Equity ₹ 100 lacs × 4%

= ₹ 4,50,000.

The adjusted net present value is estimated to be :

(–) ₹ 15,62,500 + ₹ 4,22,296 + ₹ 14,47,872 – ₹ 4,50,000 = (–) ₹ 1,42,332.

Since it is negative, the Project is not financially viable.

(b) Adjusted Present Value (APV), as compared with Net Present Value, may be better as a technique to be used when :

1. there is a significant change in the company's existing capital structure as a result of new investment;
2. the investment involves complex tax payments and tax allowances, and/or has periods when taxation is not paid;
3. subsidized loans, grants or issue costs exist (as when a project is being set up in a backward area or because the government is keen that funds should flow to this area);
4. financing side effects exist (e.g the subsidized loan) which require dis-counting at a rate different from that applied to the mainstream project.

Q. 28. (a) As a 'Financial Analyst' you are analyzing the performance of two companies, a Biotechnology firm and a Mobile telephbone manufacture. You have collected the following information about the two companies :

Company	Actual ROE	Beta	ROE of Peer Group	Forecasted ROE
Biotech Firm	20.5%	1.2	16%	22%
Mobile Firm	12.5%	1.4	10%	10.5%

The risk free rate of return is 7%.

Evaluate the performance of each of these companies relative to :

(i) the required rate of return,

(il) the return on equity of the peer group, and

(iii) the forecasted return on equity.

What conclusions would you draw about the investment choices made by these firms?

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

(i) 10,000 convertible bonds, with a coupon rate of 6% and 10 years to maturity

(ii) 2,00,000 warrants outstanding, conferring on its holders the right to buy stock in the Simple Ltd. at ₹ 65 per share.

These warrants are trading at ₹ 12 each.

You are required to calculate the debt ratio in market value terms.

(c) Convertible bonds are often issued by small, high growth companies to raise debt. Why?

Answer 28. (a)

	ROE	Cost of Equity	Peer Group ROE	Forecast ROE
Bio Tech Firm	20.5%	13.6%	16%	22%
Mobile Phone Firm	12.5%	14.7%	10%	10.5%

(i) The Bio Tech firm did better than its required rate of return, whereas the Mobile Telephone firm lagged its required return.

(ii) The Bio Tech firm did better than its peer group, as did the Mobile telephone firm.

(iii) The Bio Tech firm did less well than the market had expected of it, whereas th Mobile Telephone firm did better.

Answer 28. (b)

Value of common stock = 1 million × 50 = ₹ 50 million.

Value of warrants = 2,00,000 × ₹ 12 = ₹ 2.4 million.

Value of straight debt = ₹ 250 million.

Value of straight debt portion of convertible debt = 10,000 × [60 × (PVA, 9% 10) + 1,000/(1.09) 10]
= ₹ 8.075 million.

Value of conversion option = 10,000 × 1,000 – ₹ 80.75.000 = ₹ 1,925 million.

Value of debt = ₹ 250 + ₹ 8.075 = ₹ 258.075 million.

Value of equity = ₹ 50 + ₹ 2.4 + ₹ 1.925 million = ₹ 54.325 million.

Debt ratio = 258.075/(258.075 + 54.325) = 82.61%.

Answer 28. (c)

There are two factors that lead to small, high-growth companies to raise debt by convertible bonds. One is that small high-growth companies do not have substantial cash flows. Convertible bonds, by keeping the interest expense low, allow these companies to borrow.

The second factor is that small high-growth companies tend to be volatile. This volatility makes the conversion option more valuable to investors and reduces the interest expense on the debt further.

Q. 29. (a) A mutual fund that had a net asset value of ₹ 20 at the beginning of month - made income and capital gain distribution of Re. 0.0375 and Re. 0.03 per share respectively during the month, and then ended the month with a net asset value of ₹ 20.06. Calculate monthly return.

(b) B has invested in three Mutual Fund Schemes as per details below :

	MF X	MF Y	MF Z
Date of investment	**01.12.2011**	**01.01.2012**	**01.03.2012**
Amount of investment	**₹ 50,000**	**₹ 1,00,000**	**₹ 50,000**
Net Asset Value (NAV) at entry date	**₹ 10.50**	**₹ 10**	**Rs. 10**
Dividend received upto 31.03.2012	**₹ 950**	**₹ 1,500**	**Nil**
NAV as at 31.03.2012	**₹ 10.40**	**₹ 10.10**	**₹ 9.80**

Required :

What is the effective yield on per annum basis in respect of each of the three schemes to Mr. B upto 31.03.2012?

Answer 29. (a)

Calculation of monthly return on the mutual funds:

$$r = \left[\frac{(NAV_t - NAV_{t-1}) + I_t + G_t}{NAV_{t-1}}\right]$$

Where,

r = Return on the mutual fund

NAV_t = Net assets value at time period t

NAV_{t-1} = Net assets value at time period t – 1

I_t = Income at time period t

G_t = Capital gain distribution at time period t

$$r = \left[\frac{(₹\ 20.06 - ₹\ 20.00) + (Re.\ 0.0375 + Re.\ 0.03)}{20}\right]$$

$$= \frac{0.06 + 0.0675}{20}$$

$$= \frac{0.1275}{20} = 0.006375$$

or r = 0.6375% p.m.

or say = 7.65% p.a.

Answer 29. (b)

Scheme	Investment	Unit Nos.	Unit NAV 31.3.2012	Total NAV 31.3.2012
		₹	₹	₹
MFX	50,000	4761.905	10.40	49,523.812
MFY	1,00,000	10,000	10.10	1,01,000
MFZ	50,000	5,000	9.80	49,000

Scheme	NAV (+) / (–) ₹	Dividend Received ₹	Total Yield ₹	Number of days	Effective Yield (% p.a.)
MFX	(–)476.188	950	473.812	122	2.835%
MFY	(+)1,000	1,500	2,500	91	10.027%
MFZ	(–)1,000	Nil	(–)1,000	31	(–)24%

Q. 30. (a) The Balance Sheet of RR Limited as on 31.12.2012 is as follows :

Liabilities	(Rupees in Lacs)	Assets	(Rupees in Lacs)
1,00,000 equity shares of		**Goodwill**	**5**
₹ 10 each fully paid	**10**	**Fixed assets**	**15**
1,00,000 equity shares of		**Other tangible assets**	**5**
₹ 6 each, fully paid up	**6**	**Intangible assets (market value)**	**3**
Reserves and Surplus	**4**	**Miscellaneous expenditure to**	
Liabilities	**10**	**the extent not written off**	**2**
	30		**30**

Fixed assets are worth ₹ 24 lacs. Other Tangible assets are revalued at ₹ 3 lacs. The company is expected to settle the disputed bonus claim of ₹ 1 lac not provided for in the accounts. Goodwill appearing in the Balance Sheet is purchased goodwill. It is considered reasonable to increase the value of goodwill by an amount equal to average of the book value and a valuation made at 3 years' purchase of average super-profit for the last 4 years.

After tax, profits and dividend rates were as follows :

Year	PAT (₹ in Lacs)	Dividend %
2009	3.0	11%
2010	3.5	12%
2011	4.0	13%
2012	4.1	14%

Normal expectation in the industry to which the company belongs is 10%.

A holds 20,000 equity shares of ₹ 10 each fully paid and 10,000 equity shares of ₹ 6 each, fully paid up. He wants to sell away his holdings.

(i) Determine the break-up value and market value of both kinds of shares.

(ii) What should be the fair value of shares, if controlling interest is being sold?

(b) The managing director of XYZ Limited 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 ₹ 5 per share forever. The required rate of return of this Company's shareholders is 10%. What is current value of share? What is the cost to each shareholder of the managing director's policy?

Answer 30. (a)

(i) Break up value of Re. 1 of share capital $= \frac{₹\ 28.98\ lacs}{₹\ 16.00\ lacs}$

$= ₹\ 1.81$

Break up value of ₹ 10 paid up share $= 1.81 \times 10 = ₹\ 18.10$

Break up value of ₹ 6 paid up share $= 1.81 \times 6 = ₹\ 10.86$

Market value of shares :

Average dividend $= \left(\frac{11\% + 12\% + 13\% + 14\%}{4}\right) = 12.5\%$

Market value of ₹ 10 paid up share $= \frac{12.5\%}{10\%} \times 10 = ₹\ 12.50$

Market value of ₹ 6 paid up share $= \frac{12.5\%}{10\%} \times 6 = ₹\ 7.50$

(ii) Break up value of share will remain as before even if the controlling interest is being sold. But the market value of shares will be different as the controlling interest would enable the declaration of dividend upto the limit of disposable profit.

$\frac{\text{Average Profit *}}{\text{Paid up value of shares}} \times 100 = \frac{₹\ 3.4\ lacs}{₹\ 16\ lacs} \times 100 = 21.25\%$

Market value of shares :

For ₹ 10 paid up share = $\frac{21.25\%}{10\%} \times 10 = ₹ 21.25$

For ₹ 6 paid up share = $\frac{21.25\%}{10\%} \times 6 = ₹ 12.75$

Fair value of shares = $\frac{\text{Breakup value} + \text{Market value}}{2}$

Fair value of ₹ 10 paid up share = $\frac{18.10 + 21.25}{2} = ₹ 19.68$

Fair value of ₹ 6 paid up share = $\frac{10.86 + 12.75}{2} = ₹ 11.81$

* (Transfer to reserves has been ignored)

Working Notes :

(₹ in lacs)

(I) Calculation of average capital employed

Fixed assets		24.00
Other tangible assets		3.00
Intangible assets		3.00
		30.00
Less : Liabilities	10	
Bonus	1	11.00
		19.00
Less : ½ of profits [½ (4.1 – Bonus 1.0)]		1.55
Average capital employed		17.45

(II) Calculation of super profit

Average profit	= ¼ (3 + 3.5 + 4 + 4.1 – Bonus 1.0)	
	= ¼ × 13.6	3.400
Less : Normal profit	= 10 % of ₹ 17.45 lacs	1.745
Super profit		1.655

(III) Calculation of goodwill

3 Years' purchase of average super-profit	= 3 × 1.655 = ₹ 4.965 lacs
Increase in value of goodwill	= ½ (book value + 3 years' super profit)
	= ½ (5 + 4.965)
	= ₹ 4.9825 lacs

Net assets as revalued including book value of goodwill	24.00
Add : Increase in goodwill (rounded-off)	4.98
Net assets available for shareholders	28.98

Note : In the above solution, tax effect of disputed bonus and corporate dividend tax have been ignored.

Answer 30. (b)

The value of the shares at the end of 20 years is : P_{20} = 30/0.10 = ₹ 300

The value today will be : $P_0 = 300/(1.1)^{20} = 300(0.1486)$*= ₹ 44.58

If the company could pay dividends of ₹ 5 per share forever from the beginning, the price would be : O_0 = 5/0.10 = ₹ 50.

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

₹ (50 – 44.58) = ₹ 5.42 per share.

*From present value table.