Paper-18 : BUSINESS VALUATION MANAGEMENT

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

(i) Brands do not influence customers' demand.

(ii) The provisions of Accounting Standards do not impact Mergers of companies.

(iii) It is important to cross-check the financial statement information by studying financial statement.

(iv) Under DCF Method, in general, higher the risk level, higher will be the discount rate.

(v) A lower discount rate would be applied to the cash flows of the Government Bond.

(vi) Firms tend to be more profitable when there is higher real growth in the underlying market than when there is lower real growth.

(vii) Intrinsic value and market price of equity shares are always equal.

(viii) Diversification is an important strategic alternative to growth.

(ix) For companies, which are not expected to pay dividends, equity shares can not be valued.

(x) If the investor's required rate of return is greater than the annual interest on the bond, the value of the bond is greater than its par value.

Answer 1. (a)

(i) False.

(ii) False.

(iii) True.

(iv) True.

(v) True.

(vi) True.

(vii) False.

(viii) True.

(ix) False.

(x) False.

Q1. (b) Fill in the blanks in the following sentences by using the appropriate words/phrases given in brackets :

(i) In a debt for equity swap, a firm replacing equity with debt _____ , its leverage ratio. [Increases/decreases].

(ii) Post-merger control and the _____ are two of the most important issues in agreeing on the terms of a merger. [negotiated price/ calculated price].

(iii) _____ is a research the purpose of which in mergers and acquisitions is to support valuation process, arm the negotiator, test the accuracy of representations and warranties contained in the merger agreement, fulfill disclosure requirements and inform the planners of post-merger integration. [Due Diligence/Certification.].

(iv) Dividend yield is the dividend per share as a % of the _____ [book/market] value of operating cash flows.

(v) In defending against a hostile takeover, the strategy that involves the target firm creating securities that give their holders certain rights that become effective when a takeover is attempted is called the _____ strategy. [Shark repellant/Greenmail/Poison pill].

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

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

(viii) In _____ , a firm separates out assets of division, creates shares with claims on these assets and sells them to public. [spine off/split up/equity carve out].

(ix) β factor does not measure _____ risk. [systematic/unsystematic]

(x) Assets held as stock in trade are not _____ [investment/disinvestment].

Answer 1. (b)

(i) Increases

(ii) Negotiated price

(iii) Due diligence

(iv) Market value

(v) Poison pill

(vi) **marginal** – The marginal tax rate is assumed to say constant over time.

(vii) **destroying**

(viii) **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.

(ix) **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.

(x) **Investments**

Q1. (c) 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 is not a human-capital related asset?

(A) Trained workforce

(B) Employment agreement

(C) Union contracts

(D) Design patents.

(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. (c)

(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) — **(D) Design Patents**

(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.

(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.

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

Answer 2.

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

(i) Cost method :

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

(ii) Discounted Cash Flow Method (DCF) :

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

(a) Quantification of brand – related future cash flows may be difficult,

(b) Difficulty in estimating the life of a brand,

(c) Assessment of appropriate discount rate for brand valuation purposes is very subjective.

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

(iii) Earning Multiple Method :

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

Brand value = Brand earnings × Applicable multiple.

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

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

(iv) Premium Pricing Method :

The formula for this method is —

Brand value = (Premium Amount) × Volume × Multiple

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

Cost-based approach of Brand Valuation :

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

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

The next step is to adjust these expenditures for inflation.

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

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

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

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

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

(Taxes due) / (Taxable inocme)

The second choice on tax rate is the marginal tax rate, which is the tax rate the firm faces on its last rupee of income. The reason for the choice of marginal tax rate lies in the fact that marginal tax rate for most firms remains fairly similar, but wide differences in effective tax rates are noted across firms. In valuing a firm, if the same tax rate has to be applied to earnings of every period, the safer choice is the marginal tax rate.

Q.3.(a) Why do many mergers fail?

(b) Why do companies want to measure Intellectual Capital?

(c) What factors are considered for selection of a target in a business strategy?

Answer 3. (a)

Major reasons why Mergers fail :

(i) Lack of fit due to difference in management styles or corporate structures,

(ii) Lack of commercial fit,

(iii) Paying too much,

(iv) Cheap purchases turning out to be costly in terms of resources required to turn around the acquired company,

(v) Lack of community of goals,

(vi) Failure to integrate effectively.

Answer 3. (b)

The pre-dominant reason for valuation of intellectual capital (IC) has been for strategic or internal management purposes. The reasons are specifically :

(i) Alignment of IC resources with strategic vision,

(ii) To support or maintain various parties awareness of the company,

(iii) To help bridge between the present and the past,

(iv) Determine the most effective management structure,

(v) To influence stock prices by making several competencies visible to current and potential customers.

Answer 3. (c)

Factors to be considered for selecting a target :

(i) The target fits well with the acquisition objective,

(ii) The target has growth potential but faces some solvable managerial problems,

(iii) The market value of the target is lower than the acquirer's,

(iv) The target does not have too many ongoing litigations with substantial financial impact,

(v) The target's market-to-book value ratio is less than one.

Q.4.(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, 2014 and other information given below :

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

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

2011	18,00,000
2012	22,50,000
2013	31,50,000
2014	34,50,000

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

On 31st March, 2014 an independent expert valuer assessed the value of assets as follows :

Land	**39,00,000**
Buildings	**60,00,000**
Plant and Machinery	**48,00,000**
Debtors (excluding bad debts)	**7,50,000**
Patent and Trademarks	**3,00,000**

Answer 4. (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 4. (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 Trademarks	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
= ₹ 1,42,50,000/5,00,000
= ₹ 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 $= \frac{\text{Rate of dividend}}{\text{Normal rate of return}} \times$ Normal value of share.

$= 24.5/27 \times 15$

$= ₹ 13.61$

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

$= ₹ 21.06$

Q 5. Write in Brief :

(a) Net Realizable value of Inventories

(b) Features of a future contract

(c) Assumptions of Modigliani and Millar regarding dividend policy

(d) Expansion and Diversification

(e) IRR & NPV

Answer 5.

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

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

(i) inventories being damaged,

(ii) inventories becoming obsolete,

(iii) market price having declined,

(iv) production cost has increased, etc.,

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

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

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

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

(b) **Features of a future contract :**

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

The important features of a futures contract are :

(i) Standard volume,

(ii) Liquidity,

(iii) Conterpart Guarantee by Exchange,

(iv) Intermediate cash flows.

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

Assumptions of Modigliani Miller Model are :

(i) there are no stock floatation or transaction costs,

(ii) dividend policy has no effect on the firm's cost of equity,

(iii) The firm's capital investment policy is independent of its dividend policy,

(iv) inventors and managers have the same set of information (symmetric information) regarding future opportunities.

(d) **Expansion and Diversification :**

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

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

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

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

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

(e) **IRR and NPV :**

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

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

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

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

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

When the IRR = k or the NPV = zero, the project may be accepted or rejected.

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

Q. 6. (a) Following are the information of two companies for the year ended 31.03.2014 :

Particulars	Sun Pharma Ltd.	Novartis Ltd.
Equity Shares of ₹ 10 each	800,000	10,00,000
10% Pref Shares of ₹ 10 each	600,000	400,000
Profit after tax	300,000	300,000

Assume the Market expectation is 18% and 80% of the profits are distributed.

(i) What is the rate you would pay to the Equity Shares of each company?

(a) If you are buying a small lot.

(b) If you are buying controlling interest shares.

(ii) If you plan to invest only in preference shares which company's preference share would you prefer?

(iii) Would your rates be different for buying small lot, if Sun Pharma Ltd retains 30% and Novartis Ltd 10% of the profits?

(b) A conveyor system was capitalized on 01-01-13 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 2013-2014 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.

Answer 6. (a)

(i) (a) **Buying a small lot of Equity Shares :**

If the purpose of valuation is to provide data base to aid a decision of buying a small (non-controlling) position of the equity of the companies, dividend capitalization method is most appropriate. Under this method, value of equity share is given by :

Dividend per share / Market capitalization rate x 100

Sun Pharma Ltd. ; ₹ 2.4 / 18 × 100 = ₹ 13.33

Novartis Ltd.; ₹ 2.08 / 18 × 100 = ₹ 11.56

(b) **Buying controlling interest Equity shares :**

If the purpose of valuation is to provide data base to aid a decision of buying controlling interest in the company EPS capitalization method is most appropriate. Under this method, value of equity is given by :

Earning per share (EPS) / Market capitalisation rate × 100

Sun Pharma Ltd.; ₹ 3 / 18 × 100 = ₹ 16.67

Novartis Ltd.; ₹ 2.6 /18 × 100 = ₹ 14.44

(ii) Preference dividend coverage ratio of both companies are to be compared to make such decision.

Preference dividend coverage ratio is given by :

Profit after tax / Preference dividend × 100

Sun Pharma Ltd.; ₹ 3,00,000 / ₹ 60,000 = 5 times

Novartis Ltd.; ₹ 3,00,000 / ₹ 40,000 = 7.5 times.

If we are planning to invest only in preference shares, we would prefer shares of Novartis Ltd. as there is more coverage for preference dividend.

(iii) Yes, the rate will be different for buying a small lot of equity shares, if the Sun Pharma Ltd. Retains 30% and Novartis Ltd 10% of profits.

The new rates will be calculated as follows:

Sun Pharma Ltd.; ₹ 2.1 / 18 × 100 = ₹ 11.67

Novartis Ltd.; ₹ 2.34 / 18 × 100 = ₹ 13.00

Working Notes :

1. Computation of earning per share and dividend per share (companies distribute 80% of profits)

	Sun Pharma Ltd.	**Novartis Ltd.**
Profit before tax	300,000	300,000
Less: Preference dividend	60,000	40,000
Earnings available to equity shareholders (A)	240,000	260,000
Number of equity shares (B)	80,000	100,000
Earning per share (A/B)	3.0	2.60
Retained earnings 20%	48,000	52,000
Dividend declared 80% (C)	192,000	208,000
Dividend per share (C/B)	2.40	2.08

2. Computation of dividend per share (Sun Pharma retains 30% and Novartis 10% of profits)

Earnings available for Equity Shareholders	240,000	260,000
Number of Equity Shares	80,000	100,000
Retained earnings	72,000	26,000
Dividend distribution	168,000	234,000
Dividend per share	2.10	2.34

Answer 6. (b)

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.

Q.7. (a) In May, 2013 SDC Ltd. took a bank loan to be used specifically for the construction of a new factory building. The construction was completed in January, 2014 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, 2014 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 2013-14 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.

(d) A Limited company has been including interest in the valuation of closing stock. In 2013-2014, 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 7. (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, 2014) i.e. ₹ 18 lacs alone can be capitalized. It cannot be extended to ₹ 25 lacs.

Answer 7. (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 7. (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

Answer 7. (d)

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 2013-2014.

Q.8. (a) 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?

(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?

(c) B has invested in there Mutual Fund Schemes as per details below:

	MF X	MF Y	MF Z
Date of investment	**01.12.2013**	**01.01.2014**	**01.03.2014**
Amount of investment	**₹ 50,000**	**₹ 1,00,000**	**₹ 50,000**
Net Asset Value (NAV) at entry date	**₹ 10.50**	**₹ 10**	**₹ 10**
Dividend received upto 31.03.2014	**₹ 950**	**₹ 1,500**	**Nil**
NAV as at 31.03.2014	**₹ 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 31.03.2014?

Answer 8. (a)

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)

$$P_0 = \frac{D(1+g)}{K_e - g} = \frac{2(1.05)}{0.204 - 0.05} = \frac{1.10}{0.154} \text{ ₹ } 13.63$$

Price of share (Revised)

$$P_0 = \frac{2(1.09)}{0.15 - 0.09} = \frac{2.18}{0.06} = \text{₹ } 13.63$$

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.

Answer 8. (b)

Calculation of spot price

The formula for calculating forward price is :

$F_0 = S_0 \times e^{rt}$ Where F_0 = Forward price

S_0 = Spot Price

r = rate of interest

n = no. of compounding

t = time

For Compounding = $F_0 = S_0 \times e^{\frac{r}{n} \times t}$

Using the above formula, or, $208.18 = S_0 \times e^{\frac{0.08}{12} \times 6}$

or, $208.18 = S_0 \times e^{.040}$

or, $208.18 = S_0 \times 1.0408$

or, $S_0 = \frac{208.18}{1.0408} = 200$

Answer 8. (c)

Scheme	Investment	Unit Nos. ₹	Unit NAV 31.3.2014 ₹	Total NAV 31.3.2014 ₹
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	Dividend Received ₹	NAV (+) / (–) ₹	Total Yield ₹	Number of days	Effective Yield (% p.a.)*
MFX	950	(–) 476.188	473.812	121	2.835%
MFY	1,500	(+) 1,000	2,500	90	10.027%
MFZ	Nil	(–) 1,000	(–) 1,000	31	(–) 24%

* Effective Yield = $\frac{\text{Total Yield}}{\text{Investment}} \times 100 \times \frac{365}{\text{No. of days}}$

Q.9. (a) Discuss the concept of Cost *vs.* Fair value with reference to Indian Accounting Standards.

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

Answer 9. (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 9. (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. 10. The Balance Sheet of ABC Ltd. as at 31st March, 2014 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.

	(₹ in crores)		
	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, 2013 and 30th September, 2014.

On 1st April, 2014 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.

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

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

Answer 10.

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)

Balance Sheet of ABC Ltd as at 31st March (After Demerger)

(₹ Crores)

	Particulars	Note	This Year	Prev. Yr.
I	**EQUITY AND LIABILITIES**			
(1)	**Shareholders' Funds:**			
	(a) Share capital	1	345	
	(b) Reserves & Surplus -	2	45	
(2)	**Non-Current Liabilities**			
	Long Term Borrowings - Loan Funds	3	277	
(3)	**Current Liabilities**		270	
	Total		937	
II	**ASSETS**			
(1)	**Non-Current Assets**			
	(a) Fixed Assets: - Tangible Assets (875 – Deprn of 360)		515	
(2)	**Current Assets** - (445 + 102 – 125)		422	
	Total		937	

Notes to the Balance Sheet

Note 1: Share Capital **(₹ Crores)**

Particulars	This Year	Prev. Year
Authorised: …….. Equity Shares of ₹ 10 each		
Issued, Subscribed & Paid up: 34.5 Crores Equity Shares of ₹ 10 each	345	
Total	345	

Note 2: Reserves and Surplus **(₹ Crores)**

Particulars	This Year	Prev. Year
Balance as on 31st March, 2014	685	
Add: Profit on sale of investments	5	
	690	
Less: Loss on demerger	645	
Balance shown in balance sheet after demerger	45	

Note 3: Long Term Borrowings **(₹ Crores)**

Particulars		This Year	Prev. Year
Balance as on 31st March, 2014		417	
Less: Bank Loan transferred to Y Division	15	345	
Debentures redeemed	125	140	
Balance shown in balance sheet after demerger		277	

(b) **Initial Balance Sheet of ZED Ltd.**

(₹ Crores)

	Particulars as at 31st March	**Note**	**This Year**	**Prev. Yr.**
I	**EQUITY AND LIABILITIES**			
(1)	**Shareholders' Funds:**			
	(a) Share capital	1	690	
	(b) Reserves & Surplus - Capital Reserve		5	
(2)			15	
	Non-Current Liabilities: - Long Term Borrowings (Bank Loan)			
(3)	**Current Liabilities**		93	
	Total		803	
II	**ASSETS**			
(1)	**Non-Current Assets** Fixed Assets (at revised value)		218	
(2)	**Current Assets**		585	
	Total		803	

Notes to the Balance Sheet

Note 1: Share Capital **(₹ Crores)**

Particulars	This Year	Prev. Year
Authorised: 90 Crores Equity Shares of ₹ 10 each	900	
Issued, Subscribed & Paid up: 69 Crore Equity Shares of ₹ 10 each (Issued fully for Business Acquisition for Non-Cash Consideration, 2 Shares for every Share)	690	
Total	690	

(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 ₹ (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
Total value per share held by shareholder	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
Assets transferred		710
Less : Loan funds	15	
Purchase consideration	690	705
Capital Reserve		5

Q. 11. TUB Ltd. and VAM Ltd. propose to amalgamate. Their balance sheets as at 31st March, 2014 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.
2011-12	**3,90,000**	**1,35,000**
2012-13	**3,75,000**	**1,20,000**
2013-14	**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 11.

(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 x 18.208/10 2,73,120 shares

VAM Ltd 60,000 x 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.**

Balance Sheet of W. Ltd as at 31st March 2013 (After Amalgamation)

	Particulars as at 31st March	Note	This Year	Prev. Yr.
I	**EQUITY AND LIABILITIES**			
(1)	**Shareholders' Funds:**			
	Share capital	1	36,38,400	
(2)	**Current Liabilities**			
	Trade Payables - Creditors (3,00,000 + 1,50,000)		4,50,000	
	Total		40,88,400	

II	**ASSETS**			
(1)	**Non-Current Assets**			
	(a) Fixed Assets:(i) Tangible Assets (12,00,000 + 3,00,000)		15,00,000	
	(ii) Intangible Assets - Goodwill (3,19,200 + 1,21,200)		4,40,400	
	(b) Non-Current Investments		3,00,000	
(2)	**Current Assets**			
	(a) Inventories (6,12,000 + 4,26,000)		10,38,000	
	(b) Trade Receivables - Debtors (5,10,000 + 1,80,000)		6,90,000	
	(c) Cash & Cash Equivalents (90,000 + 30,000)		1,20,000	
	Total		40,88,400	

Notes to the Balance Sheet:

Note 1: Share Capital

Particulars	This Year	Prev. Year
Authorised: …….. Equity Shares of ₹ 10 each		
Issued, Subscribed & Paid up: 3,63,840 Equity Shares of ₹ 10 each (All the above Shares issued for Non-Cash Consideration pursuant to a scheme of amalgamation, dated …../……./)	36,38,400	

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	4,26,000
Debtors	5,10,000	1,80,000
Cash and Bank Balances	90,000	30,000
	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.* ₹
2011-12	3,90,000	1,35,000
2012-13	3,75,000	1,20,000

	2013-14	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 x 15%	3,16,800	
	VAM. Ltd ₹ 7,86,000 x 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. 12. 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 12.

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 ₹ 600000 from 21-30 years.	(500000 × 6.145) (600000 × 8.514)-(600000 × 6.145)	3072500 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. 13. (a) The Balance Sheets of RST Ltd. for the years ended on 31.3.2012, 31.3.2013 and 31.3.2014 are as follows :

	31.3.2012	31.3.2013	31.3.2014
Liabilities	**₹**	**₹**	**₹**
3,20,000 Equity Shares of ₹ 10 each fully paid	**32,00,000**	**32,00,000**	**32,00,000**
General Reserve	**24,00,000**	**28,00,000**	**32,00,000**
Profit 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**

	31.3.2012	31.3.2013	31.3.2014
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:

	31.3.2012	31.3.2013	31.3.2014
	₹	**₹**	**₹**
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 2011–2012 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, 2011 was ₹ 20 lacs.

The goodwill shown on 31.3.2012 was purchased on 1.4.2011 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 31.3.2014.

(b) The Explain what is "Calculated Intangible Value (CIV)". What are the limitations of this method.

Answer 13. (a)

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.

	31.3.2012 ₹	31.3.2013 ₹	31.3.2014 ₹
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
	2,40,000	4,00,000	8,00,000

Bank Balance	82,80,000	91,20,000	1,04,80,000
Total Assets	12,00,000	16,00,000	20,00,000
Less: Creditors	70,80,000	75,20,000	84,80,000
Closing Capital	73,20,000	70,80,000	75,20,000
Opening Capital	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 :

	31.3.2012 ₹	31.3.2013 ₹	31.3.2014 ₹
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 (31/3/2014)	84,80,000
Less: Goodwill	12,00,000
	72,80,000
Add: Goodwill	41,12,500
Value of Business	1,13,92,500

Answer 13. (b)

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

How to determine CIV?

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

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

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

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

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

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

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

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

Limitations of CIV method :

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

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

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

Q. 14. (a) The Balance Sheet of DD Ltd. as on 31st March, 2014 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 :

2008-09	**₹ 67 lacs**
2009-10	**(-) ₹ 1,305 lacs (loss)**
2010-11	**₹ 469 lacs**
2011-12	**₹ 546 lacs**
2012-13	**₹ 405 lacs**

The unusual negative profitability of the company during 2009-10 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 2008-09 and continued till the last quarter of 2009-10.

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).

(b) 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.

Answer 14. (a)

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 31.3.14		4,118

2. Profit available for shareholders for the year 2013-14

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 2013-14		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

4. Average profit to determine Future Maintainable Profits

		₹ (in lacs)
Profit for the year 2013-14	792	
Profit for the year 2012-13	405	
Profit for the year 2011-12	546	
Profit for the year 2010-11	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 Goodwill at 4 years' purchase of Super Profit 723.20

Notes :

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

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

(3) While considering past profits for determining average profit, the years 2008-09 and 2009-10 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.

Answer 14. (b)

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.

Q. 15. (a) Explain the various methods of payment in case of mergers and amalgamations.

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

Answer 15. (a)

Methods of payment in Mergers and Amalgamations :

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

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

(ii) **Loan Stock :** In this case the shareholders of the selling company exchange their equity investment for a fixed interest investment in the other company. The advantage is that any liability to capital gains tax will be deferred until the disposal of the loan stock. In addition, interest on the loan stock is deductible in the hands of the company for tax purpose.

(iii) **Ordinary shares :** Here the shareholder merely exchanges his shares in one company for shares in another company. The advantage is that the shareholders of the selling company continue to have an interest in the combined business and will not be subject to capital gains tax on the exchange. From the point of view of the combined companies a share exchange does not affect their liquidity.

(iv) **Convertible loan stock :** The shareholders in one company exchange their shares for convertible loan stock in the other company. The selling shareholder exchanges an equity investment for a fixed interest security which is convertible into an equity investment at some time in the future if he so desires.

Answer 15. (b)

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

(a) The anticipated financial value of the individual to the company. This value is dependent on two factors; the person's productivity and his / her satisfaction of being an employee in the company.

(b) The financial value of the group-describing the connection between motivation and organization on one hand and financial results on the other. This model does not measure value but concepts like motivation and welfare. Under this model, measurement of employee satisfaction is given great importance.

(c) Staff replacement costs describing the financial situation in connection with recruitment, reduction and redeployment of employees. This model focuses on replacement costs related the expenses connected with staff acquisition, training and separation. Acquisition covers expenses for recruitment, advertising etc. Training covers education, on-the job training etc. Separation costs covers lost production when a person leaves a job. This model can be used to describe the development of costs in connection with replacements. In many firms, such replacement costs are included in accounts as an expression of staff value to the company.

(d) HR accounting and balancing as complete accounts for HR area. This model concentrates on cost-control, capitalization of the historic expenses for HR. One effect of such a system is the visualization of inexpedient HR management routines.

The basic aims of HRA are very many.

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

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

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

Q.16. (a) Firm A acquires Firm B. As of date Firm B has accumulated losses of ₹ 1,000 Lakh. Firm A is well managed company with a good profit record. The projected profits before taxes, of Firm A, for the next three years are given in the table :

Year	*Amount* (₹)
1	350
2	500
3	700

Assuming corporate tax rate of 35 per cent and discount rate of 12 per cent,

Determine the present value of tax gains likely to accrue on account of merger to A.

(b) Are Real options and Managerial options the same?

(c) Following is the condensed income statement of a firm for the current year :

	(₹ Lakh)
Sales revenue	500
Less – Operating costs	300
Less – Interest costs	12
Earnings before taxes	188
Less – Taxes (0.40)	75.2
Earnings after taxes	112.8

The firm's existing capital consists of ₹ 150 Lakh equity funds, having 15 percent cost and of ₹ 100 Lakh, 12 percent debt. Determine the EVA during the year.

Answer 16. (a)

Present Value (PV) of Tax Shield:

(₹ Lakh)

Particulars	Year-I	Year-II	Year-III
PBT (a)	₹ 350	₹ 500	₹ 700
Less : Adjustment against loss of Firm B / Reduction in taxable income (b)	₹ 350	₹ 500	₹ 150*
Reduction in tax payments [(b) × 0.35]	₹ 122.5	₹ 175	₹ 52.5
Multiple by PV factor at 12%	0.893	0.797	0.712
Total PV of tax shield is ₹ 286.24 Lakh [(c) × PV Factor]	109.39	139.47	37.38

(₹ 1,000 Lakh accumulated loss of Firm B – ₹ 350 Lakh and ₹ 500 Lakh adjusted in years. 1 and 2 respectively).

Firm A gains ₹ 286.24 Lakh in terms of tax savings on acquisition of Firm B.

Answer 16. (b)

Real options occur when managers can influence the size and risk of a project's cash flows by taking different actions during the life of the project. They are referred to as real options as they deal with real and as opposed to the financial asset.

They are also called managerial options because they give opportunities to managers to respond to changing market conditions.

Answer 16. (c)

(i) Determination of Net Operating Profit After Taxes

	(₹ Lakh)
Sales revenue	500
Less- Operating costs	300
Operating profit (EBIT)	200
Less- Taxes (0.40)	80
Net operating profit after taxes (NOPAT)	120

(ii) Determination of WACC

Equity (₹ 150 Lakh × 15%)	₹ 22.5 Lakh
12% Debt (₹ 100 Lakh × 7.2* %)	7.2
Total cost	29.7
WACC (29.7 Lakh / ₹ 250 Lakh)	11.88%

*Cost of debt = 12% (1- 0.4 tax rate) = 7.2 per cent

(iii) Determination of EVA

EVA = NOPAT* – (Total capital × WACC)

= ₹ 120 lakh – (₹ 250 lakh × 11.88%)

= ₹ 120 lakh – ₹ 29.7 lakh

= ₹ 90.3 lakh

During the current year, the firm has added an economic value of ₹ 90.3 lakh to the existing wealth of the equity shareholders. Essentially, the EVA approach is modified accounting approach to determine profits earned after meeting all financial costs of all the providers of capital. Its major advantage is that, this approach reflects the true profit position of the firm.

Q.17. (a) Describe the advantages and disadvantages associated with holding companies.

What is Pyramiding and what are its consequences?

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

Answer 17. (a)

The advantages of the holding company arrangement are :

- The leverage effect resulting from being able to control large amounts of assets with relatively small rupee investments,
- The risk protection resulting from the diversification of risk,
- Legal benefits resulting in reduced taxes and the autonomy of subsidiaries; and
- The lack of negotiation required to gain control of a subsidiary.

The disadvantages of the holding company arrangement are :

- Increased risk from the leverage obtained by a holding company (losses as well as gains are magnified),
- Double taxation, which results because a portion of the holding company's income from a subsidiary whose earnings have already been taxed before paying dividends that are taxed at the parent level,
- The difficulty in analyzing holding companies due to their complexity, which may depress price-earning multiples,
- High administrative costs from managing the diverse entities in a holding company.

Pyramiding of holding companies occurs when one holding company controls other holding companies. This arrangement causes even greater magnification of earnings or losses.

Answer 17. (b)

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

Horizontal Mergers :

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

Vertical Mergers :

- Value chain management,
- Technological and other economies (thorugh avoiding duplication),
- Tax benefits,
- Better control on the supply side.

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

(i) The target fits well with the acquisition objective;

(ii) The target has growth potential but faces some solvable managerial problems;

(iii) The market value of the target is lower than the acquirer;

(iv) The target does not have too many on-going litigations with substantial financial impact;

(v) The target's market-to-book ratio is less than one;

(vi) The target has highly liquid balance-sheet with large amount of excess cash, a valuable securities portfolio, significant unsued debt capacity and underutilized capacity;

(vii) The target may have subsidiaries or assets which could be sold off without imparting cash flows;

(viii) Avoidance of current cut-throat competition;

(ix) Acquisition of brand names, patent rights, etc.;

(x) Synergy, economies of scale, etc.

Q.18. (a) From the following data, compute the 'Net Assets Value' of each category of equity shares of HCC Ltd:

Shareholders funds

10,000 'A' Equity shares of ₹ 100 each, fully paid

10,000 'B' Equity shares of ₹ 100 each, ₹ 80 paid

10,000 'C' Equity shares of ₹ 100 each, ₹ 50 paid

Retained Earnings ₹ 9,00,000

(b) Sanju holds 12,000 equity shares of HCC Ltd., the nominal and paid-up share capital of which consists of:

(i) 40,000 equity shares of ₹ 1 each, and

(ii) 10,000, 8% Preference shares (non-participating) of ₹ 1 each

It is ascertained that:

(i) The normal annual profit of such a company is ₹ 12,000

(ii) The normal rate of transfer to general reserve is 10%

(iii) The normal return by way of dividend on the paid up value of equity share capital for the type of business carried on by the company is 15%.

Prepare a share valuation report for Sanju showing value of his shareholding in HCC Ltd based on the above parameters

Answer 18. (a)

(i) Computation of Net assets

Worth of net assets is equal to shareholders' fund, i.e.

		₹
Paid up value of 'A'	10,000 × ₹ 100	10,00,000
Paid up value of 'B'	10,000 × ₹ 80	8,00,000
Paid up value of 'C'	10,000 × ₹ 50	5,00,000
Retained earnings		9,00,000
Net assets		**32,00,000**

(ii) Net asset value or equity share or ₹ 100 paid up.

National calls or ₹ 20 and ₹ 50 per share on 'B' and 'C' equity shares respectively will make all the 30,000 equity shares fully paid up at ₹ 100 each. In that case,

	₹
Net assets	32,00,000
Add : National calls (10,000 × ₹ 20+10,000 × ₹ 50)	7,00,000
	39,00,000

Value of each equity share or ₹100 fully paid up= ₹ 39,00,000/30,000 = ₹130

(ii) Net asset values of each category of equity shares

	₹
Value of 'A' equity shares or ₹ 100 fully paid up	130
Value of 'B' equity shares of ₹ 100 each, out of which ₹80 paid up (130-20)	110
Value of 'C' Equity shares of ₹ 100 each, out of which ₹ 50 paid up (130-50)	80

Answer 18. (b)

Calculation of Net Distributable Profit

Particulars	**Amount (₹)**
Annual Profit (after tax)	12,000
Less : Transfer to General Reserve	1,200
Balance	10,800
Less : Preference Dividend	800
Net Distributable Profit	10,000

Return on equity share capital = ₹ 10,000 / ₹ 40,000 = 25%

Normal return on equity share capital for the type of business carried on by the company = 15%

Value per share = 0.25 / 0.15 × Re 1 = ₹ 1.6667

Value of Sanju's holding = 12,000 shares × ₹ 1.6667 = ₹ 20,000

Q.19. (a) How would you value a real estate? What are the different levels of market efficiency?

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

Answer 19. (a)

For evaluation of a real estate, one can use the cash flow technique. Of course, in order to use the Discounted cash flow technique the valuer should consider cash inflows like rent, reimbursement of rates and utility expenses, terminal value as well as cash outflows like property taxes, insurance, repairs and maintenance, advertising and utility expenses.

Other simpler methods like Standardized Value Measures (e.g. price per square meter) and Comparable Asset Values (gross income multiplier) are also used.

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

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

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

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

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

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

Answer 19. (b)

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

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

The EVA is calculated by the following formula :

EVA =NP-TC × WACC

Where :

NP = Net Operating Profit after Tax

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

WACC = Weighted Average Cost of Capital

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

WACC = (E×CE+SL×CS+LL×CL)/TC

Where :

E = Owners Equity

CE = Average cost of Owners Equity

SL = Short Term Liabilities

CS = Average cost of Short Term Liabilities

LL = Long Term Liabilities

CL = Average cost of Long Term Liabilities

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

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

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

Economic Value Added will increase if :

(i) Operating profits can be made to grow without employing capital, ie, with increase in efficiency & without using additional resources,

(ii) Additional capital is invested in projects that return more than the cost of obtaining new capital, i.e, in projects with profitable growth,

(iii) Capital is curtaild that do not cover the cost of capital, i.e, by liquidating unproductive capital,

(iv) Growth is maintained by retained profit so long as its return will exceed the Weighted Average Cost of Capital,

(v) Better financing policy is adopted with reduced cost of capital.

Q.20. (a) Explain Tobin's Q. State the circumstances when it is most useful.

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

(i) At what price will the stock of HLL sell?

(ii) What is the present value of growth opportunities?

(iii) Why should such a firm be a takeover target?

Answer 20. (a)

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

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

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

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

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

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

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

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

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

Answer 20. (b)

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

G = ROE × b, where b = 1-Payout ratio, g = 10% × 0.60 = 6%

Stock price of ABC Ltd. should be = (10*0.4) / (0.15-0.06) = ₹ 44.44

The present value of growth opportunities (PVGO) is:

PVGO = Market price per share – No-growth value per share

= ₹ 44.44 – (₹ 10/.15) = ₹ 44.44 – ₹ 66.66 = (–) ₹ 22.22, i.e. negative

Negative PVGO implies that the net present value of the firm's project is negative; the rate of return on those assets is less than the opportunity cost of capital. Such a firm would be subject to takeover target because another firm could buy the firm for the market price of ₹ 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.21. (a) X and Y are two fast growing companies in the engineering industry. They are close competitors and their asset composition, capital structure and profitability records have been very similar for several years. The primary difference between the companies from a financial management perspective is their dividend policy. Company X tries to maintain a non-decreasing dividend per share while company Y maintains a constant dividend payment ratio. Their recent earnings per share (EPS), dividend per share (DPS) and share price (P) history are as follows:

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

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

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

(b) The financial data of Sun Pharma Ltd. is as follows:

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

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

You are required to calculate :

(i) The value of the rights and the market capitalization of Sun Pharma after the rights issue, and

(ii) The Net Asset Value (NAV) of the shares after the rights issue.

Answer 21. (a)

Year	Company X		Company Y	
	DP Ratio	P/E Ratio	DP Ratio	P/E Ratio
1	21.5	8.87	20	7.37
2	27.0	9.12	20	6.43
3	1 9.0	8.57	20	5.71
4	17.6	8.63	20	8.16
5	12.5	8.37	20	8.27
6	15.6	10.62	20	9.41
7	13.2	9.60	20	8.00
Average	18.06	9.11	20	7.62

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

Answer 21. (b)

(i) Amount needed by rights issue= ₹ 200 – ₹ 100 = ₹ 100 lakhs

Subscription price of right share = ₹ 25

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

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

P/E multiple = 7

EPS = 32 Lakhs/4 lakhs shares = ₹ 8

Market price = ₹ 8 × 7 = ₹ 56 per share

Value of the rights, R = P0- S / N + 1 [where P0 = cum-rights market price per share

S = subscription price of a rights share;

N = number existing shares required for a rights issue]

Or, R = 56 – 25 / 1+1

= ₹ 15.50

Market value after the rights issue : $\frac{N \cdot P_0 + S}{N+1}$

Or, $\frac{1 \times 56 + 25}{1+1} = \frac{81}{2}$ = ₹ 40.50

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

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

= ₹ 40.5 × 8

= ₹ 324 lakhs

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

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

Number of shares outstanding = 8 lakh shares

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

Q. 22. The following are the details of the two merged firms, Nylo Ltd. And Xylo Ltd :

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

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

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

(a) You are required to estimate the value of the combined firm, with no synergy,

(b) Estimate the value of the combined firm, with synergy.

Answer 22.

		(₹ in Lakhs) Nylo Ltd.	Xylo Ltd.
(a)	Expected revenue (105% of current revenue)	4,620	3,281
	Less- Cost of Goods Sold (87.5% / 89%)	(4,043)	(2,920)
	Less- Depreciation	(200)	(74)
	EBIT	377	287
	Less- Interest	(14)	(21)
	EBT	363	266
	Less-Tax	(127)	(93)
	EAT (earnings to equity)	236	173
	Cost of equity (236/2000/173/1300)	0.118	0.133
	WACC		
	(2000 × 0.118 + 160 × 0.055)/2160	0.113	
	(1300 × 0.133 + 250 × 0.055)/1550		0.120
	FCFF (free cash flow to firm)		
	[EBIT (1-Tax rate)-Addl. Working capital]		
	For Nylo Ltd: 377 (1-0.35)-22	223	
	For Xylo Ltd: 287 (1-0.35)-16		171
	Firm value: 223/ (0.113-0.05)	3540	
	171/ (0.120-0.05)		2443

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

(b)

	(₹ in Lakhs) Nylo Ltd & Xylo Ltd. with synergy
Expected revenue	7,901
Less- Cost of goods sold	(6795)
Less- Depreciation	(274)
EBIT	832
Less- Interest	(35)
EBT	797
Less –Tax	279
EAT	518
Cost of equity 409* / (2000 + 1300)	= 0.124
WACC : (3300 X 0.157 + 410 × .055) / 3710	=11.64
FCFF : 832 (0.65)–38	=503

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

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

Q.23. Maruti Enterprise is to acquire a personal computer complete with multi-media kit and a printer, Its price is ₹ 60,000. Maruti can borrow ₹ 60,000 from Canara Bank at 12% interest p.a. to finance the purchase. The principal sum is to be repaid in 5 equal yearly instalments. Maruti Enterprise can also have the computer on lease for 5 years and seeks your advice to know the maximum lease rent per year payable at the end of each year.

You are given the following additional information :

(i) Interest on bank loan is payable at the end of each year.

(ii) The full cost of the computer will be written off over the effective life of computer on a straight line basis. This is allowed for tax purposes.

(iii) At the end of the 5th year, the computer may be sold for ₹ 1500 through second hand dealer who will charge 8% commission on the sale proceeds.

(iv) The co's effective tax rate is 30%

(v) The cost of capital is 11%.

Suggest the maximum lease rental for Maruti Enterprise.

Answer 23.

Workings :

(i) Annual loan repayment = ₹ 60,000 / 5 = ₹ 12,000

(ii) Residual sale value at the end of year 5= ₹ 1,500

Less- Commission @ 8%	=	₹ 120
		1,380
Less- Tax @30%	=	414
		₹ 966

Net Cash Outflow under loan option:

Year	1 ₹	2 ₹	3 ₹	4 ₹	5 ₹	Total ₹
Principal Repayment	12000	12000	12000	12000	12000	60000
Payment of Interest	7200	5760	4320	2880	1440	21600
Less-Tax Savings :	19200	17760	16320	14880	13440	81600
(i) on Depn. (12,000 × 30%)	3600	3600	3600	3600	3600	18000
(ii) on Intt.	2160	1728	1296	864	432	6480
Net Outflow	13440	12432	11424	10416	9408	57120
Using discount Factor @11%	0.901	0.812	0.731	0.659	0.593	
PV of cash Outflow	12109	10095	8351	6864	5579	42998
Less- PV of Post Tax inflow At the end of						
Year 5 (966×.593)						573
PV of Net Cash outflow in five years						42,425

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

PV of post-tax lease rental for one year should not exceed ₹ 42,425/ 3.696 = ₹ 11,480 (Approx.)

PV of pre-tax rental per year = ₹ 11,480/ (1-t) = ₹ 11,480/ (1-0.3) = ₹ 16,400

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

Q.24. (a) Calculate the value of equity share from the following information:

Equity share capital (₹ 20.00 each)	**50,00,000**
Reserve & surplus	**5,00,000**
15% secured loans	**25,00,000**
12.5% Unsecured loans	**10,00,000**
Fixed Assets	**30,00,000**
Investments	**5,00,000**
Operating profit	**25,00,000**
Tax rate is 50% (say)	
P/E Ratio is 12.5	

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

(i) What is the maximum exchange ratio which the chief executive should offer so that he could keep EPS at the current level?

(ii) If the chief executive borrows funds at 15 per cent rate of interest and buys out the other company by paying cash, how much should he offer to maintain his EPS? (Assuming the Tax rate of 52%)

Answer 24. (a)

Value of the share = EPS X P /E Ratio

	₹
EBIT	25,00,000
Less- Interest on 15% secured loans	3,75,000
Less- Interest on 12.5% unsecured loans	1,25,000
PBT	20,00,000
Less- Tax @ 50%	10,00,000
PAT	10,00,000

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

EPS = ₹ 10,00,000 / 2,50,000 = ₹ 4.00

P/E =12.5

Therefore value of share = ₹ 4 × 12.5 =₹ 50.

Answer 24. (b)

(i) Assume x no. of share issued.

Calculation of share exchange ratio = $\frac{\text{Combined Net Profit}}{\text{No. of share}} = 4$

or, $\frac{80,00,000+15,75,000}{20,00,000+x} = 4$

or, 95,75,000 = 80,00,000 + 4x

or, x = $\frac{15,75,000}{4}$ = 3,93,750 shares.

∴ Share exchange ratio = 3,93,750 / 1,50,000 = 2.625

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

Working Notes :

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

Total shares of Target Company are 15.75 / 10.50 = 1.5 lakh.

(ii) If fund borrowed @ 15% interest and buys out the target company by paying cash, and maintain the same level of EPS as before.

$\left[\frac{80+15.75-0.15\,(\text{debt})(1-0.52)}{20 \text{ shares}}\right] = 4$

or, 20 × 4 = 95.75 – 0.072 debt

or, 0.072 debt = 95.75 – 80

or, debt = $\frac{15.75}{0.072}$

or, debt = 218.75

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

Q. 25. (a) A firm had paid dividend at ₹ 2 per share last year. The estimated growth of the dividends from the company is estimated to be 5% p.a. Determine the estimated market price of the equity share if the estimated growth rate of dividends—

(i) rises to 8% and

(ii) falls to 3%.

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

(b) A company invested in a 5 year bond issue of another company in 2012 carrying a coupon rate of 10% per annum. The interest payable at half-yearly rates and the principal repayable after 5 years in 2016 end. The current market yield has fallen to 9% during 2013. The investor company wanted to take advantage of the fall in market yield by selling the bond to any willing buyer. Compute the value of the bond at the end of 2013.

Answer 25. (a)

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

The present share price in the market is P_0 = D_1 / Ke-g

= 2.10 / 0.155 - 0.05

= ₹ 20

In case growth rate rises to 8%,

Market price = 2.16 / 0.155 - 0.08

= ₹ 28.80

In case the growth rate falls to 3%,

Market price = 2.06 /0 .155 - 0.03

= ₹ 16.48

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

Answer 25. (b)

Par value of each bond is ₹ 1,000

Coupon rate (%) 10 per annum

Value of the bond as at the end of 2013 is equivalent to presaent value of future cash flow streams from the bond till its maturity discounted at the prevailing market yield (9%). The bond holder will receive half-yearly interests for 2014, 2015 and 2016 and the principal at the end of 2016. Given the market yield in 2013 at 9%.

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

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

= ₹ 1025.79.

Q. 26. (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 26. (a)

Particulars	**MM Ltd.**	**PP Ltd.**
EPS	₹ 2,000 Lacs/200 lacs	₹ 400 lacs/100 lacs
	= ₹ 10	₹ 4
Market Price (EPS×P/E ratio)	₹ 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

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

= ₹ 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 26. (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.27. Write in Brief :

(a) Option pricing

(b) Investment implications of the efficient market theory

(c) Important assumptions of Black and Scholes formula

(d) Limitations of EVA

(e) Limitations of EPS as a performance measure

(f) Levels of market efficiency according to Eugene Fama.

Answer 27.

(a) **Option Pricing :**

An option is a contract between two parties under which the buyer of the option buys the right (but carries no obligation) to buy or sell, a standardized quantity (contract size) of a financial instrument (underlying asset) at or before a pre-determined date (expiry date) at a price, which is decided in advance (exercise price or strike price). Normally, the underlying asset is a share. It could be any other asset.

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

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

(i) Protfolio replication model.

(ii) Risk neutral model.

(iii) Binomial model.

(iv) Black — Scholes model.

(b) **Investment implications of the efficient market theory :**

(i) The substantial evidence in favour of the randomness of stock price behaviour suggests that technical analysis, which is based on the premise that stock prices follow certain patterns, represents useless market folklore.

(ii) Routine and conventional fundamental analysis is not of much help in identifyting profitable courses of action, more so when you are looking at actively traded securities. The efficiency of the market place depends on the presence of numerous investors who make competent efforts to analyse information and take appropriate actions on their analysis.

(ii) The key levers for earning superior rate of return are —

- Early action on any new development,
- Sensitivity to market imperfections and anomalies,
- Use of orginal unconventional and innovative modes of analysis,
- Access to inside information and its sensible interpretation.

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

(1) Returns are normally distributed,

(2) Share price changes are log normally distributed,

(3) Potential price changes follow a random model,

(4) Volatility is constant over the life of the option.

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

(i) Traders can trade continously,

(ii) Financial markets are perfectly liquid,

(iii) Borrowing is possible at the risk-free rate,

(iv) There is no transaction costs,

(v) Investors are risk-neutral.

(d) **Limitations of EVA:**

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

(e) **Limitations of EPS as a performance measure:**

Although EPS is believed to have a real influence on the market price of shares, it has several important limitations as a performance measure:

(i) It does not take account of inflation. Apparent growth in earnings may not be real growth,

(ii) It is based on historic information and therefore it does not necessarily provide predictive value. High earnings and growth in earnings may not be achieved at the expense of investment which may generate increased earnings in the future,

(iii) An entity's earnings are affected by the choice of its accounting policies and by its capital structure. Therefore it is not appropriate to compare EPS of different companies, though their rate of growth of EPS may be validly compared.

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

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

(i) **Weak Form.** The weak form says that the current prices of stocks already fully reflect all the information that is contained in the historical sequence of prices. Therefore, there is no benefit-as far as forecasting the future is concerned — in examining the historical sequence of prices. The weak form of the efficient market hypothesis is popularly known as the random-walk theory.

(ii) **Semi-strong Form.** The semi-strong from of the efficient-market hypothesis says that current prices of stocks not only reflect all informational content of historical prices but also reflect all publicly available knowledge about the corporations being studied. Furthermore, the semi-strong from says that efforts by analysts and investors to acquire and analyze public information will not yield consistently superior returns. Examples of the type of public information that will not be of value on a consistent basis to the analyst are corporate reports, corporate announcements, information relating to corporate dividend policy, forthcoming stock splits, and so forth.

(iii) **Strong Form.** The strong form of the efficient-market hypothesis maintains that not only is publicly available information useless to the investors or analyst but all information is useless. Specifically, no information that is available be it public or "inside", can be used to earn consistently superior investment returns.

Q.28. Sunfood Ltd., is considering to supply products- a special range of namkeens to a departmental store. The contract will last for 50 weeks and the details are given below :

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

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

(i) Material X is an obsolete material. It can only be used on another product, the material of which is available at price of ₹ 1,35,000 (Material X requires some adaptation to be used and costs ₹ 27,000)

(ii) Material Y is ordered for some other product which is no longer required. It has now a residual value of ₹ 2,10,000

(iii) Skilled labour can work on other contracts which are presently operated by semi-skilled labour at a cost of ₹ 5,70,000

(iv) Non-skilled labour are specifically employed for this contract

(v) Supervisory staff will remain whether or not the contract is accepted. Only two of them can replace the other positions where salary is ₹ 35,000.

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

Answer 28.

Statement of Relevant Cost of Sunfood Ltd. :

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

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

Q.29. Toyo Ltd., a toy manufacturing company has aggressive plans for expanding its market share. To get faster market access the management of the company has decided in favour of takeover. The research wing of Toyo Ltd. has undertaken a detailed study of prospective takeover targets and finally identified Giggle Ltd., a company based in Baroda. Toyo Ltd. has already collected the following relevant information about Giggle Ltd. It is now to assess the value of Giggle's to start negotiation for the takeover.

Balance Sheet of Giggle Ltd. as on 31st March, 2014

Liabilities	Amount (₹)	Assets	Amount (₹)	Amount (₹)
Share capital	80	Land	4	
Reserves	6	Buildings	40	
Term loan:		Plant & Machinery	100	
IDBI	100	Other fixed assets	6	
Other	20	Gross fixed assets	150	
Current liabilities	300	Less- Accumulated Depn	64	
			86	
		Add- Capital WIP	16	
		Total fixed assets		1 02
		Inventories		1 20
		Receivables		160
		Other		124
	506			506

Capital Expenditure of ₹ 86 lakhs will be incurred in 2009 and ₹ 280 lakhs in 2010.

Other information :

Particulars	2008	2009	2010	2011	2012	2013
Net sales	1100	1160	1600	2100	2400	2500
Raw materials cost	480	500	660	880	940	960
Power	20	23	32	43	44	48
Employee related cost	56	61	80	88	1 00	11 0
Administrative expenses	21	24	32	37	39	41
Depreciation	10	14	41	42	42.4	42.8

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

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

Expected growth rate after 2013 is 16%.

Note : **Additional capital (issued at par) ₹ 260 lakhs**
Term loan ₹ 220 lakhs

Answer 29.

(₹ in lakhs)

Particulars	2008	2009	2010	2011	2012	2013
Net Sales	1100	1160	1600	2100	2400	2500
Less- Expenses Raw Mat Cost	480	500	660	880	940	960
Power	20	23	32	43	44	48
Administrative Exp	21	24	32	37	39	41
Employer related Cost	56	61	80	88	1 00	11 0
Total expenses	577	608	804	1048	1123	1159
EBDIT	523	552	796	1052	1277	1341
Depreciation	10	14	41	42	42.4	42.8
NOPAT	513	538	755	1010	1234.6	1298.2
[EBIT (1-t)] Add: Depreciation Gross CF	359.1 10 369.1	376.6 14 390.6	528.5 41 569.5	707 42 749	864.2 42.4 906.6	908.7 42.8 951.5
Less: Capital Expenditure	—	86	280	—	—	—
Free cash flow	369.10	304.60	289.50	749	906.6	951.50

Number of equity share = $\frac{(₹\,80 + ₹\,160)}{10}$ = 34 Lakhs.

Market value of equity 34 × ₹ 25 = ₹ 850 Lakhs

Market value of debt ₹ 100 + ₹ 20 + ₹ 220 = ₹ 340 Lakhs

Cost of equity = 20%

Cost of debt = 20% × 0.70 =14%

WACC = 20% x 850 / 1190 + 14% x 340 / 1190 = 18.285%

Computation of Terminal value:

CV6 = 951.5 × 1.16 / (0.1828–0.16) = ₹ 48,409.65 lakh

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

= 369.10 / (1.1828) + 304.6 / (1.1828)2 + 289.5 / (1.1828)3 + 749 / (1.1828) 4 + 906 (1.1828)5 + 951.5 / (1.1828)6 + 48,409.65 / (1,1828)6 – 340

= ₹ 19,495.50 - 340

= ₹ 19,155.50 lakh.

Q.30. (a) Quickest Company's equity shares are currently selling at a price of ₹ 400 each. An investor is interested in purchasing Quickset's shares. The investor expects that there is a 70% change that the price will go up to ₹ 550 or a 30% chance that it will go down to ₹ 350, three months from now. There is a call option on the shares of Quickset that can be exercised only at the end of three months at an exercise price of ₹ 450.

(i) If the investor wants a perfect hedge, what combination of the share and option should be select?
(ii) Explain how the investor will be able to maintain identical position regardless of the share price.
(iii) If the risk-free rate of return is 5% for the 3 month period, what is the value of the option at the beginning of the period?
(iv) What is the expected return on the option?

(b) On April 10, 2014, the stock of Zenith Company (ZC) was trading at ₹ 60. The standard deviation of the continuously compounded stock price change for ZC is estimated 30% per year. The annualized Treasury Bill Rate corresponding to the option life is 7%. Estimate the value of three month Call Option with a Strike Price of ₹ 56.

Note:

Extract from the table:

(i) Natural Logarithms: Ln (1.071429) = 0.068993, Ln (0.9333) = - 0.069029

(ii) Value of e^{-x} : $e^{-0.02}$ = 0.9802 and $e^{-0.01}$ = 0.9901

(iii) Cumulative Standardised Normal Probability Distribution : NCX

When x ≥ 0 : N(0.6516) = 0.7427, N(0.5016) = 0.6921

When x ≤ 0 : N(-0.6516) = 0.2573, N(-0.5016) = 0.3079

Answer 30. (a)

(i) If the share price increases to ₹ 550, the option will be worth ₹ 100 (₹ 550 – 450). If the price reduces to ₹ 350, it will be worth zero. The hedge ratio, therefore, will be:

HR = (₹ 100 – 0) / (₹ 550 – ₹ 350) = ½

The investor will be required to purchase one share for every two call options.

(ii) Value of Hedge at ₹ 550

VH = 1 x ₹ 550 – 2 x ₹ 100 = ₹ 350

Value of Hedge at ₹ 350

VH = 1 x ₹ 350 – 2 x 0 = ₹ 350

The position is unchanged.

(iii) Value of option at the beginning:

Vb = (₹ 400 – 2vb) (1.05) = ₹ 350

=> 2.10vb = ₹ 70

Vb = ₹ 33.00

(iv) Expected option value

EV = (₹ 550 – ₹ 450) (.7) + 0 x .3 = ₹ 70.

Expected Return

ER = (₹ 70 – ₹ 33.33)/₹ 33.33

= 1.10 = 110%.

Answer 30. (b)

From the given information, we can find the value of the call option using Black and Scholes Models. This value is a function of five variables.

So, the inputs for the model in this case are:

S_0 = Current price of stock = ₹ 60

E = Strike price of the potion = ₹ 56

T = Length of time in years remaining for expiration = 3/12 = 0.25

R = Risk-free interest rate = 0.07

σ = Standard deviation of the continuously compounded stock price = 0.30

The value of the call option = $Co = S_0 N(d_1) – Ee^{-rt} N(d_2)$

In putting these numbers into the model; we get,

$$d_1 = \frac{\ln(S_0 / E) + [r + 1/2\sigma^2]t}{\sigma\sqrt{t}}$$

$$= \frac{\ln(60/56) + [0.07 + \frac{1}{2}(0.09)]x0.25}{0.30\sqrt{0.25}}$$

$$= \frac{\ln(1.071429) + 0.02875}{0.15}$$

$$= \frac{0.068993 + 0.02875}{0.15}$$

= 0.097743/0.15 = 0.6516

$d_2 = d_1 - \sigma\sqrt{t}$

= 0.6516 – 0.15 = 0.5016

$e^{-rt} = e^{-0.07 \times 0.25} = e^{-0.0175} = e^{-0.02} = 0.9802$ (given)

$N(d_1) = N(0.6516) = 0.7427$ (given)

$N(d_2) = N(0.5016) = 0.6921$ (given)

The value of the call can now be estimated:

Thus, Value of call option = $C_o = S_0N(d_1) – Ee^{-rt} N(d_2)$

= 60 x 0.7427 – 56 x 0.9802 x 0.6921

= 44.5620 – 37.9902 = ₹ 6.5718 i.e. ₹ 6.57.