Paper 18 – Business Valuation Management

1. A) State whether the following statements are True or False:

(i) In a reverse merger a smaller company acquires a larger company.

(ii) Stock Dividends and Stock Splits may increase the stock price but not the value of the business.

(iii) Buying the units of mutual funds is an indirect investment.

(iv) When prices rise, last in first out (LIFO) method of stock valuation results in lower reported earnings.

(v) Cost of the debt is always more than that of the equity as a company is not mandated to pay any dividend but it has to pay interest on the debt every year.

(vi) Value Gap in context of acquisitions refers to the difference between book value and the purchase price of a company.

(vii) EVA is inversely related to shareholders' value.

(viii) An option is a wasting asset.

(ix) Brand value need not be amortized.

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

B) Fill in the blanks by using words/phrases given in the brackets :

(i) In case of Deep Discount Bond, the issue price is always_____ the face value. (less than/ more than)

(ii) A ratio between the market value of a company to the replacement value of its assets is known as_____ Ratio (Market value to Book value/Market value to Replacement value/ Tobin's Q/Price to Book value).

(iii) In a debt for equity swap, a firm replacing equity with debt_____ its leverage ratio. (Increases/decreases)

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

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

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

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

(viii) Sale of total firm, in parts is usually referred to as _____(liquidation/divestiture)

(ix) The cost of a patent should be amortised over the legal life or the useful life, whichever is_____ (shorter/longer)

(x) Revaluation of assets is undertaken to attract investors by indicating to them_____ value of the asset. (current/future)

C) In each of the questions given below one out of the four options is correct. Indicate the correct answer:

(i) A firm's current assets and current liabilities are 1600 and 1000 respectively. How much can it borrow on a short-term basis without reducing the current ratio below 1.25?

(a) ₹ 1,000
(b) ₹ 1,200
(c) ₹ 1,400
(d) ₹ 1,600

(ii) Identify which of the following is not a financial liability

(a) X Ltd. has 1 lakh ₹ 10 ordinary shares issued

(b) X Ltd. has 1 lakh 8% ₹ 10 redeemable preference shares issued
(c) X Ltd. has ₹ 2,00,000 of 6% bonds issued
(d) Both (a) and (b)

(iii) RICO LTD has PAT of ₹ 40.20 lakh with extra ordinary income of ₹ 7.00 lakh. If the cost of capital is 20% and the applicable tax rate is 40% the value of Rico Ltd will be:
(a) ₹ 250 lakh
(b) ₹ 180 lakh
(c) ₹ 150 lakh
(d) Insufficient information

(iv) If Tobin's Q is over 1, this deems
(a) Stock market to be under valued
(b) Stock market is valued at par
(c) Stock market is highly valued
(d) None of the above

(v) Company has declared a dividend of ₹ 4 per share for the recently ended financial year. It is estimated that its cost of equity is 12.50%. If it has a Dividend pay-out Ratio of 40% and Growth rate in Dividend is 7.50%, then, its Price/ Earnings Ratio will be (assume that price in the market are determined as per the Constant Dividend Growth Model)
(a) 8.00
(b) 8.33
(c) 8.60
(d) 14.33

(vi) 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.

(vii) 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

(viii) Mr.B deposits ₹s200000 in a bank account which pays 10 percent interest. How much can he withdraw annually for a period of 15 years? [(PVIFA 10%, 15years) =7.606]
(a) ₹ 26295
(b) ₹ 29625
(c) ₹ 22569
(d) None of the above

(ix) 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.

(x) Bharat Gas Corporations has ₹ 100 crores worth of common equity on its balance sheet, and 50 lakhs shares of stock outstanding. The company's Market Value Added (MVA) is ₹24 crores. What is the company's stock price?

(a) ₹ 230
(b) ₹ 238
(c) ₹ 248
(d) ₹264

Answer 1.

A) (i) True - Reverse Merger is the acquisition of a public company by private company.

(ii) True - A stock split increases the number of shares in a public company. The price is adjusted such that before and after, market capitalisation of company remains same. Stock dividend is payment of dividend in form of shares without increasing the market capitalisation of company.

(iii) True - A mutual fund is simply a collection of stocks, bonds, another securities owned by a group of investors and managed by professional investment company.

(iv) True - When prices rise, last in first out (LIFO) method of stock valuation results in lower reported earnings.

(v) False - Cost of the debt is not always more than that of the equity just because of the company is not mandated to pay dividend every year but has to pay interest on the debt every year.

(vi) False - Value Gap is the difference between intrinsic value and purchase price of a company.

(vii) False - EVA is directly related to shareholders' value

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

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

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

B) (i) Less than - Deep Discount Bond is a bond that sells at a significant discount from par value. Typically, a deep discount bond will have a market price of 20% or more below its face value. These bonds are perceived to be riskier than similar bonds and are thus priced accordingly.

(ii) Tobin's Q - Tobin's Q is devised by James Tobin of Yale University, Nobel laureate in economics. The Q ratio is calculated as the Market value of a company divided by the replacement value of the firms assets.

(iii) Increases - The financial leverage ratio is the debt-to-equity ratio. Increase in debt will increase leverage.

(iv) Marginal - The marginal tax rate is assumed to say constant over time.

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

(vi) Primary - Organizational capital includes the organization philosophy and systems for leveraging the organization's capability.

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

(viii) Liquidation - Selling a division or part of an organization is called *divestiture*.

(ix) Shorter - There is tremendous uncertainty associated with assessing the value of patents. So, amortised over the shorter of the two.

(x) Current - The purpose of a revaluation is to bring into the books the fair market value of fixed assets. This may be helpful in order to decide whether to invest in another business. If a company wants to sell one of its assets, it is revalued in preparation for sales negotiations.

C) (i) (c) ₹ 1400

Amount of borrowing be x. (Current Asset will increase because borrowing will increase the cash amount)

$\frac{1600+x}{1000+x} = 1.25$

Or, x = 1400

(ii) (a) X Ltd. has 1 lakh ₹ 10 ordinary shares issued

A share is an indivisible unit of capital, expressing the proprietary relationship between the company and the shareholder.

(iii) (b) ₹ 180 Lakh

PAT — ₹ 40.20 Lakh
Extraordinary income = ₹ 7 lac
Tax @ 40% = 2.8
PAT of Extraordinary income = 4.2 lac
PAT excluding extra ordinary income = ₹ 40.2 lac – ₹ 4.2 lac = ₹ 36 lac
Cost of capital = 20%
Value of firm = $\frac{36 \text{ lac}}{0.20}$ = 180 lac.

(iv) (c) Stock market is highly valued

(v) (c) 8.60

Dividend	4.00
Growth Rate in Dividend	7.50%
Dividend payout ratio	40%
EPS (Dividend/Dividend payout ratio)	10
Cost of Equity	12.50%
Price [4(1.075)/(0.125-0.075)]	86
Price/Earning Ratio	8.60

(vi) (c) ₹ 40.00.

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

(vii) (c) 7.83 years.

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

(viii) ₹ 26295

₹ 200000 = A * ($PVIFA_{10\%,15}$)
or, 200000 = A* 7.606 or, A = 200000/7.606 = ₹ 26295

(ix) (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.

(x) (c) ₹ 248.

MVA = (Shares Outstanding)*(Stock Price) – Total Common Equity
₹ 24crores = (50lakhs)* Stock Price – 100 crores
₹ 124crores = (50lakhs)* Stock Price
Stock Price = ₹ 248.

2. a) Under the Discounting Cash Flow Method, companies are valued by discounting free cash flows. What do you understand by free cash flows?

Answer.

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

(b) Following informations are available in respect of ABC Ltd. which is expected to grow at a higher rate for 4 years after which growth rate will stabilize at a lower level:

Base year information:

Particulars	₹in lakhs
Revenue	**20,000**
EBIT	**3,000**
Capital Expenditure	**2,800**
Depreciation	**2,000**

Information for high growth and stable growth period are as follows:

Particulars	High Growth	Stable Growth
Growth in Revenue & EBIT	**20%**	**10%**
Growth in capital expenditure and depreciation	**20%**	**Capital expenditure are offset by depreciation**
Risk free rate	**10%**	**9%**
Equity beta	**1.15**	**1**
Market risk premium	**6%**	**5%**
Pre tax cost of debt	**13%**	**12.86%**
Debt equity ratio	**1:1**	**2:3**

For all time, working capital is 30% of revenue and corporate tax rate is 35%.
What is the value of the firm?

Solution:

(b) High growth phase

K_e = 0.10 + 1.15 x 0.06 = 0.169 or 16.9%

K_d = 0.13 x (1 – 0.35) = 0.0845 or 8.45%

WACC = 0.50 x 0.169 + 0.50 x 0.0845 = 0.12675 or 12.68%

Stable growth phase

K_e = 0.09 + 1 x 0.05 = 0.14 or 14%

K_d = 0.1286 x (1 – 0.35) = 0.08359 or 8.36%

WACC = 0.60 x 0.14 + 0.40 x 0.08359 = 0.117436 or 11.74%

Determination of forecasted Free Cash Flow of the Firm (FCFF)

Particulars	Year 1	Year 2	Year 3	Year 4	Terminal Year
Revenue	24,000	28,800	34,560	41,472	45,619.2
EBIT	3,600	4,320	5,184	6,220.8	6,842.88
EAT = EBIT (I – t)	2,340	2,808	3,369.6	4,043.52	4,447.87
Add: Depreciation	2,400	2,880	3,456	4,147.20	---
Less: Capital Expenditure	(3,360)	(4,032)	(4,838.4)	(5,806.08)	---
Less: Change in working capital	(1,200)	(1,440)	(1,728)	(2,073.60)	(1,244.16)
Free Cash Flow (FCF)	180.00	216.00	259.20	311.04	3,203.71

Present value of FCF during the explicit forecast period is:

FCF (₹ in lakhs)	PVF @ 12.68%	PV (₹ in lakhs)
180.00	0.8875	159.75
216.00	0.7876	170.12
259.20	0.6989	181.15
311.04	0.6203	192.94
		703.96

Pv of terminal value is $\frac{₹\ 3,203.71}{0.1174 - 0.10} \times \frac{1}{(1.1268)^4}$ = 184121.26 x 0.6203 = 114210.42 lakhs.

Therefore, the value of the firm is ₹(703.96 + 1,14,210.42) lakhs = ₹1,14,914.38 lakhs

3. (a) A Ltd. is considering the proposal to acquire B Ltd. and their financial information is given below:-

Particulars	A Ltd.	B Ltd.
No. of equity shares	**10,00,000**	**6,00,000**
Market price per share (₹)	**30**	**18**
Market Capitalisation (₹)	**3,00,00,000**	**1,08,00,000**

A Ltd. intends to pay ₹1,40,00,000 in cash for B Ltd. if B Ltd's market price reflects only its value as a separate entity. Calculate the cast of merger.

(i) When merger is financed by cash

(ii) When merger is financed by stock and A Ltd. agrees to exchange 5,00,000 shares in exchange of shares in B Ltd.

Solution:

(i) Cost of merger when it is financed by cash.

Cost of merger = (Cash – PV_B)
= (1,40,00,000 – 1,08,00,000)
= ₹32,00,000

If the cost of merger becomes negative, then the equity share holder of Firm A gain higher by acquiring Firm B in terms of its market value.

ii) Cost of Merger when it is financed by stock:

Cost of merger = α PV_{AB} – PV_B

Where, α PV_{AB} = Value in firm A that firm B's shareholders get

If firm A agrees to pay by way of 5,00,000 equity shares instead of cash of ₹1,40,00,000, now the apparent cost would be as follows:

Particulars	₹
5,00,000 shares @ ₹30 each	1,50,00,000
Less: Market value of Firm B	1,08,00,000
	42,00,000

$PV_{AB} = PV_A + PV_B$ = 3,00,00,000 + 1,08,00,000 = 4,08,00,000

Proportion that firm B's shareholders get in firm A's capital structure will be

$= \frac{5,00,000}{10,00,000 + 5,00,000} = 0.33$ i.e., $\frac{1}{3}$

True cost of merger = α $PV_{AB} - PV_B = (\frac{1}{3} \times 4,08,00,000) - 1,08,00,000 = 28,00,000$

The apparent cost as calculated above is ₹42,00,000, where as true cost is ₹28,00,000 i.e., apparent cost is more than true cost and merger is beneficial to Firm B.

3. (b) Firm P Ltd. is planning to acquire Firm N Ltd. The relevant details of the two firms prior to merger announcement are as follows:

Particulars	P Ltd.	N Ltd.
Market value of the firm(₹)	**7500 lakhs**	**1500 lakhs**
No. of outstanding shares	**100 lakhs**	**50 lakhs**
Market price per share	**₹75**	**₹30**

The merger is expected to generate gains which have a present value of ₹1500 lakhs. Firm P Ltd. offers 25 lakhs shares in exchange of 50 lakhs shares to the shareholders of Firm N Ltd.
You are required to calculate

a) The true cost of Firm P Ltd. for acquiring firm N Ltd. and
b) Net Present value of the merger to firm N.

Solution:

a) True cost of firm P Ltd. for acquiring firm N Ltd.

True Cost = α $PV_{PN} - PV_N$

Where α represents the fraction of the combined entity received by the shareholders of N Ltd.

$$\alpha = \frac{25,00,000}{1,00,00,000 + 25,00,000} = 0.20$$

On assumption that firm P Ltd's and Firm N Ltd's pre-merger market value equals their post merger values, we get

PV_{PN} = PV_P + PV_N + Synergy
= 7500 lakhs + 1500 lakhs + 1500 lakhs
= 10500 lakhs

True cost to Firm P Ltd. = α PV_{PN} - PV_N
= ₹(0.20 x 10500) – ₹1500
= ₹600 lakhs

b) NPV of the merger to Firm N Ltd. is nothing but cost to Firm P Ltd.
Therefore, NPV of Merger to Firm N Ltd. = ₹600 lakhs.

4. a) i) Why do Mergers & Acquisitions take place?
(ii) Why do they fail?

Answer:
(i) Mergers and Acquisitions take place to take advantage of the following:

Synergy in operating economies- It is considered that total value from combination is greater than the sum of values the component companies independently. The reason is benefits derived from –

• Economies of scale through sharing of central services such as procurement, accounting, financial control, resources management, top level management and control.
• Economies of Vertical Integration by moving both forward (towards the customer) and backward (towards supplies of raw materials and inputs).
• Companies having complementary resources.
• Investible surplus funds leading to looking for investment opportunities.
• Eliminating inefficiencies by making use of unexploited opportunities to cut cost and improve revenues.

Taxation advantages-Mergers take place to have benefits of tax laws and a profit earning company may merge with loss making one that will shield the income from taxation.

(ii) Mergers fail mainly due to the following reasons:

(A) Lack of integration synergies.
(B) Key employees leaving the merged organization.
(C) Lack of common goals
(D) Corporate culture clashes.
(E) Paying too much premium.
(F) Poor level of communication both internally and externally.
(G) Lack of sufficient due diligence by the acquiring company.

4. b) As the finance manager of X Ltd., you are investigating the acquisition of Y Ltd. company. The following facts are given:

Particulars	X Ltd.	Y Ltd.
Earning per share	₹67.50	₹25

Dividend per share	**₹32.50**	**₹10**
Price per share	**₹480.00**	**₹150**
Number of shares	**600 lakhs**	**200 lakhs**

Investors currently expect the dividends and earnings of Y Ltd. to grow a steady rate of 7% after acquisition this growth rate would increase to 8% without any additional investment.
Required:

I. What is the benefit of this acquisition?

II. What is the cost of this acquisition to X Ltd. if it pays

i) ₹170 per share compensation (cash) to X Ltd. and

ii) Offers 2 shares for every 6 shares of Y Ltd?

Solution:

I. Rate of return (K_e) required by the investors of Y Ltd company.

$$K_e = \frac{D_1}{P_o} + g$$

$$K_e = \frac{10}{150} + 0.07$$

$= 0.1367$ or 13.67%

If g = 8% then $P_o = \frac{D_1}{K_e - g} = \frac{10(1.08)}{0.1367 - 0.08}$

$\therefore P_o$ = ₹190.48

Benefit of acquisition
= (PV of Y Ltd. with merger – PVv of Y Ltd. without merger) X No. of shares of Y Ltd. outstanding.
= ₹(190.48 – 150) x 200 lakhs
= ₹8096 lakhs.

II. Cost of acquisition to X Ltd.

(i) If it pays ₹170 cash compensation
= Cash compensation - PV_y
= (₹170 x 200 lakhs) – (₹150 x 200 lakhs)
= ₹4000 lakhs

(ii) If X Ltd. offers 2 shares for every 6 shares of Y Ltd., then the share of Y Ltd. (α) in the combined entity will be

$$\alpha = \frac{200 \text{ lakhs } x\frac{2}{6}}{600 \text{ lakhs} + \left[200 \text{ lakhs } x\frac{2}{6}\right]}$$

$= 0.10$

Therefore, PV_{xy} = $PV_x + PV_y$ + Synergy
= (₹480 x 600 lakhs) + (₹150 x 200 lakhs) + ₹8096 lakhs
= 288000 + 30000 + 8096
= ₹326096 lakhs

Cost of acquisition to X Ltd.

$= \alpha PV_{xy} - PV_y$

= (0.10 x 326096 lakhs) – 30000 lakhs

= ₹2609.60 lakhs

5. a) i) Explain the term 'Demerger'?

ii) What do you mean by Reverse Merger?

Answer:

a) i) It has been defined as a split or division. As the same suggests, it denotes a situation opposite to that of merger. Demerger or spin-off, as called in US involves splitting up of conglomerate (multi-division) of company into separate companies. This occurs in cases where dissimilar business are carried on within the same company, thus becoming unwieldy and cyclical almost resulting in a loss situation. Corporate restructuring in such situation in the form of demerger becomes inevitable. Merger of SG chemical and Dyes Ltd. with Ambalal Sarabhai enterprises Ltd. (ASE) has made ASE big conglomerate which had become unwieldy and cyclic, so demerger of ASE was done. A part from core competencies being main reason for demerging companies according to their nature of business, in some cases, restructuring in the form of demerger was undertaken for splitting up the family owned large business empires into smaller companies. The historical demerger of DCM group where it split into four companies (DCM Ltd., DCM Shriram industries Ltd., Shriram Industrial Enterprise Ltd. and DCM Shriram consolidated Ltd.) is one example of family units splitting through demergers. Such demergers are accordingly, more in the nature of family settlements and are affected through the courts order. Thus, demerger also occur due to reasons almost the same as mergers i.e. the desire to perform better and strengthen efficiency, business interest and longevity and to curb losses, wastage and competition. Undertakings demerge to delineate businesses and fix responsibility, liability and management so as to ensure improved results from each of the demerged unit. Demerged Company, according to Section (19AA) of Income Tax Act, 1961 means the company whose undertaking is transferred, pursuant to a demerger to a resulting company. Resulting company, according to Section2(47A) of Income Tax Act,1961 means one or more company, (including a wholly owned subsidiary thereof) to which the undertaking of the demerged company is transferred in a demerger, and the resulting company in consideration of such transfer of undertaking issues shares to the shareholders of the demerged company and include any authority or body or local authority or public sector company or a company established, constituted or formed as a result of demerger.

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

- The transferee company is a sick company and has carry forward losses and Transferor Company is profit making company. If Transferor Company merges with the sick transferee company, it gets advantage of setting off carry forward losses without any conditions. If sick company merges with healthy company, many restrictions are applicable for allowing set off.
- The transferee company may be listed company. In such case, if Transferor Company merges with the listed company, it gets advantages of listed company, without following strict norms of listing of stock exchanges. In such cases, it is provided that on date of merger, name of Transferee Company will be changed to that of Transferor Company. Thus, outside people even may not know that the transferor company with which they

are dealing after merger is not the same as earlier one. One such approved in Shiva Texyarn Ltd.

5. b) The following information is provided related to the acquiring Firm Black Ltd. and the target Firm White Ltd.

Particulars	Black Ltd.	White Ltd.
Earnings after tax (Rs.)	**4000 lakhs**	**800 lakhs**
Number of shares outstanding	**400 lakhs**	**200 lakhs**
P/E ratio (times)	**20**	**10**

Required:

i) What is the swap Ratio based on current market prices?
ii) What is the EPS of Black Ltd. after acquisition?
iii) What is the expected market price per share of Black Ltd after acquisition assuming P/E ratio of Black Ltd. remains unchanged?
iv) Determine the market value of the merged firm.
v) Calculate gain/loss for shareholders of the two independent companies after acquisition.

Solution:

Particulars	Black Ltd.	White Ltd.
EPS	$\frac{4000 \text{ lakhs}}{400 \text{ lakhs}} = ₹10$	$\frac{800 \text{ lakhs}}{200 \text{ lakhs}} = ₹4$
Market Price [MPS = EPS x P/E ratio]	₹10 x 20 = ₹200	₹4 x 10 = ₹40

i) The swap ratio based on current market price is = $\frac{₹\ 40}{₹\ 200}$ = 0.20 or 1 share of Black Ltd. for 5 shares of white Ltd.
No. of shares to be issued = 200 lakhs x 0.20 = 40 lakhs

ii) EPS after merger = $\frac{₹(4000 \text{ lakhs} + 800 \text{ lakhs})}{400 \text{ lakhs} + 40 \text{ lakhs}} = ₹10.91.$

iii) Expected market price after merger assuming P/E ratio = 20 times
= ₹10.91 x 20
= ₹218.20

iv) Market value of merged firm = ₹218.20 x 440 lakhs
= ₹96008 lakhs
= ₹960.08 crores.

v)

Particulars	₹in crores	₹in crores.
Post merger market value of the merged firm		960.08
Less: Pre-merger market value		
Black Ltd. [400 lakhs x ₹200]	800	
White Ltd. [200 lakhs x ₹40]	80	(880)
		80.08

Appropriation of gains from the merger among shareholders:

Particulars	Shareholders of Black Ltd.	Shareholders of White Ltd.
Post merger value	872.80	87.28
Less: Pre merger value	(800.00)	(80.00)
Gain to shareholders	72.80	7.28

6. a) The following information is provided relating to the acquiring company Weak Ltd. and the target company Strong Ltd.

Particulars	Weak Ltd.	Strong Ltd.
No. shares (F. V. ₹10 each)	100.00 lakhs	75.00 lakhs
Market capitalization	5000.00 lakhs	7500.00 lakhs
P/E ratio (times)	10.00	5.00
Reserve and surplus	3000.00 lakhs	1650.00 lakhs
Promoter's Holding (NO. of shares)	47.50 lakhs	50.00 lakhs

Board of directors of both the companies have decided to give a fair deal to the shareholders and accordingly for swap ratio the weights are decided as follows:

For each company

EPS : 40%
Book Value : 25%
Market price of share : 35%

Required :

i) Calculate the swap ratio and also calculate promoter's holding % after acquisition.
ii) What is the EPS of Weak Ltd after acquisition of strong Ltd?
iii) What is the expected market price per share and market capitalization of Weak Ltd. after acquisition, assuming P/F ratio of firm Weak Ltd. remains unchanged.
iv) Calculate free float market capitalization of the merged firm.

Solution:

Particulars	Weak Ltd.	Strong Ltd.
Market Capitalisation	5000 lakhs	7500 lakhs
No. of Shares	100 lakhs	75 lakhs
MPS	₹50	₹100
P/E ratio (times)	10	5
EPS	₹5	₹20
Profit	₹500 lakhs	₹1500 lakhs
Share capital	₹1000.00 lakhs	₹750.00 lakhs
Reserve & Surplus	₹3000.00 lakhs	₹1650.00 lakhs
Total	₹4000.00 lakhs	₹2400.00 lakhs
Book value per share	₹40	₹32

i) Calculation of swap ratio

EPS	4 : 1 i.e.	4.0 x 40%	1.6
Book Value	0.8 : 1 i.e.	0.8 x 25%	0.2
Market Price	2 : 1 i.e.	2 x 35%	0.7
		Total	2.5

Therefore, Swap ratio is for every one share of Strong Ltd. to issue 2.5 shares of Weak Ltd. Hence, total no of shares to be issued = (75 lakhs x 2.5) = 187.50 lakhs.

Promoter's holding = 47.50 lakh shares + (50 x 2.5) lakhs = 172.50 lakh

Promoter's holding % is = $\frac{172.50 \text{ lakh}}{(100 + 187.50) \text{ lakh}} \times 100 = 60\%$

ii)

Total No. of Shares = (100 + 187.50) lakhs = 287.50 lakhs

Total Profit (after acquisition) = ₹(500 + 1500) lakhs = ₹2000 lakhs

EPS (after acquisition) = $\frac{₹\ 2000\ \text{lakhs}}{287.50\ \text{lakhs}}$ = ₹ 6.957

iii)

Expected Market Price per share = ₹6.957 x 10 = ₹69.57
Market capitalization (after acquisition) = ₹69.57 x 287.50 lakhs = ₹20,001.375 lakhs

iv) Free float of Market capitalization = ₹69.57 x (287.50 x 40%) = ₹8000.55 lakhs

6. b) What are the defensive strategies available to a company in case of hostile takeover.

Answer:

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

(i) Preventive measures are undertaken to reduce the chances of hostile takeover bids. They are as follows :

- Poison pill is a tactic to make a takeover more expensive or unattractive so that task of the bidder becomes more difficult.
- Golden parachutes- Unacceptably high compensation packages that must be paid to the senior managers in case of termination, so raider loses interest.
- Shark repellents-Amendments made in company charter to forestall takeover attempts.
- Crown jewel option- is to sell the valuable assets of the firm at below market price.

(ii) Active measures- are employed when hostile bids are launched.

- White Knight- A friendly party saves the company from hostile takeover.
- Greenmail-Premium paid by a target company to buy back its stock from a potential acquirer.
- Standstill agreements- Target company reaches a contractual agreement with potential buyer that buyer will not increase his holding in the target firm for a particular period.
- Capital structure changes-These includes ownership reorganization, employee stock ownership plans, leveraged buyouts etc.
- Pac-Man defense- The Company under attack turns table by bidding for the acquirer company.
- Litigation- One of the most common antitakeover measures and used as a delaying tactic.
- Trigger the application of state anti-takeover laws.

7. a) The chief executive of a company thinks that shareholders always look for the earning per share. Therefore, he considers maximization of the earning per share (EPS) as his company's objective. His company's current net profit are ₹160 lakh and EPS is ₹8.
The current market price is ₹84. He wants to buy another firm which has current income of ₹31.50 lakh, EPS of ₹21 and the market price per share of ₹170.

Required :

i) What is the maximum exchange ratio which the chief executive 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? Assume a tax rate of 30 per cent.

Solution:

Particulars	₹ in lakhs	
Current data	**Acquiring Company**	**Target Company**
Net Profit	160	31.50
EPS	8	21
MPS	84	170
Number of equity share (in lakhs)		
Acquiring Company = $\frac{160}{8}$	20	
Target Company = $\frac{31.50}{21}$		1.5

i) Here, $\frac{\text{Combined net profit}}{\text{No. of shares}} = 8$

Or, $\frac{(160 + 31.50)\text{lakhs}}{(20 + x)\text{lakhs}} = 8$

Or, 191.50 = 160 + 8x

Or, $x = \frac{191.50 - 160}{8}$

X = 3.9375 lakh

Share exchange ratio = $\frac{3.9375}{1.5} = 2.625$

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

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

$$\frac{160 + 31.50 - 0.15\,(\text{Debt})\,(1 - 0.30)}{20} = 8$$

Or, 191.50 – 0.105 Debt = 160

Or Debt = $\frac{191.50 - 160}{0.105}$

= 300 lakhs

Therefore, the CFO can offer ₹300 lakh to acquire the target company. Amount payable to each share in target company = 300 lakhs ÷ 1.5 lakhs = ₹200 per share in cash.

7. b) What are the possible causes of different types of Merger?

Answer:

An extensive appraisal of each merger scheme is done to patterns the causes of mergers. These hypothesized causes (motives) as defined in the mergers schemes and explanatory statement framed by the companies at the time of mergers can be conveniently categorized based on the type of merger.

The possible causes of different type of merger schemes are as follows:

(i) Horizontal merger: These involve mergers of two business companies operating and competing in the same kind of activity. They seek to consolidate operations of both companies. These are generally undertaken to:

(a) Achieve optimum size
(b) Improve profitability
(c) Carve out greater market share
(d) Reduce its administrative and overhead costs.

(ii) Vertical merger: These are mergers between firms in different stages of industrial production in which a buyer and seller relationship exists. Vertical merger are an integration undertaken either forward to come close to customers or backwards to come close to raw materials suppliers. These mergers are generally endeavoured to:

(a) Increased profitability
(b) Economic cost (by eliminating avoidable sales tax and excise duty payments)
(c) Increased market power
(d) Increased size

(iii) Conglomerate merger: These are mergers between two or more companies having unrelated business. These transactions are not aimed at explicitly sharing resources, technologies, synergies or product. They do not have an impact on the acquisition of monopoly power and hence are favoured throughout the world. They are undertaken for diversification of business in other

products, trade and for advantages in bringing separate enterprise under single control namely:

(a) Synergy arising in the form of economies of scale.
(b) Cost reduction as a result of integrated operation.
(c) Risk reduction by avoiding sales and profit instability.
(d) Achieve optimum size and carve out optimum share in the market.

(iv) Reverse mergers: Reverse mergers involve mergers of profit making companies with companies having accumulated losses in order to:

(a) Claim tax savings on account of accumulated losses that increase profits.
(b) Set up merged asset base and shift to accelerate depreciation.

(v) Group company mergers: These mergers are aimed at restructuring the diverse units of group companies to create a viable unit. Such mergers are initiated with a view to affect consolidation in order to:

(a) Cut costs and achieve focus.
(b) Eliminate intra-group competition
(c) Correct leverage imbalances and improve borrowing capacity.

8. a) (i) In valuing a firm should you use marginal or effective tax rate?
(ii) How do you relate coupon rate, required yield and price?

Answer:

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

(Taxes due) / Taxable income

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

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

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

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

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

8. b) Consider two firms that operate independently and have following characteristics:

Particulars	ABC Ltd. ₹in lakhs	XYZ Ltd. ₹in lakhs
Revenues	**600**	**300**
COGS	**350**	**180**
EBIT	**250**	**120**
Expected Growth rate	**6%**	**8%**
Cost of capital	**9%**	**10%**

Both firms are in steady state with capital spending offset by depreciation. Both firms have an effective tax rate of 40% and are financed only by equity. Consider the following two scenarios:-

Scenario – I: Assume that combining the two firms will create economics of scale that will reduce the COGS to 50% of Revenue.

Scenario – II: Assume that as a consequence of the merger, the combined firm is expected to increase its future growth to 8% while COGS will be 60%.
It is given that scenario I & II are mutually exclusive.
You are required to:

- **(i) Compute the values of both the firms as separate entities.**
- **(ii) Compute the values of both the firms together if there were absolutely no synergy at all from the merger.**
- **(iii) Compute the value of cost of capital and the expected growth rate.**
- **(iv) Compute the value of synergy in (i) Scenario – I & (ii) Scenario – II.**

Solution:

(i) Value of ABC Ltd. $= \frac{FCFF\,(1+g)}{K_e - g}$

$= \frac{EBIT(1-t)(1+g)}{K_e - g}$

$= \frac{250(1-0.40)\,(1+0.06)}{0.09 - 0.06}$

= ₹5300 lakhs

Similarly value of XYZ Ltd. $= \frac{120(1-0.40)\,(1+0.08)}{0.10 - 0.08}$ = ₹3888 lakhs.

(ii) Value of both firms without synergy = ₹5300 lakhs + ₹3888 lakhs = ₹9188 lakhs

(iii) Cost of capital = 9% x $\frac{5300}{9188}$ + 10% x $\frac{3888}{9188}$ = 9.42%.

Expected growth = 6% x $\frac{5300}{9188}$ + 8% x $\frac{3888}{9188}$ = 6.85%.

(iv) Calculation of value of synergy

	Scenario – I ₹	Scenario – II ₹
Revenues	900	900
COGS (50% of 900)	450	
(60% of 900)		540
EBIT	450	360
EAT = EBIT (1 – t)	270	216
Cost of capital	9.42%	9.42%
Growth rate	6.85%	8%
Value of the firm with Synergy		
$= \frac{270(1.0685)}{0.0942 - 0.0685} =$	11225.49	
$= \frac{216(1.08)}{(0.0942 - 0.08)} =$		16428.17
Value of the firm without synergy	9188	9188
Value of synergy	2037.49	7240.17

9. (a) A company invested in a 5-year bond issue of another company in 2009 carrying a coupon rate of 10% per annum. The interest is payable at half-yearly rates and the principal repayable after 5 years in 2013 end. The current market yield has fallen to 9% during 2010. 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 2010. Assume par value of each bond ₹2000.

Solution:

Par value of each Bond ₹2000; coupon rate (%) 10 per annum.

Value of the bond as at the end of 2010 is equivalent to present value of future cash flow streams from the bond till its maturity discounted at the prevailing market yield 9%. The bond holder would receive half yearly interests for 2011, 2012 and 2013 and the principal at the end of 2013. Given the market yield in 2010 at 9%.

Value of the Bond of ₹2000 with 6 half-yearly interests of ₹100 each and repayment of principal of ₹2000 at year end 6.

$$= \frac{100}{(1.045)} + \frac{100}{(1.045)^2} + \frac{100}{(1.045)^3} + \frac{100}{(1.045)^4} + \frac{100}{(1.045)^5} + \frac{2100}{(1.045)^6} = ₹2051.58$$

9. (b) M/s. Gopi Industries is planning to issue a bond series on the following terms –
Face value ₹100
Terms of maturity 10 years
Yearly coupon rate

Years	Rate
1-4	**8%**
5-8	**9%**
9-10	**13%**

The current market rate of similar bonds is 14% per annum. The company proposes to price the issue in such a manner that is can yield 15% componnded rate of return to the investors. The

company also proposes to redeem the bonds at 5% premium on maturity. You are required to determine the issue price of the bonds.

Year	1	2	3	4	5	6	7	8	9	10
P.V. factor of ₹1 @ 15%	0.8695	0.7561	0.6575	0.5717	0.4971	0.4323	0.3759	0.3269	0.2842	0.2471

Solution:

The issue price of the bonds will be the sum of present value of interest payments during 10 years up to its maturity and present value of redemption value of bonds, discounted at the rate of planned yield.

Year	Cash outflow	P_{VIF} @ 15%	P_V
1	8	0.8695	6.956
2	8	0.7561	6.0488
3	8	0.6575	5.26
4	8	0.5717	4.5736
5	9	0.4971	4.4739
6	9	0.4323	3.8907
7	9	0.3759	3.3831
8	9	0.3269	2.9421
9	13	0.2842	3.6946
10	13 + 105 = 118	0.2471	29.1578
			70.3806

Therefore, bonds should be priced at issue price of Bonds ₹70.38.

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

Answer :

There are two factors that lead to small, high-growth companies to raise debt by convertible bonds. One is that small high-growth companies do not have substantial cash flows. Convertible bonds, by keeping the interest expense low, allow these companies to borrow. The second factor is that small high-growth companies tend to be volatile. This volatility makes the conversion option more valuable to investors and reduces the interest expense on the debt further.

10. (a) From the following information of Rahul Ltd. compute the economic value added:

i)	**Share capital**	**₹4000 lakhs**
ii)	**Reserve and Surplus**	**₹8000 lakhs**
iii)	**Long-term debt**	**₹800 lakhs**
iv)	**Tax rate**	**40%**
v)	**Risk free rate**	**9%**
vi)	**Market rate of return**	**16%**
vii)	**Interest**	**₹80 lakhs**
viii)	**Beta factor**	**1.05**
ix)	**Profit before interest and tax**	**₹4000 lakhs**

Solution:

Calculation of Economic Value Added

	₹in lakhs
Net operating Profit after tax	2352
Add: Interest on long term debt	48
	2400
Less: Cost of capital [12800 x 15.70%]	2009.60
Economic Value added	390.40

Workings:

1) Cost of Equity = 0.09 + 1.05 (0.16 – 0.09) = 0.1635 i.e., 16.35%.

2) Cost of Debt

Interest	₹80 lakhs
Less: tax @ 40%	₹32 lakhs
After tax interest	₹48 lakhs
Cost of debt = $\frac{48}{800} \times 100$	6%

3) Weighted Average cost of capital = $\frac{12000}{12800} \times 16.35\% + \frac{800}{12800} \times 6\% = 15.70\%$

4) Calculation of capital employed

Share capital	₹4000 lakhs
Reserve and surplus	₹8000 lakhs
Long-term debt	₹800 lakhs
	12800 lakhs

5) Calculation of Net Operating Profit after tax.

Profit Before interest and tax	₹4000 lakhs
Less: Interest	(80) lakhs
	3920
Less: tax @ 40%	(1568)
Net operating Profit after tax	2352

10. (b)

The following data relates to Sunrise Ltd. profit & loss data

	Year 2011 ₹in lakhs	**Year 2012 ₹in lakhs**
Turnover	**19900**	**23600**
Pre-tax accounting Profit	**4200**	**5300**
Taxation	**1260**	**1600**
Profit after tax	**2940**	**3700**
Dividends	**1000**	**1200**
Retained Earnings	**1940**	**2500**

Balance Sheet Data

	Year 2011 ₹in lakhs	**Year 2012 ₹in lakhs**
Fixed Assets	**7400**	**9600**
Net Current Assets	**8000**	**10000**

	15400	**19600**
Finance by shareholders funds	**11900**	**14400**
Medium and long term Bank loan	**3500**	**5200**
	15400	**19600**

Pre-tax accounting profit is taken after deducting the economic depreciation of the company's fixed Assets (also the depreciation used for tax purposes)

Additional Information

i) Economic depreciation was ₹1900 lakh in 2011 and ₹2100 lakh in 2012.
ii) Interest expenses were ₹260 lakh in 2011 and ₹360 lakh in 2012.
iii) Other non cash expenses were ₹640 lakh in 2011 and ₹720 lakh in 2012
iv) The tax rate in 2011 and 2012 was 30%.
v) Sunrise Ltd. has non-capitalized leases valued at ₹700 lakh in each year 2010 – 2012.
vi) The company's pre-tax cost of debt was estimated as 7% in 2011 and 8% in 2012.
vii) The company's cost of equity was estimated as 15% in 2011 and 17% in 2012.
viii) The target capital structure is 80% equity and 20% debt.
ix) Balance sheet capital employed at the end of 2010 was ₹13900 lakh.

Estimate the economic value added for Sunrise Ltd. for 2011 and 2012.

Solution:

EVA = NOPAT – (capital employed x cost of capital)

Computation of NOPAT

	Year 2011 ₹in lakhs	Year 2012 ₹in lakhs
Profit after tax	2940	3700
Add: Non Cash expenses	640	720
Interest after tax (1 – 0.30)	182	252
	3762	4672

Computation of capital employed

	Year 2011 ₹in lakhs	Year 2012 ₹in lakhs
Capital employed at end of 2010 + leases [13900 + 700]	14600	
Book value of shareholders fund + Bank loan + Leases [11900 + 3500 + 700]		16100

Computation of Weighted average

	Year 2011 ₹in lakhs	Year 2012 ₹in lakhs
Cost of capital:		
0.80 x 0.15 + 0.20 x 0.07 (1 – 0.30)	12.98%	
0.80 x 0.17 + 0.20 x 0.08 (1 – 0.30)		14.72%

Computation of EVA

	Year 2011 ₹in lakhs	Year 2012 ₹in lakhs
[3762 – (14600 x 12.98%)]	1866.92	
[4672 – (16100 x 14.72%)]		2302.08

The company has created significant value in both 2011 and 2012.

10. c) Discuss various aspects of computation of Economic Value Added and its application in business planning and valuation.

Answer :

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 =NOPAT-(TC × WACC)

Where:

NOPAT = 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

VA 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.

11. (a) Supreme Ltd. is comprised of only four major investment projects, details of which are as follows:

Project	% of market value	Annual % return during last 5 years	Risk % of standard deviation	Correlation with the market
A	**30**	**10**	**15**	**0.55**
B	**15**	**18**	**20**	**0.75**
C	**29**	**15**	**14**	**0.84**
D	**26**	**13**	**18**	**0.62**

The risk free rate is expected to be 6% per year, the market return is 15% per year and the standard deviation of market returns is 14%.

Assume that Supreme Ltd's shares are currently priced based upon the assumption that the last five years experience of returns will continue for the foreseeable future.
Evaluation whether or not the share price of Supreme Ltd. is undervalued/overvalued.

Solution:

Project	Beta factor	% of company value
A	$15 \times \frac{0.55}{14} = 0.589$	30%
B	$20 \times \frac{0.75}{14} = 1.071$	15%
C	$14 \times \frac{0.84}{14} = 0.84$	29%
D	$18 \times \frac{0.62}{14} = 0.797$	26%

Over all Beta = 0.589 x 30% + 1.071 x 15% + 0.84 x 29% + 0.797 x 26%
= 0.788

Assuming the company has no debt, and using the CAPM.

Required Return = 6% + 0.788 (15% - 6%)
= 13.092%

The historical return over the last 5 years has been
= 10% x 30% + 18% x 15% + 15% x 29% + 13% x 26%
= 13.43%
The actual return is higher than the required return. Hence, shares are undervalued.

11. b) Your client is holding the following securities:

Particulars of securities Equity share	Cost (₹)	Dividends (₹)	Market Price (₹)	Beta
Co. Alpha	**10,000**	**1000**	**10200**	**0.8**
Co. Beta	**12,000**	**1000**	**12500**	**0.7**
Co. Gama	**18,000**	**1000**	**24000**	**0.5**
Govt. Bonds	**36,000**	**5400**	**34300**	**1.0**

Assuming a risk free rate of 14%, calculate
(i) Expected rate of return in each, using the Capital Asset Pricing Model (CAPM)
(ii) Average return of the portfolio.

Solution:
(i) Computation of Expected Return on Market Port folio $E(R_m)$: -

Investment	Cost (₹)	Dividends (₹)	Capital Gains (₹)
Co. Alpha	10,000	1000	200
Co. Beta	12,000	1000	500
Co. Gama	18,000	1000	6000
Govt. Bonds	36,000	5400	(1700)
	76000	8400	5000

$E(R_m) = \frac{(8400 + 5000)}{76000} \times 100 = 17.63\%$

Calculation of expected rate of return on Individual security:

Co. Alpha	14% + 0.8 (17.63% - 14%) =	16.90%
Co. Beta	14% + 0.7 (17.63% - 14%) =	16.54%
Co. Gama	14% + 0.5 (17.63% - 14%) =	15.82%
Govt. Bonds	14% + 1.0 (17.63% - 14%) =	17.63%

(ii) Calculation of the Average return of the Portfolio:

$= \frac{16.90\% + 16.54\% + 15.82\% + 17.63\%}{4} = 16.72\%$

11. (c) ABC Ltd. has substantial cash flow and until the surplus funds are utilized to meet the future capital expenditure, likely to happen after several months, are invested in a portfolio of short-term investments, details for which are given below:

Investment	No. of Shares	Beta	Market Price per share	Expected yield
A	**8,000**	**1.16**	**4.29**	**19.50%**
B	**10,000**	**2.28**	**2.92**	**24.00%**
C	**11,200**	**0.90**	**2.17**	**17.50%**
D	**14,500**	**1.50**	**3.14**	**24.00%**

The current Market Return is 20% and the Risk Free Rate is 12%

Required to:

i) Calculate the Risk of ABC's short-term investment portfolio relative to that of the market;

ii) Whether ABC should change the composition of its portfolio.

Solution:

i)

Investment	No. of Shares	MPS	Value of Portfolio
A	8,000	4.29	34320
B	10,000	2.92	29200
C	11,200	2.17	24304
D	14,500	3.14	45530
			133354

$\beta = \left[1.16x\frac{34320}{133354}\right] + \left[2.28x\frac{29200}{133354}\right] + \left[0.90x\frac{24304}{133354}\right] + \left[1.50x\frac{45530}{133354}\right] = 1.47$

ii)

Investment	$K_e = R_F + \beta (R_M - R_F)$	Expected Yield	Comment
A	= 12% + 1.16 (20% - 12%) = 21.28%	19.50%	Overpriced = Sell
B	= 12% + 2.28 (20% - 12%) = 30.24%	24%	Overpriced = Sell
C	= 12% + 0.90 (20% - 12%) = 19.20%	17.50%	Overpriced = Sell
D	= 12% + 1.50 (20% - 12%) = 24%	24%	Correctly Price = Buy/Hold

11. d) Discuss the various kinds of Systematic and Unsystematic risk?

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

Types of Systematic Risk
(i) *Market risk*: Even if the earning power of the Corporate sector and the interest rate structure remain more or less unchanged prices of securities, equity shares in particular, tend to fluctuate. Major cause appears to be the changing psychology of the investors. The irrationality in the security markets may cause losses unrelated to the basic risks. These losses are the result of changes in the general tenor of the market and are called market risks.
(ii) *Interest Rate Risk*: The change in the interest rate have a bearing on the welfare of the investors. As the interest rate goes up, the market price of existing fixed income securities falls and vice versa. This happens because the buyer of a fixed income security would not buy it at its par value or face value if its fixed interest rate is lower than the prevailing interest rate on a similar security.
(iii) *Social or Regulatory Risk* : The social or regulatory risk arises, where an otherwise profitable investment is impaired as a result of adverse legislation, harsh regulatory climate, or in extreme instance nationalization by a socialistic government.
(iv) *Purchasing Power Risk*: Inflation or rise in prices lead to rise in costs of production, lower margins, wage rises and profit squeezing etc. The return expected by investors will change due to change in real value of returns.

Types of Unsystematic Risk
(i) *Business Risk*: As a holder of corporate securities (equity shares or debentures) one is exposed to the risk of poor business performance. This may be caused by a variety of factors like heightened competition, emergence of new technologies, development of substitute products, shifts in consumer preferences, inadequate supply of essential inputs, changes in governmental policies and so on. Often of course the principal factor may be inept and incompetent management.
(ii) *Financial Risk* : This relates to the method of financing, adopted by the company, high leverage leading to larger debt servicing problem or short term liquidity problems due to bad debts, delayed receivables and fall in current assets or rise in current liabilities.
(iii) *Default Risk*: Default risk refers to the risk accruing from the fact that a borrower may not pay interest and/or principal on time. Except in the case of highly risky debt instrument, investors to be more concerned with the perceived risk of default rather than the actual occurrence of default. Even though the actual default may be highly unlikely, they believe that a change in the perceived default risk of a bond would have an immediate impact on its market price.

12. a) Identity four different approaches to business valuation.

Answer:
Discounted Cash Flow Valuation: This approach is also known as the Income approach, where the value is determined by calculating the net present value of the stream of benefits generated by the business or the asset. Thus, the DCF approach equals the enterprise value to all future cash flows discounted to the present using the appropriate cost of capital.
Relative Valuation: This is also known as the market approach. In this approach, value is determined by comparing the subject company or asset with other companies or assets in the same industry, of the same size, and/or within the same region, based on common variables such as earnings, sales, cash flows, etc. The Profit multiples often used are:

(i) Earnings before interest tax depreciation and amortization (EBITDA),
(ii) Earnings before interest and tax (EBIT), (c) Profits before tax, and (d) Profits after tax. Historic, current and forecast profits/earnings are used as multiples from the quoted sector and actual transactions in the sector.

Contingent Claim Valuation: This approach uses the option pricing models to estimate the value of assets.

Asset-based approach: A fourth approach is called asset-based approach. The valuation here is simply the difference between the assets and liabilities taken from the balance sheet, adjusted for certain accounting principles.

Two methods are used here:

(i) The Liquidation Value, which is the sum as estimated sale values of the assets owned by a company.
(ii) Replacement Cost: The current cost of replacing all the assets of a company. However, the asset-based approach is not an alternative to the first three approaches, as this approach itself uses one of the three approaches to determine the values. This approach is commonly used by property and investment companies, to cross check for asset based trading companies such as hotels and property developers, underperforming trading companies with strong asset base (market value vs. existing use), and to work out break – up valuations.

12. b) S. Mondal has just completed his post qualification internship in a reputed medical hospital. He wants to buy the running practice of Dr. Mukherjee, a renowned child specialist located at Lansdowne in Kolkata. The revenue and the costs of this practice in 2012 – 2013 were as under:

Particulars	₹
Revenue	**1,00,000**
Employee expenses	**30,000**
Annual rent for the facilities	**10,000**
Rental of medical equipments	**8,000**
Medical insurance	**9,000**
The tax rate on the income	
Including local taxes and subscription	**40%**
The cost of capital for this practice	**10%**

The above revenue and all the associated expenses are estimated to grow at 4% p.a. for the next 10 years if Dr. Mukherjee continues to run the practice.

Dr. S Mondal anticipates that upon the changeover there will be drop in revenue by 25% in the first year of his practice. The growth rate in revenue and expenses will remain at 4% p.a. thereafter i.e., for year 2 onwards.

Dr. S Mondal wants your advice for the price he should offer to Dr. Mukherjee to purchase the latter's practice at Lansdowne, Kolkata.

Solution:

We make two evolution of the practice –
Run by Dr. Mukherjee as if he is continuing as before, and
Run by Dr. S MOndal assuming that he has bought the practice from Dr. Mukherjee.

I. Cash flow in year 1 = (Revenue$_1$ – Operating expenses$_1$)(1 – Tax Rate)
= [1,00,000 (1.04) – (30,000 + 10,000 + 8,000 + 9,000) (1.04)] x (1 – 0.40)
= [1,04,000 – 59,280] x 0.60 = ₹26,832

With the growth rate of 4% p.a. and using the cost of capital as the discount rate and assuming that the practice will have no terminal value after 10 years, the value of the practice:

Value of practice = $CF_1 \frac{1-\frac{(1+g)^n}{(1+r)^n}}{(r-g)} = Rs.26,832 \frac{1-\frac{(1.04)^{10}}{(1.10)^{10}}}{0.10-0.04}$ = ₹26,832 (7.155029) ₹1,91,984.

II. Similarly, cash flow in year 1 under Dr. S Mondal .
= ₹[75,000 (1.04) – 59,280] x 0.60 = ₹11,232

Value of practice for Dr. S Mondal for 10 years = ₹11,232 (7.155029) = ₹80,312

The difference of ₹(1,91,984 – 80,312 or ₹1,11,672 is attributed as the value of Dr. Mukherjee agree to stay with the practice for a transition period after the transfer of the business, a higher price may be paid.

Dr. S Mondal should ensure by the agreement of transfer of practice that Dr. Mukherjee cannot start a competing practice and extract business from Dr. S Mondal for the foreseeable future.

13. a) What is the methodology of brand valuation?

Answer :
Brand valuation methodology is comprised of four elements:

(i) Financial analysis: To identify business earnings and earnings from intangibles for each of the distinct segments being assessed.

(ii) X Market Analysis : To measure the role that a brand plays in driving demand for services in the markets in which it operates and hence to determine what proportion of earnings from intangibles are attributable to the brand. This is measured by an indicator referred to as Role of Branding Index.

(iii) Brand Analysis: To assess the competitive strengths and weaknesses of the brand and hence the security of future earnings expected from the brand. This is measured by an indicator referred to as Brand Strength Score.

(iv) Legal Analysis: To establish that the brand is a true piece of property. There are various methods including models like Inter Brand Model that deal with a number of factors including penetration, effectiveness, recall, international presence etc. In ultimate analysis, the value of a brand depends on what difference it makes to capturing minds of customers and enabling differentiation of the products and making an impact on markets in terms of visibility, mind bending and effect on sales and profit/ earnings. This in the ultimate analysis will be a true test of the strength of a brand vis-à-vis competing brands and products. The valuation technique thus involves assessing these and determining a numerical value based on a brand strength index multiplied by the above normal earnings multiplied by appropriate capitalization factor.

13. b) The following financial share date pertaining to ALPHA LTD on IT company are made valuable to you:

Year ended March 31st	2012	2011	2010
EBIT (₹)	696.03	325.65	155.86
Non-branded Income (₹)	53.43	35.23	3.46
Inflation compound factor @ 8%	1.000	1.087	1.181
Remuneration of Capital	5% of average Capital employed		
Average Capital Employed (₹)	1200.00		
Corporate Tax Rate	30%		
Capitalization Factor	15%		

You are required to calculate the Brand Value for ALPHA Ltd.

Solution:

ALPHA LTD.

Year ended March 31st	2012	2011	2010
EBIT (Rs.)	696.03	325.65	155.86
Less: Non-brand income(₹)	53.43	35.23	3.46
Adjusted Profits (₹)	642.60	290.42	152.40
Inflation Compound Factor @ 8%	1.000	1.087	1.181
Present Value of Profits for the brand (₹)	642.60	315.69	179.98
Weight age Factor	3	2	1
Weight age profits (₹)	1927.80	631.38	179.98
Profits (₹)	456.53		
Remuneration of Capital (5% of Average capital employed)	60.00		
Brand Related	396.53		
Corporate tax @ 30%	118.96		
Brand Earning	277.57		
Capitalization Factor	15%		

Brand value: (Return/Capitalization rate) = 277.57/0.15 = ₹1850.47 crore

14. Rahul Ltd has hired a Marketing Consultancy Firm for doing market research and provide data relating to Tyre industry for the next 10 years. The following were the observations and projections made by the consultancy firm -----

(i) The Tyre Industry in the target area i.e., whole of India, is expected to grow at 5% p.a. for the next 3 years, and thereafter at 7% p.a. over the subsequent seven years.

(ii) The market size in terms of unencumbered basic sales of tyres was estimated at ₹8,000 lakhs in the last year, dominated by medium and large players. This includes roughly 9.0% of fake brands and locally manufactured tyres. Market share of this segment is expected in increase by 0.5%.

(iii) Cheap Chinese imports accounts for 40% of the business (but 60% of the volume). This is expected to increase by 0.25% over the next decade.

(iv) The other large players account for roughly 35% of the business value, which is expected to go down by 0.5% over the next ten years, due to expansion of Rahul Ltd's product portfolio.

(v) The Company is in the process of business re-engineering, which will start yielding results in 2 years time, and increase its profitability by 3% from its existing 12%.

If the appropriate discount rate is 16% what is the Brand Value of Rahul Ltd., under Market oriented Approach?

Solution:

a) **Current Market Share =** 100 – Fake Brands 9% - Chinese Imports 40% - Other Domestic Brands 35% = 16%.

b) **Increase or Decrease in Market Share:** Chinese Imports 0.25% + Local Brands 0.5% - Other Players 0.5% = 0.25% increase other product's market share. Hence, market share is expected to fall by 0.25% every year over the decade, from the current levels of 16%. Therefore, next year it will be 15.75%, the year after 15.50% etc.

Brand valuation under market Approach

Year	Market Size (₹Lakhs)	Market Share of Rahul Ltd.	Market Share (₹Lakhs)	Expected Profit (₹Lakhs)	Discount Factor at 16%	Discounted Cash Flow
1	8,000.00 + 5% = 8,400.00	15.75%	1,323.00	@ 12% = 158.76	0.862	136.85
2	8,400.00 + 5% = 8,820.00	15.50%	1,367.10	@ 12% = 164.05	0.743	121.89
3	8,820.00 + 5% = 9,261.00	15.25%	1,412.30	@ 15% = 211.84	0.641	135.79
4	9,261.00 + 7% = 9,909.27	15.00%	1,486.39	@ 15% = 222.96	0.552	123.07
5	9,909.27 + 7% = 10,602.92	14.75%	1,563.93	@ 15% = 234.59	0.476	111.66
6	10,602.92 + 7% = 11,345.12	14.50%	1,645.04	@ 15% = 246.75	0.410	101.17
7	11,345.12 + 7% = 12,139.28	14.25%	1,729.85	@ 15% = 259.48	0.354	91.86
8	12,139.28 + 7% = 12,989.03	14.00%	1,818.46	@ 15% = 272.77	0.305	83.19
9	12,989.03 + 7% = 13,898.26	13.75%	1,911.01	@ 15% = 286.65	0.263	75.39
10	13,898.26 + 7% = 14,871.14	13.50%	2,007.60	@ 15% = 301.14	0.227	68.36
	Brand Value					**1049.23**

Brand Value of Rahul Ltd. under market oriented approach is ₹1049.23 lakhs.

15. The following Balance Sheet of Pioneer Ltd. is given

Pioneer Ltd.

Balance Sheet as on 31st March 2013

Liabilities	Amount (₹)	Assets	Amount (₹)
5000 shares @ ₹100 each fully paid	**5,00,000**	**Goodwill**	**40,000**
Bank overdraft	**1,86,000**	**Land & building at cost**	**3,20,000**
Creditors	**2,11,000**	**Plant and Machinery at cost**	**2,80,000**
Provision for taxation	**51,000**	**Stock**	**3,20,000**
Profit and Loss appropriation A/c	**2,12,000**	**Debtors considered good**	**2,00,000**
	11,60,000		**11,60,000**

In 1994 when the company commenced operation the paid up capital was same. The loss/profit for each of the last 5 years was

Years	**2008-09 – loss**	**(₹ 55,000)**
	2009-10 – Profit	**₹ 98,200**
	2010-11 – Profit	**₹1,17,000**
	2011-12 – Profit	**₹1,45,000**
	2012-13 – Profit	**₹1,70,000**

Although income-tax has so far been paid @ 30% and the above profits have been arrived at on the basis of such tax rate, it has been decided that with effect from the year 2013-14 the income-tax rate of 40% should be taken into consideration. 10% dividend in 2009-10 and 2010-11 and

15% dividend in 2011-12 and 2012-13 have been paid. Market price of shares of the company on 31st March 2013 is ₹125. With effect from 1st April, 2013 Managing Director's remuneration has been approved by the Government to be ₹80,000 in place of ₹60,000. The company has been able to secure a contract for supply of materials at advantageous prices. The advantage has been valued at ₹40,000 per annum for the next five years.

Ascertain goodwill at 3 year's purchase of super profit (for calculation of future maintainable profit weighted average is to be taken).

Solution:

Computation of Future maintainable profits:

Year	Profit (₹)	weight	Product (₹)
2009-10	98200	1	98200
2010-11	117000	2	234000
2011-12	145000	3	435000
2012-13	170000	4	680000
Total		10	1447200

Weighted average annual profit after tax $(=\frac{1447200}{10})$ =	1,44,720
Weighted average annual profit before tax = $\frac{1447200}{70}$ x 100 =	2,06,743
Less: Increase in managing director's remuneration (80000 – 60000)	(20,000)
Add: Additional annual income for next five years	40,000
	2,26,743
Less: Tax @ 40%	90,697
Future maintainable profits	**1,36,046**

Calculation of Capital Employed

Particulars	₹	₹
Land and Building	320000	
Plant and Machinery	280000	
Stock	320000	
Debtors	200000	1120000
Less:		
Bank overdraft	186000	
Creditors	211000	
Provision for tax	51000	(448000)
Terminal capital employed (on 31.03.2013)		672000
Add: Dividend paid during 2012 -13 [15% of 500000]		75000
Less: Half of profit after tax for 2012-13 [170000 x ½]		(85000)
Average capital employed 2012-13		662000

Calculation of Normal Rate of Return based on dividend yield:

Average dividend = $\frac{10\%+10\%+15\%+15\%}{4} = 12.5\%$

Therefore, dividend yield = $\frac{100x12.5\%}{125}$ x 100 = 10%

Therefore, Normal rate of return is 10%

Valuation of Goodwill

Particulars	Using terminal Capital Employed	Using Average Capital Employed
Future Maintainable profits	136046	136046
Less: Normal profit [Capital employed x NRR]		
= 672000 x 10%	67200	
= 662000 x 10%		66200
Super Profit	68846	69846
Goodwill = (Super Profit x 3)	206538	209538

16. The following is the extract from the Balance Sheets of X Ltd.:

Liabilities	As at 31.03.2012	As at 31.03.2013	Assets	As at 31.03.2012	As at 31.03.2013
Share capital	**5000**	**5000**	**Fixed Assets**	**5500**	**6500**
General reserve	**4000**	**4250**	**10% investment**	**2500**	**2500**
Profit & Loss A/c	**600**	**900**	**Stock**	**2600**	**3000**
18% term loan	**1800**	**1650**	**Debtors**	**1700**	**1100**
Sundry Creditors	**350**	**450**	**Cash at bank**	**460**	**450**
Provision for tax	**110**	**130**	**Fictitious Assets**	**100**	**80**
Proposed dividend	**1000**	**1250**			
Total	**12860**	**13630**	**Total**	**12860**	**13630**

Additional information:

a) Replacement values of fixed assets were ₹11000 lakhs on 31.03.2012 and ₹12500 lakhs on 31.03.2013 respectively.
b) Rate of depreciation adopted on fixed assets was 5% p.a.
c) 50% of the stock is to be valued at 120% of its book value.
d) 50% of investments were trade investments.
e) Debtors on 31st March, 2013 included foreign debtors of $ 350000 recorded in the books at ₹45 per U.S. Dallar. The closing exchange rate was $ 1 = ₹49.
f) Creditors on 31st march, 2013 included foreign creditors of $ 600000 recorded in the books of $ 1 = ₹43. The closing exchange rate was $ 1 = ₹49.
g) Profits for the year 2012-13 included ₹600 lakhs of government subsidy which was not likely to recur.
h) Future maintainable profits (pre-tax) are likely to be higher by 10%.
i) Tax rate during 2012-2013 was 50%, effective future tax rate will be 45%.
j) Normal rate of return expected is 13%
k) ₹1,250 lakhs of Research and Development expenditure was written off to the Profit & Loss A/c in the current year. This expenditure was not likely to recur.

One of the directors of the company Sudip fears that the company does not enjoy a good will in the prevalent market circumstances.
Critically examine this and establish whether X Co. has or has not any goodwill. If your answer were positive on the existence of goodwill, show the leverage effect it has on the company's result.
Industry average return was 10% on long term funds and 13% on equity funds.

Solution:

Calculation of Future Maintainable Profit

Particulars	₹in lakhs	₹in lakhs
Profit made during the year:		
Increase in general reserve [4250 – 4000]	250	
Increase in Profit and loss A/c [900 – 600]	300	
Proposed dividend	1250	
		1800
Add: current year tax [1800 x $\frac{0.50}{0.50}$]		1800
Profit before tax		3600
Less: Additional depreciation required [12500 – 6500] x 5%		(300)
Less: Loss on increased valuation of opening stock [2600 x 50% x 20%]		(260)
Add: Profit on increased valuation of closing stock [3000 x 50% x 20%]		300
Less: Income from non trade investment s [2500 x 50% x 10%]		(125)
Add: Profit on restatement of Debtors [350000 x (49-45)]		14
Less: Loss on restatement of creditors [600000 x (49 – 43)]		(36)
Less: Govt. subsidy non-recurring)		(600)
Add: R&D expenses written off (non-recurring)		1250
Add: Fictions assets written off (non-recurring) [100 – 80]		20
Add: Future reduction in interest $\frac{1800+1650}{2}$ x 18% = 310.5		
Future interest (1650 x 18%) = 297.0		
Difference = 13.5		
		13.5
Future maintainable profit (before tax)		3876.50
Add: Expected increase @ 10%		387.65
		4264.15
Less: Tax @ 45% (workings)		(2053.87)
Future maintainable profit on equity capital		2210.28
Add: Interest on long term loan (after tax) [1650 x 18%]		297.00
Future maintainable profit on long term capital employed		2507.28

Workings:

Adjusted profit before tax	4264.15
Add: Additional depreciation written back (not tax deductible)	300
Taxable profit	4564.15

Tax on ₹4564.15 lakhs @ 45% = 2053.87.

Computation of Capital Employed

	31-03-2012 ₹in lakhs	**31-03-2013 ₹in lakhs**
Fixed Assets	11000	12500
Trade investments	1250	1250
Stock [50% of 2600 + (50% of 2600 x 1.20)]	2860	
[50% of 3000 + (50% of 3000 x 1.20)]		3300
Debtors	1700	1114
Cash at Bank	460	450
Total Assets	17270	18614
Less: Liabilities		
Term loan from bank	(1800)	(1650)

Creditors	(350)	(486)
Provision for tax	(110)	(130)
Capital Employed (Equity Approach)	15010	16348
Add: Term loan from bank	1800	1650
Capital Employed (Long term Fund approach)	16810	17998

Average capital Employed (Equity Approach) = $\frac{15010+16348}{2}$ = 15679

Average capital employed (long term fund Approach) = $\frac{16810+17998}{2}$ = 17404

Valuation of Goodwill [Equity Fund Approach]

	₹in lakhs
Future maintainable profits	2210.28
Normal capital employed = $\frac{2210.28}{0.13}$	17002.15
Less: Actual capital employed	15679.00
Goodwill	1323.15

Valuation of Goodwill [Long Term Fund Approach]

	₹in lakhs
Future maintainable profits	2507.28
Normal capital employed = $\frac{2507.28}{0.10}$	25072.80
Less: Actual capital employed	17404.00
Goodwill	7668.80

Comment

As actual capital employed is less than normal capital employed, goodwill exists.
Adverse effect on goodwill = (7668.80 – 1323.15) = ₹6345.65 lakhs.
This means that the leverage ratio of this entity, as computed with reference to normal long-term capital employed, is lower than the industry standard.

17. The following is the Balance Sheet as at 31st December 2012 of Techno group Ltd.

Liabilities	Amount (₹)	Assets	Amount (₹)
Share Capital:		**Fixed Assets:**	
8000 Equity shares of ₹10 each fully paid up	**80000**	**Goodwill**	**10000**
5000 Equity shares of ₹10 each ₹8 paid up	**40000**	**Plant & Machinery**	**80000**
3600 Equity shares of ₹5 each fully paid up	**18000**	**Land and Building**	**100000**
3000 Equity shares of ₹5 each ₹4 paid up	**12000**	**Furniture and Fixtures**	**10000**
300, 10% Preference shares of ₹100 each fully paid up	**30000**	**Vehicles**	**20000**
		Investments	**30000**
		Current Assets:	
Reserve and Surplus:		**Stock**	**21000**
General reserve	**14000**	**Debtors**	**19500**
Profit & Loss account	**21000**	**Prepaid Expenses**	**4000**
Secured loan; 12% Debenture	**20000**	**Advances**	**4500**
Unsecured loan : 15% term loan	**15000**	**Cash and Bank**	**20000**
Deposits	**10000**	**balance**	**1000**

Current Liabilities:		**Preliminary expenses**	
Bank Loan	**5000**		
Creditors	**15000**		
Outstanding expenses	**2000**		
Provision for tax	**20000**		
Proposed Dividend:			
Equity	**15000**		
Preference	**3000**		
	320000		**320000**

Additional Information

(a) In 2010 a new machinery costing ₹5000 was purchased, but wrongly charged to revenue (no rectification has yet been made for the same)

(b) Stock is overvalued by ₹1000 in 2011. Debtors are to be reduced by ₹500 in 2012, some old furniture (Book value ₹1000) was disposed of for ₹600.

(c) Fixed assets are worth 5 per cent more than their actual book value. Depreciation on appreciated value of Fixed assets except machinery is not be considered for valuation of goodwill.

(d) Of the investment 20 per cent is trading and the balance is non-trading. All trade investment are to be valued at 20 per cent below cost. Trade investments were purchased on 1st January, 2012. 50 per cent of the non-trade investments were acquired on 1st January, 2011 and the rest on 1st January, 2010. As uniform rate of dividend of 10 per cent is earned on all investments.

(e) Expected increase in expenditure without commensurate in selling price is ₹2000.

(f) Research and Development expenses anticipated in future ₹3000 per annum.

(g) In a similar business a normal return on capital employed is 10%.

(h) Profit (after tax) are as follows:
In 2010 – ₹21000, in 2011 – ₹19000 and in 2012 ₹20000.

(i) Current income tax rate is 50%, expected income tax rate will be 45%.

From the above, ascertain the ex-dividend and cum-dividend intrinsic value for different categories of equity shares. For this purpose goodwill may be taken as 3 years purchase of super profits. Depreciation is charged on machinery @ 10% on reducing system.

Solution:

Calculation of future maintainable profits:-

	2010 (₹)	**2011 (₹)**	**2012 (₹)**
Profits after tax	21000	19000	20000
Add: tax @ 50%	21000	19000	20000
Profit before tax	42000	38000	40000
Less: Income from non-trade investments			
For 2010 = (30000 x 0.80 x 0.50 x 0.10)	(1200)		
For 2011 = [12000 + 12000] x 0.10		(2400)	
For 2012 = [12000 + 12000] x 0.10			(2400)
Add: Machinery wrongly charged to revenue	5000		
Less: Depreciation on above Machinery			
In 2010 = [5000 x 0.10]	(500)		
In 2011 = [5000 – 500] x 0.10		(450)	
In 2012 = [4500 – 450] x 0.10			(405)
Less: Debtors decreased	----	----	(500)
Add/Less: Over valuation of closing stock in 2011		(1000)	1000
Add: Loss on sale of furniture (non-recurring) [1000 – 600]			400
Adjusted profit before tax	45300	34150	38095

	₹
Average adjusted Profits = $\left[\frac{45300+34150+38095}{3}\right]$ =	39182
Less: Expected increase in expenses	(2000)
Less: Research & Development Expenses	(3000)
Less: Depreciation on Revalued portion of plant & Machinery : =[Book value of existing Plant & Machinery + Book value of machine wrongly charged to revenue] x 0.05 x 0.10 = {80000 + [(1 – 0.10)^3 x 5000]} 0.05 x 0.10	(418)
	33764
Less: Provision for tax @ 45%	(15194)
Future maintainable profits	18570

Calculation of Capital Employed: -

	Amount (₹)	Amount (₹)
Plant and Machinery = [80000+{(1 – 0.10)^3 x 5000}] x 1.05	87827	
Land and Building (100000 x 1.05)	105000	
Furniture and fixture (10000 – 400) x 1.05	10080	
Vehicles (20000 x 1.05)	21000	
Trade investments (30000 x 0.20 x 0.80)	4800	
Stock	21000	
Debtors [19500 – 500]	19000	
Prepaid Expenses	4000	
Advances	4500	
Cash and bank	20000	297207
Less: External Liabilities		
12% Debenture	20000	
15% Term loan	15000	
Deposits	10000	
Bank loan	5000	
Creditors	15000	
Outstanding expenses	2000	
Provision for tax [20000 + 1823]	21823	(88823)
Net assets as on 31.12.2012		208384

Notes:

1) Provision for tax

Tax liability for machine wrongly charged to revenue = (5000 x 50%) =	2500
Less: Tax savings for depreciation = (500 + 450 + 405) 50%	(678)
Net Tax Liability	1823

2) Sale of furniture for ₹600 should have already been credited to the furniture and fixture A/c. so now loss of ₹1000 – 600 = ₹400 is eliminated bringing the asset to correct W.D.V.

Valuation of Goodwill

	₹
Capital Employed	208384
Normal profit = (208384 x 10%)	20838
Future maintainable profits	18570

Super Profit	NIL
Therefore Goodwill	NIL

Statement showing valuation of shares

Particulars	Amount (₹)
Net trading assets as on 31.12.2012	208384
Add: Non-trading assets [30000 x 80%]	24000
Goodwill	NIL
National Calls in arrear [₹2 x 5000] + [₹1 x 3000]	13000
	245384
Less: Preference share capital	(30000)
Proposed preference dividend	(3000)
Net asset available to Equity shareholders (cum dividend)	212384

Equivalent No. of shares = $(8000 + 5000 + 3600 \times \frac{5}{10} + 3000 \times \frac{5}{10})$ = 16300

Cum dividend intrinsic value of share

For ₹10 fully paid up share = $\frac{212384}{16300}$ = 13.03

For ₹8 fully paid up share = ₹(13.02 – 2) = 11.03

For ₹5 fully paid up share = $(13.03 \times \frac{5}{10})$ = 6.52

For ₹4 paid up share = ₹(6.52 – 1) = 5.52

For ex-dividend intrinsic value

	Amount (₹)
Net asset available to Equity share	212384
Less: Proposed Equity dividend	(15000)
Net asset for calculating ex-dividend value	197384

Ex-dividend intrinsic value of share

	Amount (₹)
For ₹10 fully paid up equity share = $\frac{197384}{16300}$	12.11
For ₹8 paid up = ₹[12.11 – 2]	10.11
For ₹5 fully paid up = 12.11 x $\frac{5}{10}$	6.055
For ₹4 paid up equity share (6.055 – 1)	5.055

18. The following are the information of two companies for the year ended 31st March 2013:

	Company X	Company Y
Equity Shares of ₹10 each	**80000**	**100000**
10% Pref. Shares of ₹10 each	**60000**	**40000**
Profit after tax	**30000**	**30000**

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 share.

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

iii) Would your rates be different for buying small not, if the company X retains 40% and company Y 20% of the profits?

Solution:

Computation of EPS and DPS [when companies distribute 80% of Profits]

	Company X	Company Y
Profit after tax	30000	30000
Less: Preference dividend	6000	4000
Earnings available to Equity share	24000	26000
No. of Equity shares	8000	10000
EPS = $\frac{\text{Earnings available}}{\text{No. of Equity Sahre}}$	3	2.60
Retained earnings 20%	4800	5200
Dividend distributed @ 80%	19200	20800
Dividend per share (DPS)	2.4	2.08

(i) a) **Buying a small lot of equity share**

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

$$\frac{\text{Dividend per share}}{\text{Market Capitalisation rate}} \times 100$$

Company X : ₹ $\frac{2.4}{18}$ x 100 = ₹13.33

Company Y : ₹ $\frac{2.08}{18}$ x 100 = ₹11.56

b) **Buying controlling Interest equity share**

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:

$$\frac{\text{Earning per share (EPS)}}{\text{Market Capitalisation rate}} \times 100$$

Company X : ₹ $\frac{3}{18}$ x 100 = ₹16.67

Company Y : ₹ $\frac{2.6}{18}$ x 100 = ₹14.44

(ii) Preference Dividend coverage ratios of both companies are to be compared to make such decision preference dividend coverage ratio is given by:

$$\frac{\text{Profit after tax}}{\text{Preference dividend}} \times 100$$

Company X : $\frac{₹\ 30000}{₹\ 6000}$ = 5 times

Company Y : $\frac{₹\ 30000}{₹\ 4000}$ = 7.5 times

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

(iii) Computation of DPS [when company x retains 40% and company Y, 20% of Profits]:

	Company X	Company Y
Earnings available to Equity share	24000	26000
No. of equity shares	8000	10000
Retained earnings	9600	5200
Dividend distributions	14400	20800
DPS	1.80	2.08

Therefore, the rates will be different for buying a small lot of equity shares, if the company X retains 40% and company, Y, 20% of profits.
The new rates will be calculated as follows:

Company X : ₹ $\frac{1.80}{18}$ x 100 = ₹10

Company Y : ₹ $\frac{2.08}{18}$ x 100 = ₹11.56

19. a) The following abridged balance sheet as at 31st March 2013 per tains to Santaram Ltd.

Liabilities	Amount ₹in lakhs	Assets	Amount ₹in lakhs
Share capital		**Goodwill at cost**	**4200**
1800 lakh Equity Share of ₹10 each fully paid	**18000**	**Other Fixed Assets**	**111660**
		Current Assets	**29100**
900 lakh Equity shares of ₹10 each ₹8 paid up	**7200**	**Loans and advances**	**9330**
		Miscellaneous expenditure	**1710**
1500 lakh Equity shares of ₹5 each fully paid up	**7500**		
Reserve and surplus	**56280**		
Secured loans	**45000**		
Current liabilities	**12420**		
Provisions	**9600**		
	156000		**156000**

You are required to calculate the following for each one of three categories of equity shares appearing in the above mentioned balance sheet.

i) Intrinsic value on the basis of book values of assets and liabilities including goodwill;
ii) Value per share on the basis of dividend yield. Normal rate of dividend in the concerned industry is 10%, whereas Santaram Ltd. has been paying 15% dividend for the last four years and is expected to maintain it in the next few years; and
iii) Value per share on the basis of EPS. For the year ended 31st March 2013 the company has earned ₹13710 lakhs as profit after tax, which can be considered to be normal for the company. Average EPS for a fully paid share of ₹10 of a company in the same industry is ₹3.

Solution:

Calculation of capital employed

	₹in lakh	
Goodwill	4200	
Other fixed assets	111660	

Current assets	29100	
Loans and advances	9330	
		154290
Less: External liabilities		
Secured loans	45000	
Current liabilities	12420	
Provisions	9600	(67020)
Capital Employed		87270

i) **Computation of Intrinsic value per share**

	₹in lakhs
Capital Employed	87270
Add: Uncalled Capital [₹2 x 900 lakh]	1800
Net Asset available to equity share holder	89070
Equivalent number of equity share of ₹10 each	3450 lakh shares
=[1800 lakh+900 lakh+(1500 lakhx $\frac{5}{10}$) =	
Therefore, value per share of ₹10 each = [89070/3450]=	₹25.82
Value per share of ₹10 each, ₹8 fully paid up = ₹(25.82 – 2) =	₹23.82
Value per share of ₹5 each fully paid up = ₹(25.82 x $\frac{5}{10}$) =	₹12.91

ii) Computation of value per share based on dividend yield method:

	₹10 Shares	₹8 paid up shares	₹5 shares
Dividend per share	(₹10 x 15%) = ₹1.50	(₹1.5 x $\frac{8}{10}$ = ₹1.20	(₹1.5 x $\frac{5}{10}$) = Re. 0.75
Normal Rate of return	10%	10%	10%
Value per share of ₹10 each	($\frac{1.50}{10}$ x 100) = ₹15	($\frac{1.20}{10}$ x 100) = ₹12	($\frac{1.75}{10}$ x 100) = ₹7.5

iii) **Computation of value per share based on EPS:**

	₹
Profit after tax	₹13710 lakhs
Equivalent number of equity shares of ₹10 each	
= [1800 lakh + (900 lakh x $\frac{8}{10}$) + (1500 lakh x $\frac{5}{10}$)	3270 lakh Shares
Therefore, EPS = ₹[13710/3270]	₹4.19
Normal Rate of Return (3/10) x 100 = 30%	= 30%
Therefore, value per share of ₹10 each = ₹($\frac{4.19}{30}$ x 100)	= ₹13.97
Value per share of ₹10 each 8 paid up = ₹(13.97 x $\frac{8}{10}$)	= ₹11.18
Value per share of ₹5 each fully paid up = ₹(13.97 x $\frac{5}{10}$)	= ₹6.99

19. b) Distinguish between intrinsic value and time value of an option.

Answer :

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 (c.p). In the case of a call option, one can calculate the intrinsic value by taking CP-X. If the result is greater than Zero (In other words, if the stock's current price is greater than 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 X Ltd. Stock is priced at ₹ 105/-. In this case, a X 100 call option would have an intrinsic value of (₹ 105 – ₹ 100 = ₹ 5). However, a X 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 X 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 X is trading at ₹ 105 and the X 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 up to 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.

20. (a) From the following details, compute according to Lev and Schwartz model, the total value of human resources of the employee groups skilled and unskilled.

	Skilled	Unskilled
Annual average earning of an employee till the retirement age	**₹80,000**	**₹60,000**
Age of retirement	**65 Years**	**62 Years**
Discount rate	**15%**	**15%**
No. of employees in the group	**30**	**35**
Average age	**62 years**	**60 years**

Solution:

According to Lev and Schwartz $V_x = \sum_{t=x}^{T} \frac{I(t)}{(1+R)^{T-X}}$

Where,

V_x = The human capital value of a person 'x' years old

T = Retirement Age

I(t) = The person's annual earnings upto Retirement

R = discount Rate

Value of skilled employees:

$$= \frac{80000}{(1+0.15)^{65-62}} + \frac{80000}{(1+0.15)^{65-63}} + \frac{80000}{(1+0.15)^{65-64}} = 52601.3 + 60491.5 + 69565.22 = ₹182658.02$$

Therefore, total value of skilled employees = ₹182658.02 x 30 = ₹5479741

Value of unskilled employees:

$$= \frac{60000}{(1+0.15)^{62-60}} + \frac{60000}{(1+0.15)^{62-61}} = 45368.62 + 52173.91 = ₹97542.53$$

Therefore, total value of unskilled employees = ₹ 97542.53 x 35 = ₹ 3413989

Therefore, value of human resources (skilled and unskilled)= ₹(54,79,741 + 34,13,989) = ₹88,93,730.

20. (b) Vikash Ltd. has a capital base of ₹6 crores and has earned profits of ₹66 lakhs. Return on investment of the particular industry to which the company belongs is 12.5%. If the services of a particular executive are acquired by the Vikash Ltd., it is expected that the profits will increase by ₹15 lakhs over and above the target profit. Determine the amount of maximum bid price for that particular executive and the maximum salary that could be offered to him.

Particulars	₹
Capital base	**6,00,00,000**
Actual Profit	**66,00,000**
Target Profit	**75,00,000**

Solution:

Here, Target Profit = 6,00,00,000 x 12.5% = ₹75,00,000

Expected profit on employing the particular executive

= Target profit + Increase in profit

= 75,00,000 + 15,00,000 = ₹90,00,000

Additional profit = Expected Profit – Actual Profit

= 90,00,000 – 66,00,000

= ₹24,00,000

$$\text{Maximum bid price} = \frac{\text{Additional Profit}}{\text{Rate of return on investment}} = \frac{24,00,000}{12.5} \times 100 = ₹1,92,00,000$$

Therefore, maximum salary that can be offered = 1,92,00,000 x 12.5% = ₹24,00,000

21. (a) Milton Consulting Ltd. is a firm that specializes in offering management consulting services to software companies.

Milton Ltd. reported operating income (EBIT) of ₹306 lakh and net income of ₹135 lakh in the most recent year. however, the firms expenses include the cost of recruiting new consultants and the cost of training which amounts to ₹60 lakh. A consultant who joins Milton Consulting Ltd. stays with the firm, on an average, for 4 years. Recruitment and training expenses are amortizable over 4 years immediately following the year in which they are incurred. Over the past 4 years the expenses are:

Year	Training, Recruitment Expenses (₹in lakh)

Current	**60**
Year 1	**48**
Year 2	**45**
Year 3	**36**
Year 4	**30**

Assuming a linear amortization schedule (over 4 years)

Estimate:

i) The value of human capital asset and the amount of training and recruitment expenses amortization for this year.

ii) The adjustment to operating income.

Solution:

Milton Consulting Ltd.

Year	Training, Recruitment Expenses (₹in lakh)	Unamortization portion (₹in lakhs)	Amortization this year (₹in lakhs)
Current	60	60 (100%)	---
Year 1	48	36 (75%)	12
Year 2	45	22.5 (50%)	11.25
Year 3	36	9 (25%)	9
Year 4	30	0	7.5
		127.50	39.75

i) The value of human capital assets as at the end of current year is ₹127.50 lakhs and amount of training and recruitment expenses amortization by debit to P&L account this year is ₹39.75 lakhs.

ii) Adjusted Operating Income.
= Operating Income + training & recruitment expenses – amortization of expenses this year
= (306 + 60 – 39.75) lakhs
= ₹326.25 lakhs.

21. (b) What is Human Resource Accounting? What are its benefits? Briefly discuss the two main methods of its measurement.

Answer:

Human Resource Accounting (HRA) is a set of accounting methods that seek to settle and describe the management of a company's staff. If focuses on the employees' education, competence and remuneration. HRA promotes the description of investments in staff, thus enabling the design of human resource management systems to follow and evaluate the consequences of various HR management principles.

The basic aims of HRA are several. First, HRA improves the management of human resources from an organizational perspective – through increasing the transparency of human resource costs, investments and outcomes in traditional financial statements.

Second, HRA attempts to improve the bases for investor's company-valuation. The following are the two main methods of measuring Human Resource.

i) Input Measurement – Inputs (such as training) are not necessarily effective, so cost is not always a good proxy measure of output value. Trained personnel may also move to another

employer through higher labour mobility – thus inhibiting the returns from corporate training investment.

ii) Replacement value – such values are rare, usually calculated to help product sales or the sale of the company, and are often highly debatable.

22. (a) A mutual fund that had a net asset value of ₹40 at the beginning of month made income and capital gain distribution of Re. 0.075 and ₹0.06 per share respectively during the month, and then ended the month with a net asset value of ₹40.12. Calculate monthly return.

Solution:

Calculation of monthly return on Mutual Fund.

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

Where, r = return on the mutual fund
NAV_t = Net asset value at the period t
NAV_{t-l} = Net Asset Value at the period t – l
I_t = Income at the period t
G_t = Capital gain distribution at the period t

$$r = \left[\frac{(₹40.12 - ₹40) + Re\,0.075 + Re\,0.06}{40}\right]$$

$$= \frac{0.12 + 0.135}{40}$$

= 0.006375
Or, r = 0.6375% p.m.
Or, = 7.65% p.a.

22. (b) X has invested in three Mutual Fund schemes as per details below:

Particulars	MFA	MFB	MFC
Date of investment	**01.12.2012**	**01.01.2013**	**01.03.2013**
Amount of investment	**₹1,00,000**	**₹2,00,000**	**₹1,00,000**
Net Asset Value (NAV) at entry date	**₹21**	**₹20**	**₹20**
Dividend received up to 31.03.2013	**₹1,900**	**₹3,000**	**NIL**
NAV as at 31.03.2013	**₹20.8**	**₹20.2**	**₹19.6**

Required:
What is the effective yield on per annum basis in respect of each of the three schemes to Mr. X up to 31.03.2013?

Solution:

Scheme	Investment (₹)	Unit Nos.	Unit NAV (₹) on 31.03.13	Total NAV (₹) on 31.03.13
MFA	1,00,000	4,761.905	20.80	99,047.624
MFB	2,00,000	10,000	20.20	2,02,000
MFC	1,00,000	5,000	19.60	98,000

Scheme	NAV (₹)	Dividend Received (₹)	Total yield (₹)	No. of Days	Effective yield % p.a.

MFA	(952.376)	1900	947.624	121	$\left(\frac{947.624}{100000} x \frac{365}{121} x100\right)$ = 2.858%
MFB	2000	3000	5000	90	$\left(\frac{5000}{200000} x \frac{365}{90} x100\right)$ =10.138%
MFC	(2000)	NIL	(2000)	31	$\left(\frac{-2000}{100000} x \frac{365}{31} x100\right)$ =(-) 23.55%

23. (a) A company has been making a machine to order for a customer but the customer has, however, since gone into liquidation and there are no prospects than any money will be obtained from the winding up of his company.
Cost incurred to-date in manufacturing the machine are ₹1,00,000 and progress payments of ₹30,000 have been received from the customer prior to the liquidation. The sales department has found another company willing to buy the machine for ₹68000 once it is completed. To complete the work, the following costs have to be incurred:

- **i) Material – These have been bought at a Cost of ₹12000. They have no other use and if the machine is not finished, they would be sold as scrap for ₹4000.**
- **ii) Further labour costs would be ₹16000. Labour is in short supply and if the machine is not finished, the workforce would be switched over to another job, which earns ₹60000 in revenue, and incurs direct costs (not including direct labour) of ₹24000 and absorbs (fixed) overhead of ₹16000.**
- **iii) Consultancy fees ₹8000. If the work is not completed, the consultant's contract would be cancelled at a cost of ₹3000.**
- **iv) General overheads of ₹16000 would be added to the cost of the additional work. Should the new customer's offer be accepted? Prepare a statement showing the economics of the proposition.**

Solution:
By an incremental analysis we can find the answer to the question: whether the new customer's offer be accepted or not.

Particulars		Amount (₹)	Amount (₹)
Incremental sales revenue			68,000
Less: incremental relevant and opportunity costs			
i) Cost of material-sale of scrap		4,000	
ii) Cost of direct labour		16,000	
iii) Incremental opportunity cost of contribution foregone on another job:			
Sales Revenue	60,000		
Less: Direct Costs			
Labour	(16,000)		
Other direct costs	(24,000)	20,000	
iv) Incremental cost of consultancy	(8,000 – 3,000)	5,000	(45,000)
Incremental Profit			23,000

Decision – The new customer's offer should be accepted.

23. (b) Calculate the price of 3 month ABC futures, if ABC (FV ₹10) quotes ₹260 on NSE, and the 3 month futures prices quotes at ₹266, and the one month borrowing rate is given as 15% and the expected annual dividend yield is 25% p.a. payable before expiry.

Solution:
Future's Price = Spot + Cost of carry – Dividend
= 260 + 260 x 0.15 x 0.25 – 2.5
= ₹267.25
Note: Entire 25% dividend is payable before expiry, which is ₹2.50.

Analysis:
Thus we see that futures price by calculation is ₹267.25 and is quoting at ₹266 in the exchange.
Hence, fair value of futures more than the actual future price.
Futures undervalued in the market and it is advised to buy.

24. (a) Mukesh Ltd. furnishes the following particulars about their investment in shares of Sasco Ltd. for the year 2012-13.
Balance of shares held on 1st April, 2012 ₹131000 [5000 shares @ ₹10 each]
Purchased 1000 shares on 1st July 2012 ₹30000
Sold 250 shares on 1st August 2012 ₹8750 @ ₹35 per share cum dividend
Sasco Ltd. declared final dividend for 2011-12 on 1st September 2012. 20%
Received 1 : 5 bonus shares on 1st February 2013.
Brokerage for each transaction is 2%. Find out cost of shares held by Mukesh Ltd. as on 31st March, 2013.

Solution:
Statement of cost

Date	Particulars	Amount (₹)	Amount (₹)
01.04.12	Balance (5000 shares)		1,31,000
01.07.12	Purchased 1000 shares:		
	Cost (cum-dividend)	30,000	
	Add: Brokerage [30000 x 2%]	600	
		30,600	
	Less: Dividend for 2011-12 (1000 x 10 x 20%)	2,000	
			28,600
01.08.12	Sold (250 shares cum dividend		
	Cost of Sales = $250 \times \frac{(1,31,000 + 28,600)}{(5,000 + 1,000)}$		(6,650)
01.02.13	Bonus Shares (1 : 5) = $(5,750 \times \frac{1}{5}) = 1150$ shares		NIL
31.03.13	Cost of investment		1,52,950

Notes:
1) Treatment of dividend received

Particulars	Amount (₹)
Dividend received from Sasco Ltd. during 2012-13 = (5750 x ₹10) x 20%	11,500
Less: Dividend deducted from cost of investment (1000 x 10 x 20%)	(2,000)
Add: Dividend included in sales proceeds of 250 shares (250 x 10 x 20%)	500
Dividend received to be shown in P/L	10,000

2) Profit on sale of investment

Particulars	Amount (₹)
Sale proceeds of 250 shares	8,750
Less: Brokerage ((8,750 x 2%)	175

	8,575
Less: Dividend for 2011-12 included	(500)
Less: Cost of sales	(6,650)
Profit on sales	1,425

3) Bonus shares are free of cost.

24. (b) ABC Ltd. acquire 40% of XYX Ltd's shares on April 2, 2012, the price paid was ₹2,80,000. XYZ Ltd's shareholder equity shares are as follows:

Equity Shares (Paid-up)	**1,00,000**
Share Premium	**3,00,000**
Retained Earning	**1,00,000**
	5,00,000

Further XYZ Ltd. reported a net income of ₹60,000 and paid dividends of ₹20,000. ABC Ltd. has subsidiary on 31.03.2013. Calculate the amount at which the investment in XYZ Ltd. should be shown in the consolidated Balance Sheet of ABC Ltd as on 31.03.2013.

Solution:

As per AS-23 when the investor company prepares the consolidated Balance Sheet, the investment in associate i.e., XYZ Ltd. shall be carried by equity method and goodwill and capital reserve to be identified and disclosed.

Extract of consolidated Balance Sheet of ABC Ltd. as on 31.03.2013.

Liabilities	₹	Assets		₹
		Investment in XYZ Ltd.		
		Associates	2,16,000	
		Goodwill	80,000	2,96,000

Goodwill identified = (2,80,000 – 40% of 5,00,000) = ₹80,000

Carrying amount of investment on 31.03.2013 as per equity method.

= ₹(2,80,000 + [40% of 60,000] – [40% of 20,000])

= ₹(2,80,000 + 24,000 – 8,000)

= ₹2,96,000.

25. (a) The Optical Machineries Ltd. requests you to ascertain the amount at which the inventory should be included in the financial statement for the year 2012-13. The value of inventory as shown in the books is ₹625000.

To determine the net realizable value of the inventory (on a test check basis), you had selected several items whose book value was ₹175000. You ascertain that except for items (i) to (iii) mentioned below, the cost was in excess of the realizable value by ₹14766.

The following items require special treatment.

(i) One machine (cost ₹65000) can now fetch ₹57500. It was priced at ₹35000 and was written down to the same figure at the end of 2012-13.

(ii) A pump (cost ₹25000) was expected to realize ₹17500. A special commission @ 15% would have to be paid to the broker.

(iii) 6 units of product No. 15710 were in stock valued each at ₹2760; the selling price was ₹2250 per unit; selling expenses are 10% of the selling price.

Taking into consideration only the above mentioned items requiring special treatment, compute the value of their inventory as at 31st March 2013 you would consider reasonable.

Solution:
Books value of selected items is given.
From the given information, realizable value of remaining selected items will have to be found. Then the value of inventory (net realizable value) for all the items to be included in the financial statements of the company for the year 2012-2013 is to be determined.

Working showing Realisable value of selected Items:

Particulars	Amount (₹)	Amount (₹)
Book value of Selected items		1,75,000
Less: Book value of items (a) to (c)		
(a) One Machine	35,000	
(b) One Pump	25,000	
(c) 6 units of product No. 15,710 @ ₹2,760	16,560	(76,560)
Remaining Book Value		98,440

It is given in the question that except for the items (a) to (b) the cost was in excess of realizable value by ₹14766. In order to find out the realizable value of remaining items, this amount should be deducted from the book value of selected items.

The realizable value of remaining selected items will be = (₹98440 – ₹14766) = ₹83674.
Percentage of the cost in excess of realizable value to the book value of selected items = $\frac{14766}{98440} x100 = 15\%$.

Statement showing the Inventory Valuation (on Net Realisable Value basis) as on 31.03.2013.

Particulars	Amount (₹)	Amount (₹)
Value of all the items as shown in the books		6,25,000
Less: Book value of special items		(1,75,000)
Book value of the Remaining items		4,50,000
Less: Cost of excess of realizable value by 15% (4,50,000 x 15%)		(67,500)
Add: Realisable value of remaining selected items		83,674
Add: Realisable value of selected items:		
One machine	57,500	
One Pump (17500 less 15% brokerage)	14,875	
6 units of product No. 15710 [6 x 2250 – 10% selling exp]	12,150	84,525
Value of all items of inventory as on 31.03.2013		5,50,699

25. (b) State with reference to accounting standard, how will you value the inventories in the following cases:

i) In a production process, normal waste is 5% of input 10,000 MT of input were put in process resulting in a wastage of 600 M.T. cost per MT of input is ₹2000. The entire quantity of waste is on stock at the end of the year.

ii) Per Kg. of finished goods consisted of :

Material Cost	**₹50 per Kg.**
Direct labour cost	**₹10 per Kg.**
Direct variable production overhead	**₹5 per Kg.**

Fixed production charges for the year on normal capacity of 50,000 Kgs. are ₹5,00,000. 1,000 Kgs of finished goods are on stock at the year end.

Solution:

i) As per para 13 of AS 2 (Revised), abnormal amounts of waste materials, labour or other production costs are excluded from cost of inventories and such costs are recognized as expenses in the period in which they are incurred.
In this case, normal waste is 500 MT and abnormal waste is 100 MT. The Cost of 500 MT. will be included in determining the cost of inventories (finished goods) at the year end. The cost of abnormal waste amounting to ₹2,00,000 (100MT x ₹2000) will be charged in the profit and loss statement.

ii) In accordance with paras 8 and 9 of AS 2 (Revised), the costs of conversion include a systematic allocation of fixed and variable production overheads that that are incurred in converting materials into finished goods. The allocation of fixed production overhead for the purpose of their inclusion in the costs of conversion is based on the normal capacity of the production facilities.
Thus, cost per Kg. of finished goods can be computed as follows:

Particulars	Amount (₹)
Material cost	50
Direct labour cost	10
Direct variable production overhead	5
Fixed production overhead = $\left(\frac{5,00,000}{50,000}\right)$	10
	75

Thus the value of 1000 Kgs. Of finished goods on stock at the yearend will be
= (₹75 x 1000 Kgs.) = ₹75,000.

26. (a) A company has purchased plant and machinery in the year 2009-10 for ₹90 lakhs. A balance of ₹10 lakhs is still payable to the supplier for the same. The suppler waived off the balance amount during the financial year 2012-13. The company treated it as income and credited to profit and loss account during 2012-13. Whether accounting treatment of the company is correct. If not, state with reasons.

Answer:

As per para 9.1 of AS – 10 the cost of fixed assets may undergo changes subsequent to its acquisition or construction on account of exchange fluctuation, price adjustments, changes in duties or similar factors. After considering the above the treatment done by the company is not correct. ₹10 lakhs should be deducted from the cost of fixed assets.

26. (b) Jain Co. Ltd. purchased a machine costing ₹2,50,000 for its manufacturing operations and paid shipping cost of ₹40,000. Jain Ltd. spent an additional amount of ₹20000 for testing and preparing the machine for use. What amount should Jain Ltd. record as the cost of the machine?

Answer:

As per para 20 of AS – 10, the cost of fixed asset should comprise its purchase price and any attributable cost of bringing the asset to its working condition for its intended use. In this case the cost of machinery includes all expenditures incurred in acquiring the asset and preparing it for use. Cost includes the purchase price, freight and handling charges, insurance cost on the

machine while in transit, cost of special foundations, and costs of assembling installation and testing. Therefore the cost to be recorded is = ₹(250000 + 40000 + 20000) = ₹310000.

26. (c) X Ltd. expects that a plant has become useless which is appearing in the books at ₹40 lakhs 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 the 7th year the plant has been assessed as useless. Its estimated net realizable value is ₹1240000. Determine the loss/gain on retirement of the fixed Assets.

Solution:

	₹
Cost of the plant	40,00,000
Estimated realizable value (4000000 x 3%)	(1,20,000)
Depreciable amount	38,80,000

Depreciation per year = 3,88,000
Written down value at the end of 7th year = 40,00,000 – (3,88,000 x 7) = ₹12,84,000
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 ₹(12,84,000 – 12,40,000) = ₹44,000 to be shown in the profit and loss account and asset of ₹12,40,000 to be shown in the balance sheet separately.

26. (d) An unquoted long term investment is carried in the books at a cost of ₹4 lakhs. The published accounts of the unlisted company received in May 2012 showed that the company was incurring cash losses with declining market share and the long term investment may not fetch more than ₹40,000. How would you deal with this in financial statements.

Solution:
Investments classified as long term investments should be carried in the financial statements at cost. However, provision for diminution shall be made to recognize a decline, other than temporary, in the value of the investments, such reduction being determined and made for each investment individually.

Para 17 of AS-13 Accounting for investments states that indicators of the value of an investment are obtained by reference to its market value, the investee's assets and results and the expected cash flows from the investment. On these bases, the facts of the given case clearly suggest that the provision for diminution should be made to reduce the carrying amount of long-term investment to ₹40000 in the financial statements for the year ended 31st March, 2013.

27. (a) Chaya Publishers Ltd. has been approached by other publishers ABP Ltd. which is interested in buying the copy right of the book valuation Management.

To estimate the value of the copy right, the following assumptions are made;

i) The book is expected to generate ₹4,50,000 in after-tax cash flows each year for the next three years to Chaya Publishers Ltd. and ₹3,00,000 a year for the subsequent two years. These are the cash flows after author royalties, promotional expenses and production costs.

ii) About 40% of these cash flows are from large organizations that make bulk orders and considered predictable and stable. The cost of capital applied to these cash flows is 7%.

iii) The remaining 60% of the cash flows are to the general public and this segment of the cash flows is considered much more volatile. The cost of capital applied to these cash flows is 10%.
Based on the information given above, estimate the value of the copyright.

Solution:
The value of the copyright can be estimated as follows:

Year	Stable cash flows (₹)	P_v @ 7%	P_v of stable cash flows (₹)	Volatile cash flow (₹)	P_v @ 10%	P_v of volatile cash Flows (₹)
1	1,80,000	0.9346	1,68,228	2,70,000	0.9091	2,45,457
2	1,80,000	0.8734	1,57,212	2,70,000	0.8264	2,23,128
3	1,80,000	0.8163	1,46,934	2,70,000	0.7513	2,02,851
4	1,20,000	0.7629	91,548	1,80,000	0.6830	1,22,940
5	1,20,000	0.7130	85,560	1,80,000	0.6209	1,11,762
			6,49,482			9,06,138

Therefore, the value of the copyright is = ₹(649482 + 906138) = ₹15,55,620.

27. (b) Khan International Ltd. is developing a new production process. During the financial 31st March 2012, the total expenditure incurred on this process was ₹150 lakhs. The production process met the criteria for recognition as an intangible on 1st December, 2011. Expenditure incurred till this date was ₹66 lakhs.

Further expenditure incurred on the process for the financial year ending 31st March, 2013, was Rs. 240 lakhs. As at 31.03.2013 the recoverable amount of know-how embodied in the process is estimated to be ₹216 lakhs. This includes estimates of future cash outflows as well as inflows.
You are required to work out:
(i) What is the expenditure to be charged to be profit and loss account for the financial year ended 31st March, 2012? (Ignore depreciation for this purpose)
(ii) What is the carrying amount of the intangible asset as at 31st March 2012?
(iii) What is the expenditure to be charged to profit and loss account for the financial year ended 31st March 2013? (ignore depreciation for this purpose).
(iv) What is the carrying amount of the intangible asset as at 31st March, 2013?

Solution:
(i) Expenditure incurred up to 1-12-2011 will be taken up to profit and loss account for the financial year ended 31-03-2012 = ₹66 lakhs.
(ii) Carrying amount as on 31-03-2012 will be the expenditure incurred after 1-12-2011= ₹84 lakhs [i.e., the expenditure incurred since the date the recognition criteria were met i.e., on 1-12-2011].
(iii) **Book Cost of intangible asset as on 31-03-2013 is worked out as :**

Carrying amount as on 31-03-2012	₹84 lakhs
Expenditure during 2012-13	₹240 lakhs
Total Book Cost	₹324 lakhs
Recoverable amount, as estimated	₹216 lakhs
Difference to be charged to profit and loss accounts impairment = ₹(324–216)	₹108 lakhs

(iv) **Carrying amount of intangible asset as at 31-03-2013**

	₹(lakhs)
Total Book Cost	324
Less: Impairment loss	108

Carrying amount as on 31-03-2013	216

28. (a) Black Ltd., a lessee, acquired a machinery on lease from White Ltd., (lessor) on January 1, 2010. The lease term covers the entire economic life of the machinery, i.e., 3 years. The F.V. of the machinery on January 1, 2010 is ₹10.50 lakhs. The lease agreement requires the lessee to pay an amount of ₹4.50 lakhs p.a. beginning December 31, 2010. The lessee has guaranteed an RV of ₹34200 on December 31, 2012to the lessor. The lessor however estimates that the machinery will have a salvage value of only ₹30000 on December 31, 2012. The implicit rate of interest is 15%, compute the value of machinery, to be recognized by the lessee, and also the finance charges, every year, on the basis of AS – 19.

Solution:

Here, Fair value ₹10.50 lakhs P_v of minimum lease payment from the point of lessee:

Year	MLP (₹)	Discount Factor @ 15%	P_v of MLP
1	450000	0.8696	391320
2	450000	0.7561	340245
3	450000	0.6575	295875
3	34200	0.6575	22487
			10,49,927

Rounded off ₹10,50,000

Since fair value and P_v of MLP is same the asset / liability will be recognized on inception of lease at ₹10,50,000.

Statement showing MLP as finance charges and principal component payable:

Year	Outstanding Amount (₹)	MLP (₹)	Finance Charger @ 15% (IRR)	Principal component
1	10,50,000	4,50,000	1,57,500	2,92,500
2	757500	4,50,000	1,13,625	3,36,375
3	421125	4,84,200	63,075	4,21,125
	Total	13,84,200	3,34,200	10,50,000

28. (b) An equipment is leased for 3 years and its useful life is 5 years. Both the cost and the fair market value of the equipment are ₹6,00,000. The amount will be paid in 3 installments and a the termination of lease, lessor will get back the equipment. The unguaranteed residual value at the end of 3 year is ₹80,000. The (internal rate of return) IRR of the investment is 10%. The present value of annuity factor of Re. 1 due at the end of 3rd year at 10% IRR is 2.4868. the present value of ₹1 due at the end of 3rd year at 10% rate of interest is 0.7513.
Required :
i) State with reason whether the lease constitutes finance lease.
ii) Calculate unearned finance income.

Solution:
i) Situations under which a lease can be classified as finance lease are –
   a) Transfer of ownership by the end of the lease term.
   b) Lessee being given the purchase option at lower price.
   c) Lease term is for the major part of the economic life of the asset.
   d) Lease is non-cancellable
   e) Present value of the MLP is substantially equal to FV of leased asset.

Since the present value of MLP is substantially equal to FV of leased asset, the lease appears to be finance lease.

ii) P_v of MLP = FV - P_v of residual value = 6,00,000 – (80,000 x 0.7513) = ₹5,39,896.
Gross investment in lease = MLP + GRV + UGRV = (539896 / 2.4868 x 3 years) + 0 + 80,000
= 7,31,314

Unearned Finance Income (UFI) = GIL - P_v of GIL
Where, P_v of GIL = P_v of MLP + P_v of UGRV
= 539896 + (80000 X 0.7513)
= 6,00,000

Unearned Finance Income = 731314 – 600000
= ₹131314

29.(a) A company has a total investment of ₹10,00,000 in assets and 1,00,000 outstanding ordinary shares at ₹10 per share (par value). It earns a rate of 15 per cent on its investment and has a policy of retaining 50 per cent of the earnings. If the appropriate discount rate of the firm is 10 per cent, determine the price of its share using Gordon's model. What shall happen to the price of the share if the company has a payout of 80 per cent or 20 per cent?

Solution:

Gordon's share valuation Model is $P_o = \frac{E(1-b)}{K_e - br} = \frac{(1-b)r \times A}{K_e - br}$

Where, A represents investment per share, which is ₹10 in this case

a) At a payout of 50%, the price of the share is $P_o = \frac{(1-0.50)0.15 \times 10}{0.10 - (0.15 \times 0.5)} = ₹30$

b) At a payout of 80% $P_o = \frac{(1-0.20)\ 0.15 \times 10}{0.10 - (0.15 \times 0.20)} = ₹17$

c) At a payout of 20% $P_o = \frac{(1-0.80)\ 0.15 \times 10}{0.10 - (0.15 \times 0.80)} =$ (-) ₹15.

29. (b) A company belongs to a risk class for which the appropriate capitalization rate is 10 per cent. It currently has outstanding 25000 shares selling at ₹100 each. The firm is contemplating the declaration of dividend of ₹5 per share at the end of the current financial year. The company expected to have a net income of ₹2.5 lakhs and has a proposal for making a new investment of ₹5 lakhs.

Show that under the Modigliani and Millar assumptions, the payment of dividend does not affect the value of the firm.

Solution:
As per MM Model
When dividends are paid

$$P_o = \frac{1}{1+K_e} \times (D_1+P_1)$$

Or, $$100 = \frac{1}{1+0.10} \times (5+P_1)$$

Or, $P_1 = 105$

New shares to be issued

mP_1 = I – (E - nD_1)
or, m 105 = 5,00,000 – (2,50,000 – 1,25,000)
m = 3571 shares approx

Therefore, current value of the firm

$$nP_o = \frac{1}{I+K_e}\{(n+m)\,P_1 - I + E\}$$

$$= \frac{1}{1+0.10}\{(25,000 + 3,571) \times 105 - 5,00,000 + 2,50,000\}$$

nP_o = ₹24,99,959 or ₹25,00,000 (approx)

When dividends are not paid

$$P_o = \frac{1}{I+K_e} \times (D_1+P_1)$$

Or, $$100 = \frac{1}{1+0.10} \times (0+P_1)$$

Or, P_1 = ₹110

New shares to be issued

mP_1 = I – (E - nD_1)
or, m 110 = 5,00,000 – (2,50,000 – n x 0)
m = 2273 shares

Therefore, current value of the firm

$$nP_o = \frac{1}{I+K_e}\{(n+m)\,P_1 - I + E\}$$

$$= \frac{1}{1+0.10}\{(25,000 + 2,273) \times 110 - 5,00,000 + 2,50,000\}$$

nP_o = ₹25,00,027 or ₹25,00,000 (approx)

Comment:
Thus under this approach the payment of dividend or otherwise, does not affect the value of the firm.

30. (a) XYZ Ltd's shares are currently selling at ₹26 per share. There are 20,00,000 shares outstanding. The firm is planning to raise ₹40 lakhs to finance a new project to be started soon at Mumbai.
You are required to calculate the ex-right price of shares and the value of a right. If

i) The firm offers one right share for every two shares held
ii) The firm offers one right share for every four shares held
iii) How does the shareholder's wealth change from (i) to (ii) above? How does right issue increases shareholder's wealth?

Solution:

i) When firm offers 1 right share for every 2 shares held:

Therefore, no of shares to be issued = 20,00,000 x $\frac{1}{2}$ = 10,00,000

Pre-right = $\frac{5,20,00,000 + 40,00,000}{30,00,000}$ = 18.67

Subscription price = $\frac{40,00,000}{10,00,000}$ = 4

Value of right = $\frac{₹(18.67 - 4)}{2}$ = ₹7.34

ii) When firm offers one right share for every four shares held :

No. of shares issued = 20,00,000 x $\frac{1}{4}$ = 5,00,000

Pre-right = $\frac{5,20,00,000 + 40,00,000}{25,00,000}$ = 22.4

Subscription price = $\frac{40,00,000}{5,00,000}$ = 8

Value of right = $\frac{₹(22.4 - 8}{4}$ = ₹3.6

iii) Since right issue is constructed in such a way so that shareholder's proportionate share will remain unchanged shareholder's wealth does not change from (i) to (ii).

Right issue increases shareholder's wealth because the cost of issuing right shares is much lower than the cost of a public issue.

30. (b) ABC Co. Ltd. supplied the following information. You are required to compute the basis earning per share .
(Accounting Year 01.01.2011 – 31.12.2011)
Net Profit : Year 2011 : ₹40,00,000
: Year 2012 : ₹60,00,000

No. of Shares
Outstanding prior to right issue : 20,00,000 Shares
Right Issue : One new share for each four outstanding i.e., 5,00,000 Shares
Right Issue Price ₹40 last date of exercise rights 31.03.2012.
Fair rate of one Equity share
Immediately prior to exercise
Right on 31.03.2012 : ₹50.

Solution:
Computation of Basic Earning per Share (EPS):

For year 2011 = $\frac{40,00,000}{20,00,000}$ = ₹2

For calculating the EPS for 2012, right factor is to be calculated.

Right factor = $\frac{\text{Fair value per share immediatel y Prior to right issue}}{\text{Theoritical Ex - right fair value per share}}$

Theoretical ex-right fair value per share = $\frac{\text{Aggregate Fair value per share immediatel y Prior to the exercise of right + proceeds from right issue}}{\text{Number of shares outstanding after the right issue}}$

$= \frac{(20,00,000 \times 50 + 5,00,000 \times 40)}{25,00,000} = 48$

Right factor $= \frac{50}{48} = 1.04$

Basic EPS for 2012 $= \frac{60,00,000}{\left(20,00,000 \times 1.04 \times \frac{3}{12}\right) + 25,00,000 \times \frac{9}{12}}$ = ₹2.50 per share

Adjusted EPS for 2011 $= \frac{40,00,000}{(20,00,000 \times 1.04)}$ = ₹1.92 per share.

30. c) Write Short Notes On:

(i) Equity Curve- Outs(ECOs)
(ii) Tracking Stocks
(iii) Repurchase Agreement(REPO)
(iv) Fair Market Value of intangible assets
(v) Calculated Intangible Value (CIV)
(vi) Valuation of unlisted companies
vii) Valuation of real estate.

Answer :

i) Equity Carve- Outs(ECOs) :

In equity carve –out (ECO), affirm separates out assets or a division, and creates shares with claim on these assets. It then sells these shares to the public. In a sense an ECO is the equivalent of an initial public offering of shares in the unit being carved out of the parent company. In general, the parent company retains control of the carved- out units though some equity carved –outs are followed by spin offs. A firm is much more likely to use an equity carved –out for a division that has high growth opportunities and significant investment needs. So, the initial market reaction to ECO is seen to be positive.

ii) Tracking stocks :

A number of companies have created shares in divisions or subsidiaries that track the performance of just these units. These shares are called tracking stocks. The firm may receive cash from issuing tracking stock but the transaction can also be cash free. The parent company usually retains complete control over the units. Over time, the stock holders in the parent company and in the carved unit may face a conflict of interest between them.

iii) Repurchase Agreement (REPO) :

A REPO is the sale of a security with an agreement that the security will be bought back at a specified price at the end of the agreement period. The seller of the security in the agreement raises funds, whereas the buyer earns interest from the arrangement. From the buyer's perspective this is called a reverse repurchase agreement. Investors in repurchase agreement are usually money market funds and corporations with excess cash to invest for a short period. Usually, investors earn higher interest rate than they would earn from treasury securities.

iv) Fair Market Value of intangible assets :

Any intangible asset acquired is valued on the basis of the fair value of the asset. Intangible assets include;

- Computer software

- Patents
- Copyrights
- Quotas
- Mining rights
- Marketing rights etc.

Three important criteria are used to identify an intangible asset. They are ;

- identifiability,
- control and
- existence of future economic benefits.

Using the quoted market price in an active market could derive the fair market values of intangibles. The appropriate market price is the current bid price. In the absence of such a price, price quoted in a transaction for similar intangible asset can provide a basis for deriving fair value. Otherwise the amount, which the business unit would have paid in arm's length transaction between knowledgeable and willing parties, is taken as the fair market value. However, finally it must be admitted that if the fair value of the intangible asset cannot be measured reliably, that asset is not recognized as separate intangible but included in the goodwill.

v) Calculated Intangible Value (CIV) :

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

vi) Valuation of unlisted companies :

For companies which are not quoted and are closely held, we cannot calculate the P/E ratio as the market price of the shares of such a company is not available. Hence, a representative P/E ratio of a group of comparable quoted companies can be taken after suitable adjustment. Generally, a discount is applied for valuation to the P/E ratio of comparable listed company so found out. The other factors that may be taken into consideration while making earnings approach to valuation of an unlisted company are:

(a) *Company analysis* — shareholding pattern, voting powers, rights and obligations of shareholders in addition to other relevant factors.

(b) *Industry analysis* — whether it is a high or low growth industry, nature of industry and influence on it of seasonal, volatile or cyclical business fluctuations, major competitors and their market share, etc.

vii) Valuation of real estate.

For evaluation of a real estate, one can use the cash flow technique. In order to use the Discounted cash flow technique the valuer should consider cash inflows like rent, reimbursement of rates and utility expenses, terminal value as well as cash outflows like property taxes, insurance, repairs and maintenance, advertising and utility expenses. Other simpler methods like Standardised Value Measures (e.g price per square metre) and Comparable Asset Values (gross income multiplier) are also used . It should be noted that the CAPM(Capital Asset Pricing Model) and the APM(Arbitrage Pricing Model) cannot be used easily in valuing a real estate because of some inherent features in real estates, e.g. lack of regular trading in real estates, dissimilar nature of any two real estates, terminal value often differing between two real estates etc.