## Group - IV

## Paper 20: Financial Analysis and Business Valuation

### Section – A

**Q. 1. The summarized Balance Sheet of ABC Co. Ltd. for the years ended 31.12.12 and 31.12.13 are as follows:**

**Balance Sheet (summarised)** **(All ₹ in '000)**

| | 31.12.12 | 31.12.13 | | 31.12.12 | 31.12.13 |
|---|---|---|---|---|---|
| Eq. Shares Capital @ ₹ 1 each | 1,200 | 1,200 | Plant (at cost) | 1,620 | 1,990 |
| General Reserve | 250 | 260 | Less: Depreciation | 616 | 736 |
| Profit & Loss A/c | 572 | 510 | | 1,004 | 1,254 |
| 8% Debentures | -- | 600 | Freehold Property | 400 | 480 |
| Prov. for Income Tax | 316 | 240 | Goodwill at cost | 300 | 300 |
| Proposed Dividend | 180 | 180 | Stock | 990 | 1,276 |
| Sundry Creditors | 738 | 1,080 | Debtors | 484 | 736 |
| | | | Bank | 78 | 24 |
| | 3,256 | 4,070 | | 3,256 | 4,070 |

**Other informations:**

| | ₹ ('000) | |
|---|---|---|
| | 31.12.12 | 31.12.13 |
| Sales | 6,000 | 6,600 |
| NPBT (Net Profit before Tax) | 560 | 200 |
| Depreciation on Plant | 100 | 120 |
| Bad Debt | 46 | 164 |
| Directors Remuneration | 50 | 52 |
| Adv. & Sales Promotion | 216 | 324 |

**ABC Ltd. started business 20 years ago and its main business is to manufacture high quality electric wires, of which about 45% is exported to Middle-East Countries. The M.D. of the Co. had approached the Bank Manager to give an overdraft facility to the extent of ₹ 4 lakhs. In making the request, the M.D. indicated:**

**(a) The Co. had extended production capacity and to support this production capacity necessary overdraft is required.**

**(b) Some initial difficulties were faced in the Middle-East Countries due to severe complications, but at present that difficulty is over.**

**You as a Management Accountant are required to draw a report for the Bank Manager giving your opinion about sanctioning the overdraft facility.**

**Answer 1:**

The M.D. of ABC Ltd. had requested the Bank Manager to allow an overdraft facility to the extent of ₹ 4 lakhs, which he claims is required to support expansion programme.

To ascertain whether new funds would really be utilised for expansion purpose or not, it is necessary to examine the liquidity position of the firm.

If the existing liquidity position is weak, then it may be concluded that fresh funds are to be utilised not for expansion purpose but for overcoming existing liquidity crisis.

The timely payments of interest and repayment of principal amount is directly linked with surplus generation. Therefore, an analysis of profitability position is required to assess that enough surplus should be generated.

To measure the risk involved, an analysis of capital structure position and debt-service coverage position is also necessary.

**Analysis Liquidity Position**

**(₹ in '000)**

| | | 2012 | 2013 |
|---|---|---|---|
| (a) Current Ratio | $\frac{\text{Current Asset}}{\text{Current Liabilities}}$ | $\frac{1,552}{1,234} = 1.26:1$ | $\frac{2,036}{1,500} = 1.36:1$ |
| (b) Acid Test Ratio | $\frac{\text{Current Asset Stock}}{\text{Current Liabilities Bank Loan}}$ | $\frac{1,552-990}{1,234} = 0.46:1$ | $\frac{2,036-1,276}{1,500} = 0.51:1$ |

**Analysis of Profitability Position**

**(₹ in '000)**

(a) Return on Capital Employed (ROC) $= \frac{\text{EBIT}}{\text{TA} - \text{CL}} \times 100$

$= \frac{560}{3,256-1,234} \times 100$ $= \frac{248}{4,070-1,500} \times 100$

$= 27.70\%$ $= 9.65\%$

(b) Net Margin on Sales $= \frac{\text{EBIT}}{\text{Sales}} \times 100$

$= \frac{560}{6,000} \times 100$ $= \frac{248}{6,600} \times 100$

$= 9.33\%$ $= 3.76\%$

(c) Capital Turnover Ratio $= \frac{\text{Sales}}{\text{Capital Employed}}$

$= \frac{6,000}{2,022}$ $= \frac{6,600}{2,570}$

= 2.97 times = 2.57 times

(d) Increase in Sales = $\frac{600}{6,000} \times 100 = 10\%$

(e) Increase in Advertisement Expenditure = 50%

The main profitability ratios namely ROC and Net Margin on Sales have decided appreciably (about 300%) in the 2nd Year.

In the 1st Year, however, profitability condition was more or less satisfactory. But in the 2nd year, the position is very poor.

The Capital Turnover Ratio shows marginal decline in the 2nd year which is contrary to the M.D's claim, that the market is expanding. Moreover, a 10% rise in sales also points out that there is perhaps no increase in the sales volume and the increase in sales may be due to the rise in general price level. Advertisement Expenses has increased by 50% which also implies that Advertising were not fruitful for boosting up sales.

**Analysis of Capital Structure Position**

**Debt-Equity Ratio**

The Co. is wholly equity financed in the 1st year. Therefore, there is no need for calculation of D/E Ratio.

D/E Ratio in the 2nd year (₹ in '000)

$= \frac{600}{1,200}$

= 0.5:1

D/E Ratio in the 2nd year is well below the maximum permissible limit of 2:1. It implies that there is further scope, for debt financing if the company improves in other areas.

**Analysis of Debt-Service Coverage Position**

In the 1st year there is no fixed interest commitment on the part of the company and therefore there is no need for calculation of debt-service coverage ratio.

However, in the 2nd year, this ratio may be computed with the following assumptions.

(i) Corporate tax rate is 50%

(ii) Debenture would be repaid after 6 years, which means, an annual provision of about ₹ 100 ('000) is to be made for Redemption of Debentures.

**Debt-Service Coverage Ratio** **(₹ in '000)**

$$\frac{\text{EBIT}}{\text{Interest} + \left(\frac{1}{1-t}\right) \text{ Annual Repayment}}$$

$$= \frac{248}{48 + \left(\frac{1}{1-\frac{1}{2}}\right)100} = \frac{248}{48+200}$$

$$= \frac{248}{248} = 1 \text{ times.}$$

At present, the Co. is just being able to service its existing debt and a marginal fall in EBIT would make the Co. default in the field of servicing its existing debt.

Therefore, it may be said that if fresh loan is granted then the Co. would not be in a position to service its debt.

**Final Conclusion:**

The liquidity position of the Co. is well below the accepted ratio of Current Ratio 2:1, Acid Test Ratio 1:1, which is the indicator of less margin of safety and a case of overtrading.

As the company's liquidity, profitability and Debt-service coverage position is not at all satisfactory, therefore it is recommended that fresh overdraft facility should not be granted to the company.

Moreover M.D.'s claim that market is expanding has not been established from the analysis of financial statement given to us.

**Q. 2. The Profit and Loss Account (Extract) and Balance Sheet (Extract) of Bajaj Auto Ltd. for the year ended 31st March 2014 and 31st March 2013 are given below. Prepare a comparative Profit and Loss Account and Balance Sheet and comment on the performance of the company.**

**Profit and Loss Account (Extract)**
**For the year ended 31st March 2014 and 31st March 2013**
**Bajaj Auto Ltd.**

| | 31.03.2014 | 31.03.2013 |
|---|---|---|
| | (₹ in million) | (₹ in million) |
| **Gross sales** | **1,06,060.90** | **85,498.60** |
| **Less: Excise duty** | **13,138.60** | **10,804.80** |
| **Net Sales** | **92,922.30** | **74,693.80** |
| | | |
| **Materials cost** | **69,010.10** | **53,246.00** |

| | | |
|---|---|---|
| Other expenses | 12,344.80 | 10,118.40 |
| Less: Expenses, included in above items, capitalised | (320.50) | (248.10) |
| (+)Other income (Operating): | | |
| Wind power generated, mainly captively consumed | 330.50 | 199.50 |
| Other operating income | 1,047.10 | 88.37 |
| | 1,377.50 | 287.87 |
| Profit before Depreciation, interest and tax- PBDIT | 13,265.50 | 11,865.37 |
| Depreciation | 1,902.60 | 1,910.00 |
| Operating profit- OP/PBIT | 11,362.90 | 9,955.37 |
| Interest and finance charges | 53.40 | 3.40 |
| (+)Other income (Non-operating) | + 6,460.60 | + 6,081.83 |
| Profit before tax and extra ordinary items - PBTEOT | 17,770.10 | 16,033.80 |
| Extra ordinary expenses: | | |
| Compensation Paid Under Voluntary Retirement Scheme | 385.70 | 226.40 |
| Export incentives accrued in previous year written off | 103.90 | |
| | 489.60 | 226.40 |
| Profit Before Tax for the year- (PBT-Y) | 17,280.50 | 15,807.40 |
| Prior period expenses | 8.60 | 8.70 |
| Profit Before Tax -PBT | 17,271.90 | 15,798.70 |
| Provision for Tax: | | |
| Current Tax [including ₹ 5 million for Wealth tax (previous year ₹ 5.5 million)] | 5,005.00 | 5,135.50 |
| Deferred Tax | (134.10) | (394.40) |
| Fringe Benefit Tax | 30.00 | 50.00 |
| Tax credits pertaining to earlier years | | (225.10) |
| Total tax | 4,900.90 | 4,566.00 |
| Profit After tax- NP/ PAT | 12,371.00 | 11,232.70 |

**Balance sheet (Extract)**
**As at 31st March 2014 and 31st March 2013**
**Bajaj Auto Ltd.**

| | 31.03.2014 | 31.03.2013 |
|---|---|---|
| | (₹ in million) | (₹ in million) |
| Sources of Funds | | |
| Shareholders' Funds | | |
| Share Capital | 1,011.80 | 1,011.80 |
| Reserves & Surplus | 54,331.40 | 46,695.50 |
| | 55,343.20 | 47,707.30 |
| Loan Funds | | |
| Secured Loans | 224.60 | 0.20 |
| Unsecured Loans | 16,029.70 | 14,671.30 |
| | 16,254.30 | 14,671.50 |
| Deferred Tax Adjustments : | | |

| | | |
|---|---|---|
| **Deferred Tax Liabilities** | **1,844.90** | **1,902.10** |
| **Deferred Tax Assets** | **(1,103.20)** | **(1,026.30)** |
| | **741.70** | **875.80** |
| **Total** | **72,339.20** | **63,254.60** |
| **Application of Funds** | | |
| **Fixed Assets** | | |
| **Gross Block** | **31,744.10** | **28,928.80** |
| **Less: Depreciation** | **19,224.40** | **17,787.20** |
| **Net Block** | **12,519.70** | **11,141.60** |
| **Lease Adjustment Account - Plant and Machinery** | **175.00** | **175.00** |
| | **12,694.70** | **11,316.60** |
| **Capital Work in progress, expenditure to date** | **269.20** | **241.80** |
| | **12,963.90** | **11,558.40** |
| **Technical Know-how** | **41.30** | **13.40** |
| **Investments** | **64,475.30** | **58,569.70** |
| **Current Assets, Loans and Advances** | | |
| **Inventories** | **3,097.00** | **2,729.30** |
| **Sundry Debtors** | **5,298.30** | **3,015.50** |
| **Cash and bank balances** | **834.80** | **820,90** |
| **Other Current Assets** | **362.20** | **721.30** |
| **Loans and Advances** | **28,594.00** | **21,273.70** |
| | **38,186.30** | **28,560.70** |
| **Less: Current Liabilities and Provisions** | | |
| **Liabilities** | **14,989.70** | **12,288.70** |
| **Provisions** | **28,337.90** | **23,158.90** |
| | **43,327.60** | **35,447.60** |
| **Net Current Assets** | **(5,141.30)** | **(6,886.90)** |
| **Total** | **72,339.20** | **63,254.60** |

**Answer 2:**

**Comparative Profit and Loss Account**
**For the year ended 31st March 2014 and 31st March 2013**
**Bajaj Auto Ltd.**

| | **31.03.2014** | **31.03.2013** | **Increase/Decrease over 2013** | |
|---|---|---|---|---|
| | **(₹ in million)** | **(₹ in million)** | **(₹ in million)** | **%age** |
| Gross sales | 1,06,060.90 | 85,498.60 | 20,562.30 | 24.04 |
| Less: Excise duty | 13,138.60 | 10,804.80 | 2,333.80 | 21.59 |
| Net Sales | 92,922.30 | 74,693.80 | 18,228.50 | 24.40 |
| | | | | |
| Materials cost | 69,010.10 | 53,246.00 | 15,764.10 | 29.60 |

| | | | | |
|---|---|---|---|---|
| Other expenses | 12,344.80 | 10,118.40 | 2,226.40 | 22.00 |
| Less: Expenses, included in above items, capitalised | (320.50) | (248.10) | (72.40) | 29.18 |
| (+)Other income (Operating): | | | | |
| Wind power generated, mainly captively consumed | 330.50 | 199.50 | 131.00 | 65.66 |
| Other operating income | 1,047.10 | 88.37 | 958.73 | 1,084.90 |
| | 1,377.50 | 287.87 | 1,089.63 | 378.51 |
| Profit before Depreciation, interest and tax- PBDIT | 13,265.50 | 11,865.37 | 1,400.13 | 11.80 |
| Depreciation | 1,902.60 | 1,910.00 | (7.40) | (0.38) |
| Operating profit- OP/PBIT | 11,362.90 | 9,955.37 | 1,407.53 | 14.13 |
| Interest and finance charges | 53.40 | 3.40 | 50.00 | 1,470.58 |
| (+)Other income (Non-operating) | -I- 6,460.60 | + 6,081.83 | + 378.77 | + 6.22 |
| Profit before tax and extra ordinary items - PBTEOT | 17,770.10 | 16,033.80 | 1,736.30 | 10.82 |
| Extra ordinary expenses: | | | | |
| Compensation Paid Under Voluntary | 385.70 | 226.40 | 159.30 | 70.36 |
| Export incentives accrued in previous year | 103.90 | | 103.90 | |
| | 489.60 | 226.40 | 263.20 | 116.25 |
| Profit Before Tax for the year- (PBT-Y) | 17,280.50 | 15,807.40 | 1,473.10 | 9.31 |
| Prior period expenses | 8.60 | 8.70 | (0.10) | (1.14) |
| Profit Before Tax -PBT | 17,271.90 | 15,798.70 | 1,473.20 | 9.32 |
| Provision for Tax: | | | | |
| Current Tax [including ₹ 5 million for Wealth tax (previous year ₹ 5.5 million)] | 5,005.00 | 5,135.50 | (130.50) | (2.54) |
| Deferred Tax | (134.10) | (394.40) | 260.30 | 65.99 |
| Fringe Benefit Tax | 30.00 | 50.00 | (20.00) | (40.00) |
| Tax credits pertaining to earlier years | | (225.10) | 225.10 | (100.00) |
| Total tax | 4,900.90 | 4,566.00 | 334.90 | 7.33 |
| Profit After tax- NP/ PAT | 12,371.00 | 11,232.70 | 1,138.30 | 10.13 |

**Comparative Balance sheet**
**As at 31st March 2014 and 31st March 2013**
**Bajaj Auto Ltd.**

| | **31.03.2014** | **31.03.2013** | **Increase/Decrease over 2013** | |
|---|---|---|---|---|
| | **(₹ in million)** | **(₹ in million)** | **(₹ in million)** | **%age** |
| Sources of Funds | | | | |
| Shareholders' Funds | | | | |
| Share Capital | 1,011.80 | 1,011.80 | | |
| Reserves & Surplus | 54,331.40 | 46,695.50 | 7,635.90 | 16.35 |
| | 55,343.20 | 47,707.30 | 7,635.90 | 16.00 |

| | | | | |
|---|---|---|---|---|
| Loan Funds | | | | |
| Secured Loans | 224.60 | 0.20 | 224.40 | 112200 |
| Unsecured Loans | 16,029.70 | 14,671.30 | 1,358.40 | 9.25 |
| | 16,254.30 | 14,671.50 | 1,582.80 | 10.78 |
| Deferred Tax Adjustments : | | | | |
| Deferred Tax Liabilities | 1,844.90 | 1,902.10 | (57.20) | (3.00) |
| Deferred Tax Assets | (1,103.20) | (1,026.30) | (76.90) | 7.49 |
| | 741.70 | 875.80 | (134.10) | (15.31) |
| Total | 72,339.20 | 63,254.60 | 9,084.60 | 14.36 |
| Application of Funds | | | | |
| Fixed Assets | | | | |
| Gross Block | 31,744.10 | 28,928.80 | 2,815.30 | 9.73 |
| Less: Depreciation | 19,224.40 | 17,787.20 | 1,437.20 | 8.07 |
| Net Block | 12,519.70 | 11,141.60 | 1,378.10 | 12.36 |
| Lease Adjustment Account - Plant and Machinery | 175.00 | 175.00 | — | — |
| | 12,694.70 | 11,316.60 | 1,378.10 | 12.17 |
| Capital Work in progress, expenditure to date | 269.20 | 241.80 | 27.40 | 11.33 |
| | 12,963.90 | 11,558.40 | 1,405.50 | 12.15 |
| Technical Know-how | 41.30 | 13.40 | 27.90 | 208.20 |
| Investments | 64,475.30 | 58,569.70 | 5,905.60 | 10.08 |
| Current Assets, Loans and Advances | | | | |
| Inventories | 3,097.00 | 2,729.30 | 367.70 | 13.47 |
| Sundry Debtors | 5,298.30 | 3,015.50 | 2,282.80 | 75.70 |
| Cash and bank balances | 834.80 | 820,90 | 13.90 | 1.69 |
| Other Current Assets | 362.20 | 721.30 | (359.10) | (49.78) |
| Loans and Advances | 28,594.00 | 21,273.70 | 7,320.30 | 34.41 |
| | 38,186.30 | 28,560.70 | 9,625.60 | 33.70 |
| Less: Current Liabilities and Provisions | | | | |
| Liabilities | 14,989.70 | 12,288.70 | 2,701.00 | 21.97 |
| Provisions | 28,337.90 | 23,158.90 | 5,179.00 | 22.36 |
| | 43,327.60 | 35,447.60 | 7,880.00 | 22.22 |
| Net Current Assets | (5,141.30) | (6,886.90) | 1,745.60 | 25.34 |
| Total | 72,339.20 | 63,254.60 | 9,084.60 | 14.36 |

**Comparative Analysis of Bajaj Auto Ltd.:**

The analysis as follows:

**Profit and Loss Account:**

1. Net sales growth by 24.40%.
2. Increase in expenses like materials cost (29.60%), interest and finance charges (1470.58%) and extra-ordinary expenses (116.25%) much more than growth in net sales. However increase in interest and finance charges is inconsequential in view of the very small base last year as well as in absolute terms. In case of extra-ordinary expenses absolute figures are not high compared to sales.
3. Increase in other expenses (22.00%) lower than growth in net sales.

4. Depreciation even down by 0.38% despite higher net sales.
5. Growth of other income (operating) by 378.51% much more than growth in net sales. But absolute figures not high compared to sales.
6. Growth in other income (Non-operating) by 6.22%. Absolute amounts very high at ₹ 6460.60 million and 6081.83 million for the two years. In fact in both the years more than 1/3 rd of PBT is made up of non-operating income. High dependence on non-operating income.
7. The result: though profit at every stage, i.e., PBDIT, PBIT, PBTEOT, PBT-Y and PBT is higher in absolute terms, it has not been able to maintain growth equal to sales. PBT has grown by just 9.32%.
8. Tax provision higher by just 7.33%, thus, improving PAT growth to 10.13% as against PBT growth. In comparison to sales growth, however, PAT growth is very poor mainly due to rise in materials cost. Pressure on gross margins.

**Balance Sheet:**

1. Total assets / liabilities up by 14.36%.
2. Net worth up by 16.00% as against lower growth in loan funds by 10.78%, depicts a strong financial position.
3. Net fixed assets higher by only 12.17% whereas net sales grew by 24.40%. Very efficient fixed asset utilization.
4. Investments grew by 10.08% whereas growth in other income -Non-operating (mainly related to investments) only 6.22%. Investments in absolute terms very high: ₹ 64,475.30 million and ₹ 58,569.70 million respectively on 31-03-2014 and 2013 respectively. Higher than the net worth. A very unique feature.
5. Inventory management very efficient. Growth in inventory only 13.47% despite 24.40% growth in sales.
6. Management of receivables deficient as sundry debtors grew disproportionately high by 75.70% against growth in sales.
7. Current liabilities' growth (21.97%) lower than rise in materials cost. May be company paying its suppliers faster to avail cash discounts.

**Overall assessment:**

1. PAT growth not even 50% of sales growth. Margins under pressure. Profits through volumes.
2. Need to contain materials cost.
3. High dependence on non-operating income.
4. Very efficient fixed asset utilization.
5. Inventory management very efficient. Management of receivables questionable.
6. Investments higher than the net worth, which means operations are being funded by current liabilities and some loans and huge profit is being derived from them. Making money out of outsiders' money most of which is non-interest bearing.
7. Extremely strong financial position. Company sitting on large war chest.

**Q. 3. (a) The Balance Sheet (Extract) of Uncertain Ltd. as on 30.06.13 is given below:**

**Balance Sheet (Extract)**

**as at 30th June, 2013**

| Liabilities | ₹ | Assets | ₹ |
|---|---|---|---|

| | | | |
|---|---|---|---|
| **Equity Share Capital** | | **Fixed Assets** | **10,00,000** |
| **@ ₹ 10 each** | **2,00,000** | **Trade Investment** | **2,00,000** |
| **Retained Earnings** | **2,00,000** | **Stock** | **1,50,000** |
| **12% Debentures** | **3,00,000** | **Sundry Debtors** | **75,000** |
| **10% Long Term Loan** | **2,00,000** | **Preliminary Expenses** | **25,000** |
| **Current Liabilities** | **5,50,000** | | |
| | **14,50,000** | | **14,50,000** |

**Additional Information:**

**(i) Net Sales for 2012-13 was ₹ 29,50,000.**
**(ii) Dividend per share in 2012-13 = ₹ 0.40**
**(iii) Dividend Payout Ratio as on 30.06.13 = 50%.**
**(iv) Price Earnings Ratio is 15.**
**(v) Corporate tax rate = 50%.**

**Using Altman's function, calculate Z score of Uncertain Ltd. and interpret the result.**

**(b) From the following informations, calculate Debt Service Coverage Ratio.**

| | **₹ lakhs** |
|---|---|
| **Profit after tax** | **1,270** |
| **Depreciation** | **280** |
| **Taxation** | **508** |
| **Interest on term loans** | **174** |
| **Term loan installment** | **356** |

**Answer 3(a):**

The Z score of Multivariate Model of Altman is —

$$Z = 0.012X_1 + 0.014X_2 + 0.033X_3 + 0.006X_4 + 0.999X_5$$

Where,

$$X_1 = \frac{\text{Working Capital}}{\text{Total Assets}} = \frac{(3,25,000)}{14,25,000} = (-)\ 0.2281, \text{ i.e. } (-)\ 22.81\%$$

$$X_2 = \frac{\text{Retained Earning}}{\text{Total Assets}} = \frac{1,75,000}{14,25,000} = 0.1228, \text{ i.e. } 12.28\%$$

$$X_3 = \frac{\text{Earning Before Interest and Tax}}{\text{Total Assets}} = \frac{88,000}{14,25,000} = 0.0617, \text{ i.e. } 6.17\%$$

$$X_4 = \frac{\text{Market Value of Equity}}{\text{Book VAlue of Total Debt}} = \frac{2,40,000}{10,50,000} = 0.2286, \text{ i.e. } 22.86\%$$

$$X_5 = \frac{\text{Sales}}{\text{Total Assets}} = \frac{₹\,29,50,000}{₹\,14,25,000} = 2.07 \text{ times}$$

Putting the values of the variables as derived in the equation we get

$$Z = -\ (0.012 \times 22.81)+(0.014 \times 12.28)+(0.033 \times 6.17)+(0.006 \times 22.86)+(0.999 \times 2.07)$$

or, Z = 2.3068

**Interpretation:**

We observe that the value of Z score of Uncertain Ltd. is 2.3068 which fall within the Grey area, i.e. within the cut off range between 1.81 and 2.99. Therefore, it cannot be said whether the firm is going to be bankrupt or non-bankrupt. Further investigation is required to determine its solvency status.

**Working Notes:**

1. Working Capital = Current Assets - Current Liabilities
   = ₹ (1,50,000 + 75,000) - ₹ 5,50,000
   = (₹ 3,25,000)
2. Total Assets = Balance Sheet Total - Fictitious Assets
   = ₹ 14,50,000 - ₹ 25,000
   = ₹ 14,25,000
3. No. of Equity Shares $= \frac{\text{Equity Share Capital}}{\text{Face Value per Equity Share}} = \frac{₹\,2,00,000}{₹\,10}$ =20,000 shares
4. Earnings Before Interest and Tax

   Dividend Payout Ratio $= \frac{\text{Dividend per Share}}{\text{Earning per Share}}$

   or, 0.50 $= \frac{₹\,0.40}{\text{Earning Per Share}}$

   ∴ Earning per share (EPS) $= \frac{₹\,0.40}{0.50} = ₹\,0.80$

   Total earnings available to Equity shareholders (E)
   Total earnings available to Equity shareholders (E)

| | |
|---|---|
| [Earning per share x No. per share = ₹ 0.80 x 20,000] | 16,000 |
| Tax added back @ 50% $\left[\frac{\text{Tax rate}}{1-\text{Tax rate}} \times E\right] = \left[\frac{0.50}{1-0.50} \times 16{,}000\right]$ | 16,000 |
| | 32,000 |

   Interest added back:

| | | |
|---|---|---|
| Debenture Interest | = 3,00,000 x $\frac{12}{100}$ =36,000 | |
| Interest on loan | = 2,00,000 x $\frac{10}{100}$ = 20,000 | 56,000 |
| Earnings before Interest & Tax (EBIT) | | 88,000 |

5. Market value of Equity Capital

We know that Price Earnings Ratio = $\frac{\text{Market Value of Equity Share}}{\text{Earning per Share (EPS)}}$

∴ Market value of each equity share = Price Earnings ratio x EPS
= ₹15 [Given] x ₹ 0.80 [Calculated under (4) above]
= ₹ 12

∴ Market value of Equity Capital = No. of Equity Share x Value per Equity Share
= 20,000 x ₹ 12 = ₹ 2,40,000

6. Retained Earnings = Retained Earning as given - Preliminary expenses
= ₹ 2,00,000 - ₹ 25,000 = ₹ 1,75,000

**Answer 3(b):**
Profit before depreciation and interest = ₹ (1,270 + 280 + 174) lakhs = ₹ 1,724 lakhs
Interest and loan installment = ₹ (174 + 356) lakhs = ₹ 530 lakhs.
Therefore,
Debt Service Coverage Ratio = ₹ 1,724 lakhs / ₹ 530 lakhs = 3.25 times

**Q. 4. (a) The result of Dynamic Ltd. for the year 2012 and 2013 were as under:**

| | 2012 (₹) | 2013 (₹) |
|---|---|---|
| **Direct Materials** | **1,25,000** | **1,65,000** |
| **Direct labour** | **75,000** | **82,500** |
| **Variable overheads** | **15,000** | **17,500** |
| **Fixed overheads** | **25,000** | **30,000** |
| **Net Profit** | **10,000** | **21,250** |
| **Sales** | **2,50,000** | **3,16,250** |

**Prices of materials, wages and overheads had an increase of 10% in 2013 as compared to 2012. Selling price had also gone up by 10%.**

**Prepare a statement showing how much each factor has contributed to variance in Net Profit.**

**(b) Describe Univariate Model which is used for prediction of Corporate Distress or Sickness.**

**Answer 4(a):**
**Working notes:**

**Calculation of rate of gross profit in 2012:**

| | ₹ | ₹ |
|---|---|---|

| | | |
|---|---|---|
| Sales | | 2,50,000 |
| Less : Direct Materials | 1,25,000 | 2,15,000 |
| Less : Direct Labour | 75,000 | |
| Less : Variable overheads | 15,000 | |
| Gross Profit | | 35,000 |
| $\therefore$ Rate of gross profit = $\frac{\text{Gross Profit}}{\text{Sales}} \times 100 = \frac{35,000}{2,50,000} \times 100 = 14\%$ | | |

**Statement showing variances in Net Profit**

| | | ₹ | ₹ |
|---|---|---|---|
| (a) | Increase in profit due to increase in selling price : | | |
| | Actual Sales in 2013 | 3,16,250 | |
| | Less : Sales in 2013 at 2012 price $\left[\frac{100}{110} \times 3,16,250\right]$ | 2,87,500 | 28,750 |
| (b) | Increase in profit due to increase in sales volume: | | |
| | Sales of 2013 at 2012 price | 2,87,500 | |
| | Less: Actual sales of 2012 | 2,50,000 | |
| | Increase in sales due to volume increase | 37,500 | |
| | [Percentage increase in volume = $\frac{37,500}{2,50,000} \times 100 = 15\%$] | | |
| | $\therefore$ Increase in gross profit at 14% on ₹ 37,500 | | 5,250 |
| (c) | Decrease in profit due to increase in usage of material: | | |
| | Cost of material in 2012 | 1,25,000 | |
| | Add: Increase in volume by 15% in 2013 | 18,750 | |
| | Permitted material cost of 2013 at 2012 price | 1,43,750 | |
| | Actual material cost of 2013 at 2012 price $\left[\frac{100}{110} \times 1,65,000\right]$ | 1,50,000 | (6,250) |
| (d) | Decrease in profit due to increase in material price: | | |
| | Actual material cost of 2013 at 2012 price | 1,50,000 | |
| | Less: Actual material of 2013 | 1,65,000 | (15,000) |
| (e) | Effect on profit due to variation in labour efficiency: | | |
| | Direct labour cost in 2012 | 75,000 | |
| | Add: Expected increase due to volume increase by 15% in 2013 | 11,250 | |
| | | 86,250 | |
| | Permitted labour cost in 2013 at 2012 rate | | |
| | Actual labour cost in 2013 at 2012 rate $\left[\frac{100}{110} \times 82,500\right]$ | 75,000 | 11,250 |
| (f) | Effect on profit due to an increase in labour rate: | | |
| | Actual labour cost in 2013 at 2012 price | 75,000 | (7,500) |
| | Less: Actual labour cost in 2013 | 82,500 | |
| (g) | Effect on profit due to variable overhead efficiency variance: | | |
| | Variable overhead in 2012 | 15,000 | |
| | Add: Expected increase due to volume increase by 15% in 2013 | 2,250 | |
| | | 17,250 | |
| | Permitted variable overhead in 2013 at 2012 rate | | |
| | | 15,909 | 1,341 |

| | | | |
|---|---|---|---|
| | Actual variable overhead in 2013 at 2012 rate $\left[\frac{100}{110} \times 17,500\right]$ | | (1,591) |
| (h) | Effect on profit due to variable overhead price variance:<br>Actual variable overhead in 2013 at 2012 rate<br>Actual variable overhead in 2013 | <br>15,909<br>17,500 | |
| (i) | Effect on profit due to Fixed overhead volume variance:<br>Fixed overhead in 2012<br>Actual Fixed overhead in 2013 at 2012 rate $\left[\frac{100}{110} \times 30,000\right]$ | <br>25,000<br>27,273 | (2,273)<br><br>(2,727) |
| (j) | Effect on profit due to fixed overhead price variance:<br>Fixed overhead in 2013 at 2012 rate<br>Actual fixed overhead in 2013 | <br>27,273<br>30,000 | |
| | Increase in Net Profit in 2013 over 2012 ₹ [21,250 - 10,000] | | 11,250 |

**Answer 4(b):**

**Univariate Model of Distress Prediction:**

Univariate Model of Distress Prediction refers to a model of prediction of Corporate Distress where a single variable is used. More clearly, under this model, analysis of Corporate Distress Prediction is made with the help of a single set of financial information, e.g., a single ratio. Here, variable generally refers to Accounting Ratio of the concerned corporate entity. In this model, a single Accounting Ratio, viz. Current Ratio or Debt-Equity Ratio or Total Debt to Total Asset, etc., of different corporate entities considered for analysis is taken into consideration for their Distress Prediction.

This model of Distress Prediction is based on the following assumptions:

i. The distribution of the variable (i.e., ratio) for distressed firms (i.e., failed firms) differs systematically from the distribution of the variable for the non-distressed firms (i.e., non-failed firms).
ii. The systematic difference can be exploited for prediction purpose.

**Steps Followed Under Univariate Model of Distress Prediction:**

Techniques used under Univariate Model of Distress Prediction are as follows:

i. An Accounting Ratio, viz. Current Ratio or Debt-Equity Ratio or Total Debt to Total Asset, etc., is selected for analysis of financial distress of companies.
ii. A number of distressed companies (i.e., failed companies) and non-distressed companies (i.e., non-failed companies) are arbitrarily chosen for analysis.
iii. The Accounting Ratio as selected for analysis of the companies as chosen under (ii) is calculated.
iv. Comparison of Accounting Ratios as calculated under (iii) for the companies chosen for analysis are made for prediction of their Financial Distress.
v. Conclusion is made about the prediction of Financial Distress of the companies on the basis of the comparison done under (iv).

**Q. 5. (a) "Financial modeling is the task of building a financial model, or the process of using a financial model for financial decision making and analysis." — Describe the need and importance of the financial modeling.**

**(b) Also state the users and their uses of the financial modelling.**

**Answer 5 (a):**
**Need and Importance of financial modeling:**

- Financial modeling supports management in making important business decisions.
- It involves the quantification of the potential impact of decisions on the profit and loss account, balance sheet and cash flow statements.
- Through financial models, managers can determine the outcome of a proposal before even its execution and rely on a rational and comprehensive justification for their decisions.

Moreover, these models enable managers to study different options and scenarios without imposing any risk on the business. To avoid the common pitfalls related to financial modeling, designers should follow five basic principles. They should make sure that the model satisfies its objectives, maintain model flexibility, take inflation into consideration, present the model clearly and interestingly, and measure outcome.

**Answer 5 (b):**
**Users and their uses of the financial modelling:**

**(A) Top Management & Directors:**

(i) Future Business plan
(ii) Business Analysis
(iii) Sensitivity on critical variables (Value drivers)
(iv) Analyzing the impact of changes in industry local &international economy
(v) Analyzing Cash flow position

(a) If cash surplus scenario
- Short term Investments
- Repayment of existing debts
- Long term investments
- Expansion project
- New project
- Acquisition & Mergers

(b) If cash deficit scenario
- Short term loans
- Long term financing
- Restructuring of existing loans
- Right issue
- IPO
- Equity Injection/investment
- Discontinue/dispose non-profitable business segments

**(B) Banks / Lenders:**

(i) Analyzing Business
(ii) Analyzing business ability to service debt
(iii) If business is not able to service debt then restructure debt or issue new loan
(iv) Why to finance company for projects and acquisitions

**(C) Investment Managers, Fund Managers**

(i) Identifying potential investment opportunities
(ii) Identify investments, which needs to be disposed off
(iii) Research department issuing research reports on various sector
(iv) Risk management department managing risk and return of the portfolio

**(D) Equity Investors:**

(i) Analyzing Business
(ii) Determining the entry price on the basis of future and historical performance
(iii) Estimating IRR on the investment by changing exit value and timings

**(E) Listing, IPO, Offer for Sale, Right issues**

(i) Purpose of the activity and its impact
(ii) Determination of offer price and its justification for:
- Underwriters
- Pre-IPO investors
- Private Placements
- IPO/right issue investors

**(F) Rating Agency**

(i) Analyzing company's creditworthiness
(i) Analyzing company's ability to pay its debt
(ii) Issuing instrument ratings
(iii) Issuing entity's ratings

**(G) Accounting**

(i) Fair valuation of investments
(ii) Impairment testing of investments.

**Q. 6. (a) The ZBB Ltd. needs ₹ 500,000 for construction of a new plant. The following three financial plans are feasible:**

**(i) The company may issue 50,000 equity shares at ₹ 10 per share.**
**(ii) The company may issue 25,000 equity shares at ₹ 10 per share and 2,500 debentures of ₹ 100 denomination bearing an 8% rate of interest.**
**(iii) The company may issue 25,000 equity shares at ₹ 10 per share and 2,500 preference shares at ₹ 100 per share bearing 8% rate of interest.**

**If the company's earnings before interest and taxes are ₹ 10,000, ₹ 20,000, ₹ 40,000, ₹ 60,000 and ₹ 1,00,000, what are the earnings per share under each of the three financial plans? Which alternative would you recommend and why? Assume corporate tax rate to be 50%.**

**(b) There are various objectives associated with Financial Analysis. State those objectives of Financial Analysis.**

**Answer 6(a):**

$$EPS = \frac{(PBIT - Interest\ rate)(1 - Tax\ rate) - Preference - dividend}{No.\ of\ equity\ shares}$$

(i) If the company issues 50,000 equity shares and no debentures and preference shares —

$$EPS = \frac{(PBIT - 0)(1 - Tax\ rate)}{50,000}$$

The effect of PBIT on EPS will be as follows:

| PBIT | 10,000 | 20,000 | 40,000 | 60,000 | 100,000 |
|---|---|---|---|---|---|
| EPS | 0.10 | 0.20 | 0.40 | 0.60 | 1.00 |

(ii) If the company issues 25,000 equity shares and 2500 debentures (₹ 100 denomination) bearing 8 percent interest

$$\frac{(PBIT - 20,000)(1 - Tax\ rate)}{25,000}$$

The effect of PBIT on EPS will be as follows:

| PBIT | 10,000 | 20,000 | 40,000 | 60,000 | 100,000 |
|---|---|---|---|---|---|
| EPS | -0.20 | 0 | 0.40 | 0.80 | 1.60 |

(iii) If the company issues 25,000 equity shares and 2500 preference shares (₹ 100 denomination) carrying 8 percent dividend.

$$EPS = \frac{(PBIT - 0)(1 - Tax\ rate) - 20,000}{25,000}$$

The effect of PBIT on EPS will be as follows:

| PBIT | 10,000 | 20,000 | 40,000 | 60,000 | 100,000 |
|---|---|---|---|---|---|
| EPS | -0.6 | -0.4 | 0 | 0.4 | 1.20 |

Alternative (i) is recommended because it appears that an investment of 500,000 is unlikely to earn an PBIT of less than 40,000. For an PBIT of ₹ 40,000 or more, alternative (ii) is clearly superior to the remaining alternatives.

**Answer 6(b):**

The objectives of financial analysis are:

- **Measuring Profitability:** The main objective of a business is to earn a satisfactory return on the funds invested in it. Financial analysis helps in ascertaining whether adequate profits

are being earned on the capital invested in the business or not. It also helps in knowing the capacity to pay the interest and dividend.

- **Indicating the performance trends:** Indicating the performance trends of financial statements of the previous years are compared and the trend regarding various expenses, purchases, sales, gross profits and net profit etc. are ascertained. Value of assets and liabilities are compared and the future prospects of the business are envisaged.
- **Assessing the growth potential of the business:** The trend and other analysis of the business provide sufficient information indicating the growth potential of the business.
- **Comparative position in relation to other firms:** The purpose of financial statements analysis is to help the management make a comparative study of the profitability of various firms engaged in similar businesses. Such comparison also helps the management to study the position of their firm in respect of sales, expenses, profitability, capital utilisation, etc.
- **Assess overall financial strength:** The purpose of financial analysis is to assess the financial strength of the business. Analysis also helps in taking decisions, whether funds required for the purchase of new machines and equipment are provided from internal sources of the business or not; if yes, how much? And also to assess the amount of funds received from external sources.
- **Assess solvency of the firm:** The different tools of an analysis tell us whether the firm has sufficient funds to meet its short term and long term liabilities or not.

**Q. 7. (a) Describe Sustainable Growth Rate in relation to the growth of a firm.**
**(b) The return on equity and ploughback ratio for Zenith Electronics are 15 percent and 70 percent. What is the sustainable growth rate?**

**Answer 7(a):**
The sustainable growth rate is the maximum growth rate that a firm can achieve without resorting to external equity finance. This is the growth rate that can be sustained with the help of retained earnings matched with debt financing, in line with the debt-equity policy of the firm.

This is an important growth rate because firms are reluctant to raise external equity finance (even though they may not mind raising debt finance, in line with their debt - equity policy) for the following reasons: (i) The dilution of control, consequent to the external equity issue, may not be acceptable to the existing controlling interest, (ii) There may be a significant degree of underpricing when external equity is raised, (iii) The cost of issue tends to be high.

The sustainable growth rate is calculated the way in which the internal growth rate is calculated, except for one difference: To calculate the sustainable growth rate we have to consider retained earnings plus matching debt, in line with the firm's debt equity (D/E) ratio.

$$\text{Sustainable growth rate} = \frac{\text{Net Profit Margin x Asset turnover}}{\text{1- Net profit margin x Asset turnover}} \times \frac{\text{(1+ Debt - equity ratio) x Plough back ratio}}{\text{(1+ Debt - equity ratio) x Plough back ratio}}$$

Return on equity = Net profit margin x Asset turnover x (1 + Debt-equity ratio)

Thus,

$$\text{Sustainable growth rate} = \frac{\text{Return on equity x Ploughback ratio}}{\text{1- Return on equity x Ploughback ratio}}$$

We find that other things being equal —

- The higher the net profit margin, the higher the sustainable growth rate.
- The higher the asset turnover, the higher the sustainable growth rate.
- The higher the debt-equity ratio, the higher the sustainable growth rate.
- The higher the ploughback ratio, the higher the sustainable growth rate.

Thus, the sustainable growth rate can be increased, by effecting one or more of the following changes:

- Increase in the net profit margin
- Increase in the asset turnover ratio
- Increase in the debt-equity ratio

Increase in the ploughback ratio.

**Answer 7(b):**

The sustainable growth rate is:

$$\frac{0.15 \times 0.7}{1 - 0.15 \times 0.7} = 0.117 \text{ or } 11.7 \text{ percent}$$

[Here, the return on equity = 15 percent and ploughback ratio = 70 percent]

**Q. 8. The extract of Balance sheets and Income statements of M/s Novel Company over the last 3 years are as follows:**

**(₹ '000)**

| Particulars | 2011 | 2012 | 2013 |
|---|---|---|---|
| **Cash** | **561** | **387** | **202** |
| **Receivables** | **1,963** | **2,870** | **4,051** |
| **Inventories** | **2,031** | **2,613** | **3,287** |
| **Current Assets** | **4,555** | **5,870** | **7,540** |
| **Net fixed assets** | **2,581** | **4,430** | **4,364** |
| **Total Assets** | **7,136** | **10,300** | **11,904** |
| **Payables** | **1,862** | **2,944** | **3,613** |
| **Accruals** | **301** | **516** | **587** |

| | | | |
|---|---|---|---|
| **Bank loan** | **250** | **900** | **1,050** |
| **Current Liabilities** | **2,413** | **4,360** | **5,250** |
| **Long-term debt** | **500** | **1,000** | **950** |
| **Shareholders equity** | **4,223** | **4,940** | **5,704** |
| **Total Liabilities and Equity** | **7,136** | **10,300** | **11,904** |
| **Sales** | **11,863** | **14,952** | **16,349** |
| **Cost of goods sold** | **8,537** | **11,124** | **12,016** |
| **Selling, general and administrative expenses** | **2,349** | **2,659** | **2,993** |
| **Profit before tax** | **977** | **1,169** | **1,340** |
| **Taxes** | **390** | **452** | **576** |
| **Profit after tax** | **587** | **717** | **764** |

**You are required to:**

**(a) (i) Prepare common size statement, and (ii) Perform index analysis.**

**(b) Valuate trends in the company's financial condition and performance.**

**Answer 8:**

**Common Size Balance Sheet of M/s Novel Company for the years 2011 to 2013**

**(₹ '000)**

| Particulars | 2011 | 2012 | 2013 |
|---|---|---|---|
| Cash | 7.9 | 3.8 | 1.7 |
| Receivables | 27.5 | 27.8 | 34.0 |
| Inventories | 28.4 | 25.4 | 27.6 |
| Current assets | 63.8 | 57.0 | 63.3 |
| Net fixed assets | 36.2 | 43.0 | 36.7 |
| Total assets | 100.0 | 100.0 | 100.0 |
| Payable | 26.1 | 28.6 | 30.4 |
| Accruals | 4.2 | 5.0 | 4.9 |
| Bank loan | 3.5 | 8.7 | 8.8 |
| Current liabilities (a) | 33.8 | 42.3 | 44.1 |
| Long-term debt | 7.0 | 9.7 | 8.0 |
| Shareholders' equity | 59.2 | 48.00 | 47.9 |
| Long-term funds (b) | 66.2 | 57.7 | 55.9 |
| Total liabilities and equity (a) + (b) | 100.0 | 100.0 | 100.0 |

**Common size Income Statement of M/s Novel Company for the years 2011 to 2013**

| Particulars | 2011 | 2012 | 2013 |
|---|---|---|---|
| Sales | 100.0 | 100.0 | 100.0 |
| Less: Cost of goods sold | 72.0 | 74.4 | 73.5 |
| Gross profit | 28.00 | 25.6 | 26.5 |
| Less: Selling, general and administrative expenses | 19.8 | 17.8 | 18.3 |
| Profit before tax | 8.2 | 7.8 | 8.2 |
| Less: Tax | 3.3 | 3.0 | 3.5 |
| Profit after tax | 4.9 | 4.8 | 4.7 |

**Analysis:**

(a) The cash balance is dwindling over years 2011 to 2013 which may cause liquidity problems in future.

(b) There is sharp increase of receivables balance which may be due to inefficiency in collection of debtors balances.
(c) The proportion of inventories to total assets remains same in year 2011 and year 2013 but the inventory has shown reduced balance in year 2012.
(d) The proportion of net fixed assets to total assets remains unchanged for years 2011 and 2013. But higher proportion is shown in year 2012.
(e) The shareholders equity to total liabilities has sharply declined from 59.2 in 2011 to 47.9 in 2013.
(f) The proportion of long-term debt remains same in all the 3 years
(g) The proportion of bank loan in total liabilities has increased from 3.5 in 2011 to 8.8 in 2013.
(h) The proportion of accruals to total liabilities remains almost same in all three years.
(i) The payables have increased from 26.1 to 30.4 over a period of 3 years, represents delay in making payments for creditors.
(j) There is not much of change in cost of goods sold, selling, general and administrative expenses in all three years causing uniform profit in all three years.

**Statement showing Index analysis of Balance Sheet items in years 2011 to 2013**

| Particulars | 2011 | 2012 | 2013 |
|---|---|---|---|
| Cash | 100.0 | 69.0 | 36.0 |
| Receivables | 100.0 | 146.2 | 206.4 |
| Inventories | 100.0 | 128.7 | 161.8 |
| Current assets | 100.0 | 128.9 | 165.5 |
| Net fixed assets | 100.0 | 171.6 | 169.1 |
| Total assets | 100.0 | 144.3 | 166.8 |
| Payable | 100.0 | 158.1 | 194.0 |
| Accruals | 100.0 | 171.4 | 195.0 |
| Bank loan | 100.0 | 360.0 | 420.0 |
| Current liabilities | 100.0 | 180.7 | 217.6 |
| Long-term debt | 100.0 | 200.0 | 190.0 |
| Shareholders' equity | 100.0 | 117.0 | 135.1 |
| | 100.0 | 144.3 | 166.8 |

**Statement showing Index analysis of Income Statement items in years 2011**

| Particulars | 2011 | 2012 | 2013 |
|---|---|---|---|
| Sales | 100.0 | 126.0 | 137.8 |
| Cost of goods sold | 100.0 | 130.3 | 140.8 |
| Gross profit | 100.0 | 115.1 | 130.3 |
| Selling, general and administrative expenses | 100.0 | 113.2 | 127.4 |
| Profit before tax | 100.0 | 119.7 | 137.2 |
| Taxes | 100.0 | 115.9 | 147.7 |
| Profit after tax | 100.0 | 122.2 | 130.2 |

**Analysis:**

Index analysis shows much the same picture. Cash declined faster than total asset and current assets, and receivables increased faster than these two bench marks.

Inventories fluctuated, but were about the same percentage wise to total assets in 2013 as they were in 2011.

Net fixed assets increased more sharply than total assets in 2012 and then fell back into line in 2013.

The sharp increase in bank loans in 2012 and 2013 and the sharp increase in long-term debts in 2012 are evident.

Equity increased less than total assets, so debt increased more percentage wise. With respect to profitability, net profits increased less than sales, for the reasons indicated earlier.

**Q. 9. (a) On the basis of the following income statement pertaining to Dark Ltd., you are required to prepare:**

**(1) Gross value added statement, and**

**(2) Statement showing reconciliation of gross value added with profit before taxation.**

**Profit and Loss Account (Extract) of Dark Ltd. for the year ended 31st March, 2014**

**(₹ '000)**

| | | |
|---|---|---|
| **Income:** | | |
| **Sales less returns** | | **15,27,956** |
| **Dividends and interest** | | **130** |
| **Miscellaneous income** | | **474** |
| **(a)** | | **15,28,560** |
| **Expenditure:** | | |
| **Production and Operational Expenses:** | | |
| **Decrease in inventory of Finished goods** | **26,054** | |
| **Consumption of Raw materials** | **7,40,821** | |
| **Power and lighting** | **1,20,030** | |
| **Wages, Salaries and bonus** | **3,81,760** | |
| **Staff welfare expenses** | **26,240** | |
| **Excise duty** | **14,540** | |
| **Other manufacturing expenses** | **32,565** | **13,42,010** |
| **Administrative Expenses:** | | |
| **Directors remuneration** | **7,810** | |
| **Other administrative expenses** | **32,640** | **40,450** |
| **Interest on:** | | |
| **9% Mortgage debentures** | **14,400** | |
| **Long-term loan from financial institution** | **10,000** | |
| **Bank overdraft** | **100** | **24,500** |
| **Depreciation on Fixed assets** | | **50,600** |
| **(b)** | | **14,57,560** |
| **Profit before taxation (a) – (b)** | | **71,000** |
| **Provision for income tax @ 35.875%** | | **25,470** |
| **Profit after taxation** | | **45,530** |
| **Balance of Account as per last Balance Sheet** | | **6,300** |
| | | **51,830** |
| **Transfer to:** | | |
| **General reserve 40% of ₹ 45,530** | **18,212** | |

| | | |
|---|---|---|
| **Proposed dividend @ 22%** | **22,000** | |
| **Tax on distributed profits @ 12.81%** | **2,818** | **43,030** |
| **Surplus carried to Balance sheet** | | **8,800** |

**(b) The current assets and working capital of a firm are ₹ 40,000 and ₹ 25,000 respectively. How much can the firm borrow on a short-term basis to maintain its current ratio of 1.50?**

**Answer 9(a):**
**Working Note:**

**Calculation of cost of bought in materials and services**

**(₹ '000)**

| | |
|---|---|
| Decrease in inventory of finished goods | 26,054 |
| Consumption of raw materials | 7,40,821 |
| Power and lighting | 1,20,030 |
| Other manufacturing expenses | 32,565 |
| | 9,19,470 |

**Value Added Statement of Dark Ltd. for the year ended 31st March, 2014**

**(₹ '000)**

| | | |
|---|---|---|
| Sales less return | | 15,27,956 |
| Less: Cost of bought in materials & services, as per working note | 9,19,470 | |
| Administrative expenses | 32,640 | |
| Interest on bank overdraft | 1,000 | 9,52,210 |
| Value added by manufacturing & trading activities | | 5,75,746 |
| Add: Dividends & interest | | 130 |
| Miscellaneous income | | 474 |
| Total value added | | 5,76,350 |

**Application of Value Added**

| **Particulars** | **(₹ '000)** | | **(%)** |
|---|---|---|---|
| To Pay employees: | | | |
| Wages, salaries & bonus | 3,81,760 | | |
| Staff welfare expenses | 26,240 | 4,08,000 | 70.79 |
| To Pay Directors: | | | |
| Director's remuneration | | 7,810 | 1.36 |
| To Pay Government: | | | |
| Excise duty | 14,540 | | |
| Income-tax | 25,470 | | |
| Tax on distributed profits | 2,818 | 42,828 | 7.43 |
| To Pay providers of capital: | | | |
| Interest on 9% debentures | 14,400 | | |
| Interest on long-term loan from financial institution | 10,000 | | |
| Dividend to shareholders | 22,000 | 46,000 | 8.05 |
| To Provide for maintenance & expansion of the company: | | | |
| Depreciation on fixed assets | 50,600 | | |
| Transfer to general reserve | 18,212 | | |
| Retained profit (₹ 8,800 - ₹ 6,300) | 2,500 | 71,312 | 12.37 |

| | | | |
|---|---|---|---|
| | | 5,76,350 | 100 |

**Statement showing Reconciliation of Total Value Added with Profit before taxation**

**(₹ '000)**

| | | |
|---|---|---|
| Profit before taxation | | 71,000 |
| Add back: | | |
| Wages, salaries & bonus | 3,81,760 | |
| Staff welfare expenses | 26,240 | |
| Excise Duty | 14,540 | |
| Director's remuneration | 7,810 | |
| Interest on 9% mortgage debentures | 14,400 | |
| Interest on long-term loan from financial institution | 10,000 | |
| Depreciation on fixed asset | 50,600 | 5,05,350 |
| Total value added | | 5,76,350 |

**Answer 9(b):**

| | |
|---|---|
| Current Assets (CA) | ₹ 40,000 |
| Working Capital (WC) | ₹ 25,000 |
| Therefore, Current Liabilities (CA – WC) | ₹ 15,000 |

Let x = Amount to be borrowed to keep the current ratio at 1.50.

Then,

$$\frac{40{,}000+x}{15{,}000+x}=1.50$$

Solving the equation, we get x = ₹ 35,000. Hence the amount of short-term loan would be ₹ 35,000.

**Q. 10. Balance sheets (Extract) of a company as on 31st March, 2013 and 2014 were as follows:**

| Liabilities | 31-3-2013 (₹) | 31-3-2014 (₹) | Assets | 31-3-2013 (₹) | 31-3-2014 (₹) |
|---|---|---|---|---|---|
| **Equity share capital** | **10,00,00** | **10,00,00** | **Goodwill** | **1,00,000** | **80,000** |
| **8%Preference share** | **2,00,000** | **3,00,000** | **Land and buildings** | **7,00,000** | **6,50,000** |
| **General reserve** | **1,20,000** | **1,45,000** | **Plant and machinery** | **6,00,000** | **6,60,000** |
| **Securities premium** | **-** | **25,000** | **Investments (non-** | **2,40,000** | **2,20,000** |
| **Profit and loss A/c** | **2,10,000** | **3,00,000** | **Stock** | **4,00,000** | **3,85,000** |
| **11% Debentures** | **5,00,000** | **3,00,000** | **Debtors** | **2,88,000** | **4,15,000** |
| **Creditors** | **1,85,000** | **2,15,000** | **Cash and bank** | **88,000** | **93,000** |
| **Provision for tax** | **80,000** | **1,05,000** | **Prepaid expenses** | **15,000** | **11,000** |
| **Proposed dividend** | **1,36,000** | **1,44,000** | **Premium on redemption of Debentures** | **-** | **20,000** |
| | **24,31,00** | **25,34,00** | | **24,31,000** | **25,34,00** |

**Additional information:**

**(1) Investments were sold during the year at a profit of ₹ 15,000.**

**(2) During the year an old machine costing ₹ 80,000 was sold for ₹ 36,000. Its written down value was ₹ 45,000.**
**(3) Depreciation charged on plant and machinery @ 20 per cent on the opening balance.**
**(4) There was no purchase or sale of land and buildings.**
**(5) Provision for tax made during the year was ₹ 96,000.**
**(6) Preference shares were issued for consideration of cash during the year.**

**You are required to prepare:**
**(i) Cash flow statement as per AS-3.**
**(ii) Schedule of Changes in working capital.**

**Answer 10:**
**Working Notes:**

**Dr. Provision for Tax A/c Cr.**

| | ₹ | | ₹ |
|---|---|---|---|
| To Bank (paid) | 71,000 | By Balance b/d | 80,000 |
| To Balance c/d | 1,05,000 | By Profit and loss A/c | 96,000 |
| | 1,76,000 | | 176,000 |

**Dr. Investment A/c Cr.**

| | ₹ | | ₹ |
|---|---|---|---|
| To Balance b/d | 2,40,000 | By Bank A/c | 35,000 |
| To Profit and loss A/c (profit on sale) | 15,000 | By Balance c/d | 2,20,000 |
| | 2,55,000 | | 2,55,000 |

**Dr. Plant and Machinery A/c Cr.**

| | ₹ | | ₹ |
|---|---|---|---|
| To Balance b/d | 6,00,000 | By Bank (sale) | 35,000 |
| To Bank A/c (purchase) | 2,25,000 | By Profit and loss A/c (loss on sale) | 2,20,000 |
| | | By Depreciation | 1,20,000 |
| | | By Balance c/d | 6,60,000 |
| | 8,25,000 | | 8,25,000 |

**Note –**
Since the date of redemption of debentures is not mentioned in the question, it is assumed that the debentures are redeemed at the beginning of the year.

**Cash Flow Statement for the year ending 31st March, 2014 (₹)**

| (A) Cash flow from Operating Activities | | |
|---|---|---|
| Profit and Loss A/c as on 31-3-2014 | | 3,00,000 |
| Less: Profit and Loss as on 31-3-2013 | | 2,10,000 |
| | | 90,000 |
| Add: Transfer to General reserve | 25,000 | |
| Provision for tax | 96,000 | |
| Proposed dividend | 1,44,000 | 2,65,000 |

| | | |
|---|---|---|
| Profit before tax | | 3,55,000 |
| Adjustment for Depreciation: | | |
| Land and buildings | 50,000 | |
| Plant and machinery | 1,20,000 | 1,70,000 |
| Profit on sale of investments | | (15,000) |
| Loss on sale of plant and machinery | | 9,000 |
| Goodwill written off | | 20,000 |
| Interest expenses | | 33,000 |
| Operating profit before working capital changes | | 5,72,000 |
| Adjustment for Working capital changes: | | |
| Decrease in Prepaid expenses | | 4,000 |
| Decrease in Stock | | 15,000 |
| Increase in Debtors | | (1,27,000) |
| Increase in Creditors | | 30,000 |
| Cash generated from operations | | 4,94,000 |
| Income-tax paid | | (71,000) |
| Net Cash Inflow from Operating Activities | (a) | 4,23,000 |
| (B) Cash Flow from Investing Activities | | |
| Sale of investment | | 35,000 |
| Sale of Plant and machinery | | 36,000 |
| Purchase of Plant and machinery | | (2,25,000) |
| Net Cash Outflow from Investing Activities | (b) | (1,54,000) |
| (C)Cash Flow from Financing Activities | | |
| Issue of Preference shares | | 1,00,000 |
| Premium received on issue of securities | | 25,000 |
| Redemption of Debentures at premium | | (2,20,000) |
| Dividend paid | | (1,36,000) |
| Interest paid to Debenture holders | | (33,000) |
| Net Cash Outflow from Financing Activities | (a)+(b)+(c) | (2,64,000) |
| Net increase in Cash and Cash Equivalents during the year | | 5,000 |
| Cash and Cash Equivalents at the beginning of the year | | 88,000 |
| Cash and Cash Equivalents at the end of the year | | 93,000 |

**Schedule of Changes in Working Capital** **(₹)**

| Particulars | 31st March | | Change in working capital | |
|---|---|---|---|---|
| | 2013 | 2014 | Increase | Decrease |
| Current Assets: | | | | |
| Stock | 4,00,000 | 3,85,000 | --- | 15,000 |
| Debtors | 2,88,000 | 4,15,000 | 1,27,000 | --- |
| Prepaid expenses | 15,000 | 11,000 | --- | 4,000 |
| Cash and bank | 88,000 | 93,000 | 5,000 | --- |
| | 7,91,000 | 9,04,000 | | |
| | | | | |
| Current Liabilities: | | | | |
| Creditors | 1,85,000 | 2,15,000 | --- | 30,000 |
| | 1,85,000 | 2,15,000 | | |
| | | | | |
| Working Capital | 6,06,000 | 6,89,000 | | |
| Increase in Working capital | 83,000 | --- | --- | 83,000 |
| | 6,89,000 | 6,89,000 | 1,32,000 | 1,32,000 |

**Q. 11. (a) You are given the following particulars related to AB Ltd. for the year ended 30th June, 2013:**

| Output | 1,00,000 units at normal capacity |
|---|---|
| Selling price per unit | ₹ 40 |
| Variable cost per unit | ₹ 20 |
| Fixed cost per unit | ₹ 10 |

**The capital structure of the company as on 30th June 2013 appeared as follows:**

| | ₹ |
|---|---|
| Equity share capital | |
| 1,00,000 shares of ₹ 10 each | 10,00,000 |
| Reserves and surplus | 5,00,000 |
| 13.5% debentures | 10,00,000 |
| Current liabilities | 5,00,000 |
| Total | 30,00,000 |

**In view of the emerging opportunities arising out of liberalisation, AB Ltd. has decided to undertake an expansion project which will involve ₹ 10 lakhs. This will lead to an increase in output by 50 per cent, reduction in variable cost by 10 per cent but increase in fixed cost by 50 per cent. The additional output can be sold at the existing selling price without any unfavourable impact on the market place. The Finance Manager has suggested the following alternative schemes for financing the proposed expansion programme:**

**(i) Entirely by equity shares of ₹ 10 each at par.**
**(ii) ₹ 5 lakhs by issue of equity shares of ₹ 10 each and the balance by issue of 12 per cent debentures of ₹ 100 each at par.**
**(iii) Entirely by 12 per cent debentures as above.**

**Assuming a corporate tax of 40 per cent, which of the above-mentioned alternatives do you recommend for AB Ltd. with reference to the risk involved?**

**(b) Given below are cash position ratios of MR Ltd. and the industry average. Industry average is arrived at by taking average position of 25 companies of the similar trade:**

| | Absolute cash ratios | Cash position to total assets | Cash interval ratios |
|---|---|---|---|
| MR Ltd. | 0.36 | 12.50% | 25 days |
| Industry average | 0.30 | 15% | 33 days |

**How do you feel about the cash position of MR Ltd.?**

**Answer 11(a):**

While evaluating the alternative financing schemes, both leverage and EBIT-EPS analysis may be applied. In other words, we compute DOL, DFL and DCL and determine their impact on EPS with respect to each of the schemes as follows:

**Statement Showing Profitability of Alternative Schemes of Financing**

**(₹ lakh)**

| | Existing | Proposed alternatives | | |
|---|---|---|---|---|
| | | (i) | (ii) | (iii) |
| Equity share capital (existing) | 10 | 10 | 10 | 10 |
| New issues | --- | 10 | 5 | --- |
| | 10 | 20 | 15 | 10 |
| 13.5% debentures | 10 | 10 | 10 | 10 |
| 12% debentures | --- | --- | 5 | 10 |
| | 20 | 30 | 30 | 30 |
| Debenture interest (13.5%) | 1.35 | 1.35 | 1.35 | 1.35 |
| (12%) | --- | --- | 0.60 | 1.20 |
| | 1.35 | 1.35 | 1.95 | 2.55 |
| Output (lakhs) | 1 | 1.5 | 1.5 | 1.5 |
| Contribution per unit (₹) | 20 | 22 | 22 | 22 |
| Contribution (₹ lakh) | 20 | 33 | 33 | 33 |
| Less: Fixed cost | 10 | 15 | 15 | 15 |
| EBIT | 10 | 18 | 18 | 18 |
| Less: Interest | 1.35 | 1.35 | 1.95 | 2.55 |
| EBT | 8.65 | 16.65 | 16.05 | 15.45 |
| EAT (tax 40%) | 5.19 | 9.99 | 9.63 | 9.27 |
| DOL (contribution/EBIT) | 2 | 1.83 | 1.83 | 1.83 |
| DFL (EBIT/EBT) | 1.16 | 1.08 | 1.12 | 1.17 |
| DCL (Contribution/EBT) | 2.31 | 1.98 | 2.06 | 2.14 |
| EPS (EAT/Number of shares) (₹) | 5.19 | 5.00 | 6.42 | 9.27 |

Among the proposed schemes, although DOL is the same in all cases, DFL changes among the schemes, Alternative (iii) uses the maximum amount of debt capital and shows the highest degree of financial leverage, followed by scheme (ii). As a result, the overall risk of the firm is also maximum corresponding to this scheme. This will, however, be compensated by the maximum return to the equity (₹ 9.27 per share). Therefore, if the management of AB Ltd. is prepared to take a high degree of total risk of the firm, then alternative (iii) is strongly recommended. On the other hand, if the management is not prepared to take that much of risk as in scheme (iii), the next best scheme is scheme (ii). This will, however, result in an EPS of ₹ 6.42 only.

**Answer 11(b):**

Absolute cash ratio indicates the position of the ready cash for meeting the current liabilities. The cash position to total assets ratio is a measure of liquid layer of the assets deployed by business. Interval measure gives an idea about the time length that can be covered by the available cash for meeting operating expenses. On analysis of the data given in the question, following points can be summarised:

(i) Absolute cash ratio of MR Ltd. is better than the industry average.

(ii) Cash position to total assets ratio of MR Ltd. is lower than that of industry. These ratios indicate that either current liabilities of MR Ltd. are relatively lower than that of the industry or its total assets are relatively higher than those of the industry.

(iii) Cash interval of MR Ltd. is also lower than that of the industry.

Therefore by overall assessment, it can be concluded that MR Ltd. is maintaining low cash position as compared to the industry.

**Q. 12. (a) The market price of a ₹ 1,000 par value bond carrying a coupon rate of 14 percent and maturing after 5 years in ₹ 1050. What is the yield to maturity (YTM) on this bond? What is the approximate YTM?**

**(b) From the following data relating to ST & Co for the year 2010 to 2013,**

**Calculate trend percentages (taking 2010 as base year)**

| | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|
| **Net Sales** | **2,50,000** | **2,30,000** | **3,00,000** | **4,00,000** |
| **Less: Cost of goods** | **1,50,000** | **1,50,000** | **1,60,000** | **2,00,000** |
| **Gross profit** | **1,00,000** | **80,000** | **1,40,000** | **2,00,000** |
| **Less: Expenses** | **30,000** | **28,000** | **40,000** | **50,000** |
| **Net profit** | **70,000** | **52,000** | **1,00,000** | **2,00,000** |

**Answer 12(a):**
The YTM is the value of r in the following equation:

$$1{,}050 = \sum_{t=1}^{5} \frac{140}{(1+r)^t} + \frac{1{,}000}{(1+r)^5}$$

$$= 140\ (PVIFA_{r,\ 5\ yrs}) + 1{,}000\ (PVIF_{r,\ 5\ yrs})$$

Let us try a value of 13 percent for r. The right hand side of the above expression becomes:

$140\ (PVIFA_{13\%,5yrs}) + 1{,}000\ (PVIF_{13\%/5yrs})$
$= 140\ (3.517) + 1{,}000\ (0.543)$
$= 492.4 + 543.0 = ₹\ 1035.4$

Since this is less than ₹ 1,050, we try a lower value for r. Let us try r = 12 percent. This makes the right-hand side equal to:

$140\ (PVIFA_{12\%/5yrs}) + 1{,}000\ (PVIF_{12\%,5yrs})$
$= 140\ (3.605) + 1{,}000\ (0.567)$
$= 504.7 + 567.0 = ₹\ 1071.7$

Thus, r lies between 12 percent and 13 percent. Using a linear interpolation in this range, we find that r is equal to:

$$12\% + (13\% - 12\%)\ \frac{1071.7 - 1050.0}{1071.7 - 1035.4} = 12.60 \text{ percent}$$

The approximate YTM works out to:

$$YTM = \frac{140 + (1,000 - 1,050)/5}{0.40 \times 1000 + 0.6 \times 1050} = 12.62 \text{ percent.}$$

**Answer 12(b):**
**Trend percentages:**

| | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|
| Net Sales | 100 | 92.00 | 120.00 | 160.00 |
| Less : Cost of goods sold | 100 | 100.00 | 106.67 | 133.33 |
| Gross profit | 100 | 80.00 | 140.00 | 200.00 |
| Less : Expenses | 100 | 93.33 | 133.33 | 166.67 |
| Net profit | 100 | 74.28 | 142.86 | 285.71 |

**Interpretation:**

On the whole, 2011 was a relatively bad year but the recovery was made during 2012. In this year there is increase in sales as well as profit. The figure of 2011 when compared with 2010 reveal that the sales have come down by 8%, where, the cost of goods sold, has remained same and the expenses have decreased by 6.67% respectively. This has resulted in decrease in net profit by 25.72%.

The position was recovered in 2012, where the decline was converted into growth and which continued in 2013. Moreover, the increase in profit by 42.86% (2012) and 185.71% (2013) is much more than the increase in sales by 20% and 60% respectively.

**Q. 13. (a) State the impact of Derivative Instruments as an off-balance sheet item in the Financial Statement Analysis.**
**(b) Write a short note on Commercial Paper.**

**Answer 13(a):**
**Impact of Derivative Instruments — an off-balance sheet item:**

The companies enter into derivative contracts in the normal course of business for market making, positioning and arbitrage purposes, as well as for own risk management needs, including mitigation of interest rate, foreign exchange and credit risk.

Derivatives are generally either privately negotiated OTC contracts or standard contracts transacted through regulated exchanges. The most frequently used freestanding derivative products include interest rate, cross-currency and credit default swaps, interest rate and foreign exchange options, foreign exchange forward contracts and foreign exchange and interest rate futures.

The replacement values of derivative instruments correspond to their fair values at the dates of the consolidated balance sheets and arise from transactions for the account of customers and for our own account. Positive replacement values constitute a receivable, while negative replacement values constitute a payable. Fair value does not indicate future gains or losses, but rather the unrealized gains and losses from marking to market all derivatives at a particular point in time. The fair values of derivatives are determined using various methodologies, primarily observable market prices where available and, in their absence, observable market parameters for instruments with similar characteristics and maturities, net present value analysis or other pricing models as appropriate.

**Answer 13(b):**

**Commercial Paper:**

Commercial paper is a short-term unsecured promissory note that is issued in the open market and that represents the obligation of the issuing corporation. The primary purpose of commercial paper was to provide short-term funds for seasonal and working capital needs. Corporations use commercial paper for other purposes. For example, it has been used for bridge financing. Suppose that a corporation needs long-term funds to build a plant or acquire equipment. Rather than raising long-term funds immediately, the corporation may elect to postpone the offering until more favorable capital market conditions prevail. The funds raised by issuing commercial paper are used until longer-term securities are sold. Moreover, the interest-rate-swaps market encouraged the use of the commercial paper market. In an interest-rate swap, one party exchanges a fixed rate for a floating rate. Corporate issuers would issue commercial paper and use the interest-rate swap to convert the floating interest rate on commercial paper into a fixed interest rate.

Like Treasury bills, commercial paper is a discount instrument. That is, it is sold at a price that is less than its maturity value. The difference between the maturity value and the price paid is the interest earned by the investor, although there is some commercial paper that is issued as an interest-bearing instrument. For commercial paper, a year is treated as having 360 days.

The yield offered on commercial paper tracks that of other money market instruments. The commercial paper rate is higher than that on Treasury bills for the same maturity. There are three reasons for this. First, the investor in commercial paper is exposed to credit risk. Second, interest earned from investing in Treasury bills is exempt from state and local income taxes. As a result, commercial paper has to offer a higher yield to offset this tax advantage. Finally, commercial paper is less liquid than Treasury bills. The liquidity premium demanded is probably small, however, because investors typically follow a buy-and-hold strategy with commercial paper and so are less concerned with liquidity.

The yield on commercial paper is higher by a few basis points than the yield on certificates of deposit for the same maturity. The higher yield available on commercial paper is attributable to the poorer liquidity relative to certificates of deposit.

**Q. 14. (a) "The objective of Du Pont Analysis is to identify the company's strong area that can be capitalized upon and/or its weak area that must be improved upon." — Describe Du Pont Analysis in the field of Profitability Analysis.**

**(b) From the following information of a company, determine its ROE (Return on Equity) and SGR (Sustainable Growth Rate).**

**Total assets turnover, 2; Net profit margin, 6%; Equity multiplier (Asset to Equity ratio), 1.5; Dividend payout ratio 35%.**

**Answer 14(a):**

It is important to understand how the company's profitability, efficiency, and leverage are linked in its financial performance.

The company's return on assets, ROA (Return on Assets) = (net income/assets), can be expressed as:

ROA = (Net Income/Revenue) × (Revenue/Assets) = Profit Margin × Asset Turnover

And the company's return on equity, ROE (Return on Equity) = (net income/equity), can be expressed as —

ROE = (Net Income/Revenue) × (Revenue/Assets) × (Assets/Equity) = ROA × Equity Multiplier

Both the company's profitability (as measured in terms of profit margin) and efficiency (as measured in terms of asset turnover) determine its ROA. This ROA, along with the company's financial leverage (as measured in terms of its equity multiplier), contributes to its ROE. The company's use of leverage magnifies its ROE. The changes in the company's ROE are to be noted and explained through its profit margin, asset turnover, and equity multiplier over time.

**Answer 14(b):**

(i) ROE = P × A × A/E

Where ROE = Return on Equity
P = Net profit margin
A = Total assets turnover
and A/E = Asset to Equity ratio

Accordingly,
ROE = 6% × 2 × 1.5 = 18%

(ii) $$SGR = \frac{ROE \times b}{1 - (ROE \times b)}$$

Where SGR = Sustainable Growth Rate
ROE = Return on Equity
b = Dividend payout ratio

$$\therefore SGR = \frac{0.18 \times 0.35}{1 - (0.18 \times 0.35)}$$

$$= \frac{0.063}{1 - 0.063} = \frac{0.063}{0.937} = 6.72\%$$

**Q. 15. (a) The capital of E. Ltd. is as follows:**

| | ₹ |
|---|---|
| **9% Preference shares, ₹ 10 each** | **3,00,000** |

| | |
|---|---|
| **Equity shares of ₹ 10 each** | **8,00,000** |
| | **11,00,000** |

**Additional information: Profit (after tax at 35 per cent), ₹ 2,70,000; Depreciation, ₹ 60,000; Equity dividend paid, 20 per cent; Market price of equity shares, ₹ 40.**

**You are required to compute the following, showing the necessary workings:**

**(i) Dividend yield on the equity shares.**
**(ii) Cover for the preference and equity dividends.**
**(iii) Earnings per shares.**
**(iv) Price-earnings ratio.**

**(b) How Ratio Analysis helps a firm to do its inter-firm comparison and trend analysis?**

**Answer 15(a):**

(i) Dividend yield on the equity shares: $= \frac{\text{Dividend per share}}{\text{Market price per share}} \times 100 = \frac{₹\ 2\ (0.20 \times ₹\ 10)}{₹\ 40} \times 100$

$= 5$ per cent

(ii) Equity: $= \frac{\text{Profit after taxes - Preference share dividend}}{\text{MDividend payable to equity shareholders at current rate of ₹ 2 per share}}$

$= \frac{₹\ 2,70,000 - ₹\ 27,000)}{₹\ 41,60,000\ (80,000\ \text{shares} \times ₹\ 2} = 1.52$ times

(iii) Earnings per equity share: $= \frac{\text{Earnings available to equity shareholders}}{\text{Number of equity shares outstanding}} = \frac{₹\ 2,43,000}{80,000}$

$= ₹\ 3.04$ per share

(iv) Price-earning (P/E) ratio $= \frac{\text{Market price per share}}{\text{Earnings per share}} = \frac{₹\ 40}{₹\ 3.04} = 13.2$ time

**Answer 15(b):**

As a tool of financial management, ratios are of crucial significance. The importance of ratio analysis lies in the fact that it presents facts on a comparative basis and enables the drawing of interferences regarding the performance of the firm. The major two aspects of ratio analysis are analysed as follows:

**Inter-firm Comparison** Ratio analysis not only throws light on the financial position of a firm but also serves as a stepping stone to remedial measures. This is made possible due to inter firm comparison and comparison with industry averages. A single figure of a particular ratio is meaningless unless it is related to some standard or norm. One of the popular techniques is to compare the ratios of a firm with the industry average. It should be reasonably expected that

the performance of a firm should be in broad conformity with that of the industry to which it belongs. An inter firm comparison would demonstrate the firm's position vis-a-vis its competitors. If the results are at variance either with the industry average or with those of the competitors, the firm can seek to identify the probable reasons and, in that light, take remedial measures.

**Trend Analysis** Finally, ratio analysis enables a firm to take the time dimension into account. In other words, whether the financial position of a firm is improving or deteriorating over the years. This is made possible by the use of trend analysis. The significance of a trend analysis of ratios lies in the fact that the analysts can know the direction of movement, that is, whether the movement is favourable or unfavourable. For example, the ratio may be low as compared to the norm but the trend may be upward. On the other hand, though the present level may be satisfactory but the trend may be a declining one.

## Section – B

**Q. 16. X Ltd is in IT sector providing wireless networking solutions. It is a company with an annual turnover of ₹ 2500 crores. Now, it is looking for growth through acquiring BPO companies which would provide it strategic synergic fit. For this, the CFO of the company is negotiating a deal to acquire SS BPO Pvt Ltd whose balance sheet as on March 3014 is given below:**

**Name of the Company: SS BPO Pvt. Ltd.**

**Balance Sheet of X Ltd. as at 31st March, 2014**

**₹ In crores**

| Ref No. | | Particulars | Note No. | As on 31st March, 2014 | As on 31st March 2013 |
|---|---|---|---|---|---|
| **I** | | **EQUITY AND LIABILITIES** | | | |
| **(1)** | | **Shareholders' funds** | | | |
| | (a) | Share Capital | (1) | 400 | |
| | (b) | Reserves and Surplus | (2) | 100 | |
| | (c) | Money received against share warrants | | | |
| **(2)** | | **Share application money pending allotment** | | | |
| **(3)** | | **Non-current liabilities** | | | |
| | (a) | Long term liabilities | (3) | 200 | |
| | (b) | Deferred tax liabilities | | | |
| | (c) | Other Long term Liabilities | | | |
| | (d) | Long term provisions | | | |

| | | | | | |
|---|---|---|---|---|---|
| **(4)** | | **Current Liabilities** | | | |
| | (a) | Short-term borrowings | | | |
| | (b) | Trade payables | | | |
| | (c) | Other current liabilities | | | |
| | (d) | Short-term provisions | | | |
| | | **TOTAL** | | **700** | |
| **II** | | **ASSETS** | | | |
| **(1)** | | **Non-current assets** | | | |
| | (a) | Fixed Assets | | | |
| | | (i)Tangible assets | (4) | 650 | |
| | | (ii)Intangible assets | | | |
| | | (iii)Capital work in progress | | | |
| | | (iv) Intangible assets under development | | | |
| | (b) | Non-current investments | (5) | 20 | |
| | (c) | Deferred tax assets (Net) | | | |
| | (d) | Long-term loans and advances | | | |
| | (e) | Other non-current assets | | | |
| (2) | | **Current assets** | (6) | 30 | |
| | (a) | Current investments | | | |
| | (b) | Inventories | | | |
| | (c) | trade receivables | | | |
| | (d) | Cash and cash equivalents | | | |
| | (e) | Short-term loans and advances | | | |
| | | **TOTAL** | | 650 | |

**Note to the Balance Sheet:**

**Note 1: Share Capital**

| Particulars | ₹ in crores |
|---|---|
| Share Capital<br>(Fully paid shares of ₹ 10 each) | 400 |

| | |
|---|---|
| | 400 |

**Note 2: Reseves and Surplus**

| Particulars | ₹ in crores |
|---|---|
| General reserves | 100 |
| | 100 |

**Note 3: Non-current Liabilities**

| Particulars | ₹ in crores |
|---|---|
| Long Term Liabilities | 200 |
| | 200 |

**Note 4: Fixed Assets**

| Particulars | ₹ in crores |
|---|---|
| Tangible assets | 650 |
| | 650 |

**Note 5: Non-current Investments**

| Particulars | ₹ in crores |
|---|---|
| Investments | 20 |
| | 20 |

**Note 6: Current Assets**

| Particulars | ₹ in crores |
|---|---|
| Net Current Assets | 30 |
| | 30 |

Additional Information:

- The share holders of SS BPO Pvt . Ltd will get 1.5 shares in X Ltd for every share held. The shares of X ltd. would be issued at its current price of ₹ 18 per share.
- The lenders of loan funds will be given 11% debentures of the same amount by the acquiring company.
- The external liabilities are expected to be settled at ₹ 150 crores.
- The dissolution expenses of ₹ 15 crores are to be borne by the acquiring company.
- The following are projected incremental free cash flows expected from the acquisition for next 6 years (₹ In crores):

| Year end | ₹ in crores |
|---|---|
| 1 | 150 |
| 2 | 200 |
| 3 | 260 |
| 4 | 300 |
| 5 | 220 |
| 6 | 120 |

- The free cash flows of SS BPO Pvt. Ltd are expected to grow at 3% per annum after 6 years forever.
- Seeing the risk profile of the target company, it is estimated that the cost of capital relevant to it will be 13%.
- It is found that the target company has unaccounted liabilities totalling ₹ 20 crores.

You are required to advice X Ltd whether the deal to acquire SS BPO Pvt. Ltd would be financially feasible and profitable.

**Answer 16.**

**Cost of acquisition:**

| | ₹ in crores |
|---|---|
| Share Capital (40 crores shares ×1.5 ×18) | 1080 |
| 11% Debenture | 200 |
| Settlement of external liabilities | 150 |
| Unrecorded Liabilities | 20 |
| Dissolution expenses | 15 |
| Total | **1465** |

**Calculation of PV of Free Cash Flows**

| Year end | Free Cash Flows (₹ in crores) | PV factor@13% | PV of Free Cash Flows. |
|---|---|---|---|
| 1 | 150 | 0.8850 | 132.75 |
| 2 | 200 | 0.7831 | 156.62 |
| 3 | 260 | 0.6931 | 180.21 |
| 4 | 300 | 0.6133 | 184.00 |
| 5 | 220 | 0.5428 | 119.42 |

| | | | |
|---|---|---|---|
| 6 | 120 | 0.4803 | 57.64 |
| | | **Total** | **830.64** |

Therefore, Total PV of Free Cash Flows during the explicit forecast period period = ₹ 830.64 crores.

Value of Free Cash Flows after explicit forecast period =120(1+3%)/(13%-3%)= ₹ 1236 crores.

Discounted Value of of Free Cash Flows after explicit forecast period=1236/(1+13%)$^6$= ₹ 593.65 crores

**Determining Net Present Value of Acquisition:**

| | ₹ in crores |
|---|---|
| PV of Free Cash Flows(1-6 years) | 830.64 |
| PV of Free Cash Flows subsequent to 6 years | 593.65 |
| **Total PV benefits** | **1424.29** |
| Less: Cost of Acquisition | 1465.00 |
| | **(40.71)** |

Since NPV is negative, it is not advisable to acquire SS BPO Pvt Ltd.

**Q.17. (a) From the following data, compute the 'Net Assets' value of each category of equity shares of GHI Ltd.:**

**Shareholders funds**

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

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

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

**Retained Earnings ₹ 9,00,000**

**(b) Should homegrown brands be valued and amortized?**

**(c) In May, 2013 SDC Ltd. took a bank loan to be used specifically for the construction of a new factory building. The construction was completed in January, 2014 and the building was put to its use immediately thereafter. Interest on the actual amount used for construction of the building till its completion was ₹ 18 lacs, whereas the total interest payable to the bank on the loan for the period till 31st March, 2014 amounted to ₹ 25 lacs.**

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

**Answer 17. (a)**

(i) Computation of Net assets

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

| | | ₹ |
|---|---|---|
| Paid up value of 'P' equity shares | 10,000 x ₹100 | 10,00,000 |
| Paid up value of 'Q' equity shares | 10,000 x ₹ 80 | 8,00,000 |
| Paid up value of 'R' equity shares | 10,000 x ₹ 50 | 5,00,000 |
| Retained earnings | | 9,00,000 |
| Net assets | | 32,00,000 |

(ii) **Net asset value of equity share of ₹100 paid up**

Notional calls of ₹ 20 and ₹ 50 per share on 'Q' and 'R' equity shares respectively will make all the 30,000 equity shares fully paid up at ₹ 100 each. In that case,

| | ₹ |
|---|---|
| Net assets | 32,00,000 |
| *Add:* Notional calls (10,000 x ₹ 20 + 10,000 x ₹ 50) | 7,00,000 |
| | 39,00,000 |

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

**(iii) Net asset values of each category of equity shares** ₹

| | |
|---|---|
| Value of 'P' equity shares of ₹ 100 fully paid up | 130 |
| Value of 'Q' equity shares of ₹ 100 each, out of which ₹ 80 paid up (130-20) | 110 |
| Value of 'R' Equity shares of ₹100 each, out of which ₹ 50 paid up (130-50) | 80 |

**Answer 17. (b)**

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

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

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

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

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

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

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

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

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

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

**Answer 17. (c)**

AS 16 clearly states that capitalization of borrowing costs should cease when substantially all the activities necessary to prepare the qualifying asset for its intended use are completed. Therefore, interest on the amount that has been used for the construction of the building upto the date of completion (January, 2014) i.e. ₹ 18 lacs alone can be capitalized. It cannot be extended to ₹ 25 lacs.

**Q.18.(a) What do you mean by valuation bias? How do you minimize valuation bias?**

**(b) Derive the fair value of share of DEF Ltd. based on Balance Sheet of the company as on 31st March, 2014 and other information given below :**

| Liability | ₹ | Assets | ₹ |
|---|---|---|---|

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

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

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

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

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

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

**Answer 18. (a)**

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

The bias in valuation starts with the companies we choose to value. These choices are almost never random, and how we make them can start laying the foundation for bias. It may be that we have read something in the press (good or bad) about the company or heard from an expert that it was under or overvalued. Thus, we already begin with a perception about the company that we are about to value. We add to the bias when we collect the information we need to value the firm. The annual report and other financial statements include not only the accounting numbers but also management discussions of performance, often putting the best possible spin on the numbers. With many larger companies, it is easy to access what other analysts following the stock think about these companies.

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

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

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

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

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

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

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

**Answer 18. (b)**

**Calculation of share value based on net assets method:**

| **Assets** | ₹ |
|---|---|
| Land | 39,00,000 |
| Buildings | 60,00,000 |
| Plant and Machinery | 48,00,000 |
| Debtors(excluding bad debts) | 7,50,000 |
| Inventory | 12,00,000 |
| Cash & Bank | 3,00,000 |
| Patents and Trademarks | 3,00,000 |
| | 1,72,50,000 |
| ***Less*** : **Liabilities :** | |

| | |
|---|---|
| Debentures (14%) | 15,00,000 |
| Sundry Creditors | 7,50,000 |
| Bank O/D | 6,00,000 |
| Provision for Taxation | 1,50,000 |
| **Net Assets** | 1,42,50,000 |

Intrinsic value of share = Net assets/No. of shares

= ₹ 1,42,50,000/5,00,000

= ₹ 28.50

**Calculation of share value based on dividend yield method :**

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

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

Valuation of share based on yield method $= \frac{\text{Rate of dividend}}{\text{Normal rate of return}} \times$ Normal value of share.

= 24.5/27 × 15

= ₹ 13.61

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

= ₹ 21.06

**Q.19.(a) Toyo Ltd., a toy manufacturing company has aggressive plans for expanding its market share. To get faster market access the management of the company has decided in favour of takeover. The research wing of Toyo Ltd. has undertaken a detailed study of prospective takeover targets and finally identified Giggle Ltd., a company based in Baroda. Toyo Ltd. has already collected the following relevant information about Giggle Ltd. It is now to assess the value of Giggle's to start negotiation for the takeover.**

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

| Liabilities | Amount (₹) | Assets | Amount (₹) | Amount (₹) |
|---|---|---|---|---|
| Share capital | 80 | Land | 4 | |

| | | | | |
|---|---|---|---|---|
| Reserves | 6 | Buildings | 40 | |
| Term loan: | | Plant & Machinery | 100 | |
| IDBI | 100 | Other fixed assets | 6 | |
| Other | 20 | Gross fixed assets | 150 | |
| Current liabilities | 300 | Less- Accumulated Depn | 64 | |
| | | | 86 | |
| | | Add- Capital WIP | 16 | |
| | | Total fixed assets | | 1 02 |
| | | Inventories | | 1 20 |
| | | Receivables | | 160 |
| | | Other | | 124 |
| | 506 | | | 506 |

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

**Other information:**

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

**The tax rate for the company is 30%. There is no charge on deferred taxes. The stock is currently trading at ₹ 25 per share. The cost of equity is 20%.**
**Bank finance carries an interest rate of 20%. Based on the information given use the discounted cash flow approach to value Giggle Ltd.**
**Expected growth rate after 2013 is 16%.**

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

**(b) A Limited company has been including interest in the valuation of closing stock. In 2013-2014, the management of the company decided to follow AS 2 and accordingly interest has been excluded from the valuation of closing stock. This has resulted in a decrease in profits by ₹ 3,00,000. Is a disclosure necessary? If so, draft the same.**

**Answer 19.(a)**

( ₹ in lakhs)

| **Particulars** | **2008** | **2009** | **2010** | **2011** | **2012** | **2013** |
|---|---|---|---|---|---|---|
| Net Sales | 1100 | 1160 | 1600 | 2100 | 2400 | 2500 |

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

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

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

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

Cost of equity = 20%

Cost of debt = 20% × 0.70 =14%

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

Computation of Terminal value:

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

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

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

= ₹ 19,495.50 - 340

= ₹ 19,155.50 lakh.

**Answer 19. (b)**

As per AS 5 (Revised), change in accounting policy can be made for many reasons, one of these is for compliance with an accounting standard. In the instant case, the company has changed its accounting policy in order to conform with the AS 2 (Revised) on Valuation of Inventories. Therefore, a disclosure is necessary in the following lines by way of notes to the annual accounts for the year 2013-2014.

**Q.20. (a) How would you value a real estate? What are the different levels of market efficiency?**

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

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

**Answer 20. (a)**

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

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

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

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

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

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

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

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

**Answer 20. (b)**

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

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

The EVA is calculated by the following formula :

EVA =NP-TC × WACC

Where :

NP = Net Operating Profit after Tax

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

WACC = Weighted Average Cost of Capital

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

WACC = (E×CE+SL×CS+LL×CL)/TC

Where :

E = Owners Equity

CE = Average cost of Owners Equity

SL = Short Term Liabilities

CS = Average cost of Short Term Liabilities

LL = Long Term Liabilities

CL = Average cost of Long Term Liabilities

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

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

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

Economic Value Added will increase if :

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

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

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

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

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

**Answer 20. (c)**

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

Intrinsic value is the value that any given option would have if it were exercised today. This is defined as the difference between the option's strike price (X) and the stock actual current price (CP). In the case of a call option, one can calculate the intrinsic value by taking CP-X. If the result is greater than Zero (In other words, if the stock's current price is greater than the option's strike price), then the amount left over after subtracting CP-X is the option's intrinsic value. If the strike price is greater than the current stock price. Then the intrinsic value of the option is zero – it would not be worth anything if it were to be exercised today. An option's intrinsic value can never be below zero. To determine the intrinsic value of a put option, simply reverse the calculation to X - CP.

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

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

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

**Q. 21. (a) The following are the details of the two merged firms, Nylo Ltd. And Xylo Ltd:**

**(₹ in Lakhs)**

| | **Nylo Ltd.** | **Xylo Ltd.** |
|---|---|---|

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

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

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

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

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

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

**(c) M Ltd. has equity capital of ₹ 40,00,000 consisting of fully paid equity shares of ₹ 10 each. The net profit for the year 2013-14 was ₹ 60,00,000. It has also issued 36,000, 10% convertible debentures of ₹ 50 each. Each debenture is convertible into five equity shares. The tax rate applicable is 30%. Compute the diluted earnings.**

**Answer 21. (a)**

| | | (₹ in Lakhs) Nylo Ltd. | Xylo Ltd. |
|---|---|---|---|
| **(i)** | Expected revenue (105% of current revenue) | 4,620 | 3,281 |
| | Less- Cost of Goods Sold (87.5% / 89%) | (4,043) | (2,920) |
| | Less- Depreciation | (200) | (74) |
| | EBIT | 377 | 287 |
| | Less- Interest | (14) | (21) |
| | EBT | 363 | 266 |
| | Less-Tax | (127) | (93) |
| | EAT (earnings to equity) | 236 | 173 |
| | Cost of equity (236/2000/173/1300) | 0.118 | 0.133 |
| | WACC | | |
| | (2000 × 0.118 + 160 × 0.055)/2160 | 0.113 | |

| | | |
|---|---|---|
| (1300 × 0.133 + 250 × 0.055)/1550 | | 0.120 |
| FCFF (free cash flow to firm) | | |
| [EBIT (1-Tax rate)-Addl. Working capital] | | |
| For Nylo Ltd: 377 (1-0.35)-22 | 223 | |
| For Xylo Ltd: 287 (1-0.35)-16 | | 171 |
| Firm value: 223/ (0.113-0.05) | 3540 | |
| 171/ (0.120-0.05) | | 2443 |

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

**(ii)**

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

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

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

**Answer 21. (b)**

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

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

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

**Answer 21. (c)**

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

= ₹ 1,80,000

Tax on interest @ 30% = ₹ 54,000

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

= ₹ 61,26,000

**Q. 22. (a) From the following information in respect of KK Ltd. compute the value of employees of the organization by using Lev and Schwartz Model.**

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

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

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

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

**Answer 22. (a)**

The value of employees have been computed as follows

**(A) Valuation in respect of House Keeping Staff :**

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

| Particulars | Computation | PV |
|---|---|---|

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

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

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

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

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

**(B) Valuation in respect of Administrative Staff.**

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

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

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

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

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

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

**(C) Valuation in respect of Professionals :**

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

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

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

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

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

| Particulars | Computation | PV |
|---|---|---|
| ₹ 750000 | 750000 × 6.145 | 4608750 |
| | **Total** | **4608750** |

**(D) Total Value of Employees :**

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

**Answer 22. (b)**

**Cost *vs.* Fair value**

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

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

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

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

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

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

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

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

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

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

**Q. 23. (a) The Balance Sheets of RST Ltd. for the years ended on 31.3.2012, 31.3.2013 and 31.3.2014 are as follows:**

| | 31.3.2012 | 31.3.2013 | 31.3.2014 |
|---|---|---|---|
| **Liabilities** | ₹ | ₹ | ₹ |
| **3,20,000 Equity Shares of ₹ 10 each fully paid** | 32,00,000 | 32,00,000 | 32,00,000 |
| **General Reserve** | 24,00,000 | 28,00,000 | 32,00,000 |
| **Profit and Loss Account** | 2,80,000 | 3,20,000 | 4,80,000 |
| **Creditors** | 12,00,000 | 16,00,000 | 20,00,000 |
| | 70,80,000 | 79,20,000 | 88,80,000 |

| | 31.3.2012 | 31.3.2013 | 31.3.2014 |
|---|---|---|---|
| **Assets** | ₹ | ₹ | ₹ |
| **Goodwill** | 20,00,000 | 16,00,000 | 12,00,000 |
| **Building and Machinery(Less: Depreciation)** | 28,00,000 | 32,00,000 | 32,00,000 |
| **Stock** | 20,00,000 | 24,00,000 | 28,00,000 |
| **Debtors** | 40,000 | 3,20,000 | 8,80,000 |
| **Bank Balance** | 2,40,000 | 4,00,000 | 8,00,000 |
| | 70,80,000 | 79,20,000 | 88,80,000 |

**Actual valuation were as under:**

| | 31.3.2012 | 31.3.2013 | 31.3.2014 |
|---|---|---|---|
| | ₹ | ₹ | ₹ |
| **Building and Machinery** | 36,00,000 | 40,00,000 | 44,00,000 |
| **Stock** | 24,00,000 | 28,00,000 | 32,00,000 |
| **Net Profit (including opening balance)** | | | |

**after writing off depreciation and goodwill,**
**tax provision and transfer to General Reserve 8,40,000 12,40,000 16,40,000**

**Capital employed in the business at market values at the beginning of 2011–2012 was ₹ 73,20,000, which included the cost of goodwill. The normal annual return on Average Capital employed in the line of business engaged by RST Ltd. is 12½%.**

**The balance in the General Reserve account on 1st April, 2011 was ₹ 20 lacs.**

**The goodwill shown on 31.3.2012 was purchased on 1.4.2011 for ₹ 20,00,000 on which date the balance in the Profit and Loss Account was ₹ 2,40,000. Find out the average capital employed each year.**

**Goodwill is to be valued at 5 years purchase of super profits (Simple average method). Also find out the total value of the business as on 31.3.2014.**

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

**Answer 23. (a)**

**Note :**

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

| | 31.3.2012 ₹ | 31.3.2013 ₹ | 31.3.2014 ₹ |
|---|---|---|---|
| Goodwill | 20,00,000 | 16,00,000 | 12,00,000 |
| Building and Machinery (revalued) | 36,00,000 | 40,00,000 | 44,00,000 |
| Stock (revalued) | 24,00,000 | 28,00,000 | 32,00,000 |
| Debtors | 40,000 | 3,20,000 | 8,80,000 |
| Bank Balance | 2,40,000 | 4,00,000 | 8,00,000 |
| Total Assets | 82,80,000 | 91,20,000 | 1,04,80,000 |
| Less: Creditors | 12,00,000 | 16,00,000 | 20,00,000 |
| Closing Capital | 70,80,000 | 75,20,000 | 84,80,000 |
| Opening Capital | 73,20,000 | 70,80,000 | 75,20,000 |
| Average Capital | 1,44,00,000 | 1,46,00,000 | 1,60,00,000 |
| | 72,00,000 | 73,00,000 | 80,00,000 |

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

| | 31.3.2012 ₹ | 31.3.2013 ₹ | 31.3.2014 ₹ |
|---|---|---|---|
| Net Profit as given | 8,40,000 | 12,40,000 | 16,40,000 |
| Less: Opening Balance | 2,40,000 | 2,80,000 | 3,20,000 |

| | | | |
|---|---|---|---|
| | 6,00,000 | 9,60,000 | 13,20,000 |
| Add: Under valuation of closing stock | 4,00,000 | 4,00,000 | 4,00,000 |
| | 10,00,000 | 13,60,000 | 17,20,000 |
| Less: Adjustment for valuation in opening stock | | 4,00,000 | 4,00,000 |
| | 10,00,000 | 9,60,000 | 13,20,000 |
| Add: Goodwill written-off | | 4,00,000 | 4,00,000 |
| | 10,00,000 | 13,60,000 | 17,20,000 |
| Add: Transfer to Reserves | 4,00,000 | 4,00,000 | 4,00,000 |
| | 14,00,000 | 17,60,000 | 21,20,000 |
| Less: 12½% Normal Return | 9,00,000 | 9,12,500 | 10,00,000 |
| Super Profit | 5,00,000 | 8,47,500 | 11,20,000 |

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

= 24,67,500 / 3 = ₹ 8,22,500

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

| | ₹ |
|---|---|
| Total Net Assets (31/3/2014) | 84,80,000 |
| Less: Goodwill | 12,00,000 |
| | 72,80,000 |
| Add: Goodwill | 41,12,500 |
| Value of Business | 1,13,92,500 |

**Answer 23. (b)**

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

How to determine CIV?

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

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

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

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

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

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

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

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

**Limitations of CIV method :**

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

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

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

**Q. 24. (a) The Balance Sheet of DD Ltd. as on 31st March, 2014 is as under:**

**(All figures are in lacs)**

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

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

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

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

**The unusual negative profitability of the company during 2009-10 was due to the lock out in the major manufacturing unit of the company which happened in the beginning of the second quarter of the year 2008-09 and continued till the last quarter of 2009-10.**

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

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

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

**Tax rate is 39.55%, capitalization factor 18%**

**Calculate the brand value.**

**Answer 24. (a)**

**1. Calculation of capital employed**

| | | ₹ (in lacs) |
|---|---|---|
| Present value of assets: | | |
| Premises and land | | 1,200 |
| Plant and machinery | | 2,400 |
| Motor vehicles (book value less depreciation for ½ year) | | 36 |
| Raw materials | | 920 |
| Work-in-progress | | 130 |
| Finished goods | | 180 |
| Book debts (400 x 90%) | | 360 |
| Investments | | 1,500 |
| Cash at bank and in hand | | 192 |
| | | 6,918 |
| *Less*: Liabilities: | | |
| Provision for taxation | 300 | |
| 5% Debentures | 2,000 | |
| Secured loans | 200 | |
| Sundry creditors | 300 | 2,800 |
| Total capital employed on 31.3.14 | | 4,118 |

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

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

| | | |
|---|---|---|
| Less: Bad debts | | 40 |
| Profit for the year 2013-14 | | 792 |

**3. Average capital employed**

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

**4. Average profit to determine Future Maintainable Profits**

| | | ₹ (in lacs) |
|---|---|---|
| Profit for the year 2013-14 | 792 | |
| Profit for the year 2012-13 | 405 | |
| Profit for the year 2011-12 | 546 | |
| Profit for the year 2010-11 | 469 | |
| | 2212 / 4 | 553 |

**5. Calculation of General Expectation :**

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

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

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

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

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

**Notes :**

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

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

(3) While considering past profits for determining average profit, the years 2008-09 and 2009-10 have been left out, as during these years normal business was hampered.

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

**Answer 24. (b)**

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

= (₹ 500 - ₹ 350) × 100,000

= ₹ 150,00,000.

Net revenue from the unbranded product

= (₹ 120 - ₹ 100) × 40000

= ₹ 800000.

PAT for branded product

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

= (12200000)(0.6045)

= ₹ 7374900

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

= ₹ 40971667.

**Q. 25. (a) Explain the various methods of payment in case of mergers and amalgamations.**

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

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

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

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

**Answer 25. (a)**

Methods of payment in Mergers and Amalgamations :

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

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

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

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

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

**Answer 25. (b)**

Human Resource Accounting (HRA) is a set of accounting methods that seek to settle and describe the management of a company's staff. It focuses on the employees' education,

competence and the remuneration. HRA promotes the description of investments in staff, thus enabling the design of HR management systems to follow and evaluate the consequences of various HR management Principles. There are four basic HRA models :

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

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

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

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

The basic aims of HRA are very many.
First, HRA improves the management of HR from an organizational perspective through increasing the transparency of HR costs, investments and outcomes in traditional financial statements.
Second, HRA attempts to improve the bases for investors and company valuation.
Unfortunately, for several reasons, the accuracy of HRA is often called into suspicion.

**Answer 25. (c)**

**(i) Determination of Net Operating Profit After Taxes**

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

**(ii) Determination of WACC**

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

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

**(iii) Determination of EVA**

EVA = NOPAT* – (Total capital × WACC)

= ₹ 120 lakh – (₹ 250 lakh × 11.88%)

= ₹ 120 lakh – ₹ 29.7 lakh

= ₹ 90.3 lakh

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

**Q.26.(a) Describe the advantages and disadvantages associated with holding companies.**

**What is Pyramiding and what are its consequences?**

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

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

| *Year* | *Amount (₹)* |
|---|---|
| 1 | 350 |
| 2 | 500 |
| 3 | 700 |

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

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

**Answer 26. (a)**

The advantages of the holding company arrangement are :

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

The disadvantages of the holding company arrangement are :

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

- High administrative costs from managing the diverse entities in a holding company.

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

**Answer 26. (b)**

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

**Horizontal Mergers :**

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

**Vertical Mergers :**

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

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

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

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

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

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

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

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

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

(viii) Avoidance of current cut-throat competition;

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

(x) Synergy, economies of scale, etc.

**Answer 26. (c)**

Present Value (PV) of Tax Shield:

(₹ Lakh)

| **Particulars** | **Year-I** | **Year-II** | **Year-III** |
|---|---|---|---|
| PBT (a) | ₹ 350 | ₹ 500 | ₹ 700 |
| *Less* : Adjustment against loss of Firm B / Reduction in taxable income (b) | ₹ 350 | ₹ 500 | ₹ 150* |

| | | | |
|---|---|---|---|
| Reduction in tax payments [(b) × 0.35] | ₹ 122.5 | ₹ 175 | ₹ 52.5 |
| Multiple by PV factor at 12% | 0.893 | 0.797 | 0.712 |
| Total PV of tax shield is ₹ 286.24 Lakh [ (c ) × PV Factor] | 109.39 | 139.47 | 37.38 |

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

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

**Q.27. (a) Maruti Enterprise is to acquire a personal computer complete with multi-media kit and a printer, Its price is ₹ 60,000. Maruti can borrow ₹ 60,000 from Canara Bank at 12% interest p.a. to finance the purchase. The principal sum is to be repaid in 5 equal yearly instalments. Maruti Enterprise can also have the computer on lease for 5 years and seeks your advice to know the maximum lease rent per year payable at the end of each year.**

**You are given the following additional information :**

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

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

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

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

**(v) The cost of capital is 11%.**

**Suggest the maximum lease rental for Maruti Enterprise.**

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

**(c) Are Real options and Managerial options the same?**

**Answer 27.(a)**

*Workings :*

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

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

Less- Commission @ 8% = ₹ 120

1,380

Less- Tax @30% = 414

₹ 966

**Net Cash Outflow under loan option:**

| Year | 1<br>₹ | 2<br>₹ | 3<br>₹ | 4<br>₹ | 5<br>₹ | Total<br>₹ |
|---|---|---|---|---|---|---|
| Principal Repayment | 12000 | 12000 | 12000 | 12000 | 12000 | 60000 |
| Payment of Interest | 7200 | 5760 | 4320 | 2880 | 1440 | 21600 |

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

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

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

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

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

**Answer 27. (b)**

Calculation of spot price

The formula for calculating forward price is :

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

$S_0$ = Spot Price
r = rate of interest
n = no. of compounding
t = time

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

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

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

or, $208.18 = S_0 \times 1.0408$

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

**Answer 27. (c)**

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

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

**Q. 28. (a) The following information is provided related to the acquiring company MM Limited and the target company PP Limited :**

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

***Required* :**

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

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

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

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

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

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

**Answer 28. (a)**

| Particulars | MM Ltd. | PP Ltd. |
|---|---|---|
| EPS | ₹ 2,000 Lacs/200 lacs | ₹ 400 lacs/100 lacs |
| | = ₹ 10 | ₹ 4 |
| Market Price (EPS×P/E ratio) | ₹ 10 × 10 = ₹ 100 | ₹ 4 × 5 = ₹ 20 |

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

(ii) EPS after merger

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

= ₹ 10.91

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

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

(v) Gain from the merger

Post merger market value of the merged firm ₹ 240.02 crores

*Less* : Pre-merger market value

MM Ltd. 200 Lacs × ₹ 100 = 200 crores

PP Ltd. 100 Lacs × ₹ 20 = 20 crores ₹ 220.00 crores

Gain from merger ₹ 20.02 crores

Appropriation of gains from the merger among shareholders :

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

**Answer 28. (b)**

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

Internationally, the two most common sources of buy-out operations are divestment of parts of larger groups and family companies facing succession problems. Corporate groups may seek to sell subsidiaries as part of a planned strategic disposal programme or more forced reorganisation in the face of parental financing problems. Public companies have, however, increasingly sought to dispose off subsidiaries through an auction process partly to satisfy shareholder pressure for value maximisation.

In recessionary periods, buy-outs play a big part in the restructuring of a failed or failing businesses and in an environment of generally weakened corporate performance often represent the only viable purchasers when parents wish to dispose off subsidiaries.

Buy-outs are one of the most common forms of privatisation, offering opportunities for enhancing the performances of parts of the public sector, widening employee ownership and giving managers and employees incentives to make best use of their expertise in particular sectors.

**Q.29. (a) Explain Tobin's Q. State the circumstances when it is most useful.**

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

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

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

**You are required to calculate :**

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

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

**Answer 29. (a)**

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

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

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

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

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

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

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

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

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

**Answer 29. (b)**

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

Subscription price of right share = ₹ 25

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

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

P/E multiple = 7

EPS = 32 Lakhs/4 lakhs shares = ₹ 8

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

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

S = subscription price of a rights share;

N = number existing shares required for a rights issue]

Or, R = 56 – 25 / 1+1

= ₹ 15.50

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

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

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

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

= ₹ 40.5 × 8

= ₹ 324 lakhs

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

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

Number of shares outstanding = 8 lakh shares

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

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

**(i) If the investor wants a perfect hedge, what combination of the share and option should be select?**

**(ii) Explain how the investor will be able to maintain identical position regardless of the share price.**

**(iii) If the risk-free rate of return is 5% for the 3 month period, what is the value of the option at the beginning of the period?**

**(iv) What is the expected return on the option?**

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

***Note:***

**Extract from the table:**

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

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

**(iii) Cumulative Standardised Normal Probability Distribution : NCX**

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

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

**Answer 30. (a)**

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

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

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

(ii) Value of Hedge at ₹ 550

VH = 1 x ₹ 550 – 2 x ₹ 100 = ₹ 350

Value of Hedge at ₹ 350

VH = 1 x ₹ 350 – 2 x 0 = ₹ 350

The position is unchanged.

(iii) Value of option at the beginning:

Vb = (₹ 400 – 2vb) (1.05) = ₹ 350

=> 2.10vb = ₹ 70

Vb = ₹ 33.00

(iv) Expected option value

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

Expected Return

ER = (₹ 70 – ₹ 33.33)/₹ 33.33

= 1.10 = 110%.

**Answer 30. (b)**

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

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

$S_0$ = Current price of stock = ₹ 60

E = Strike price of the potion = ₹ 56

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

R = Risk-free interest rate = 0.07

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

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

In putting these numbers into the model; we get,

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

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

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

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

$$= 0.097743/0.15 = 0.6516$$

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

$$= 0.6516 – 0.15 = 0.5016$$

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

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

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

The value of the call can now be estimated:

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

= 60 x 0.7427 – 56 x 0.9802 x 0.6921

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