# Paper – 20: Financial Analysis & Business Valuation

# SN – 1 [Financial Modeling for Project Appraisal]

Question 1.

(a) A company is considering the following investment projects:

| Projects |                | Cash Flows (₹) |                       |                |  |  |  |
|----------|----------------|----------------|-----------------------|----------------|--|--|--|
|          | C <sub>0</sub> | <b>C</b> 1     | <b>C</b> <sub>2</sub> | C <sub>3</sub> |  |  |  |
| W        | (-10,000)      | +10,000        |                       |                |  |  |  |
| X        | (-10,000)      | +7,500         | +7,500                |                |  |  |  |
| Y        | (-10,000)      | +2,000         | +4,000                | +12,000        |  |  |  |
| Z        | (-10,000)      | +10,000        | +3,000                | +3,000         |  |  |  |

- (i) Rank the projects according to each of the following methods: (I) Payback, (II) ARR, (III) IRR and (IV) NPV, assuming discount rates of 20 and 30 percent.
- (ii) Assuming the projects are independent, which one should be accepted? If the projects are mutually exclusive, which project is the best?

### Answer:

(i) (I) Project Cumulative Cash Inflows:

|       |        |        | An     | nount in (₹) |
|-------|--------|--------|--------|--------------|
| Years | W      | Х      | Y      | Z            |
| 1     | 10,000 | 7,500  | 2,000  | 10,000       |
| 2     |        | 15,000 | 6,000  | 13,000       |
| 3     |        |        | 18,000 | 16,000       |

Cash Outflows:

|                   | W        | Х        | Y        | Z        |
|-------------------|----------|----------|----------|----------|
| Cash Outflows (₹) | (10,000) | (10,000) | (10,000) | (10,000) |

Computation of Payback Period:

|                 | W        | Х                               | Y                                | Z        |
|-----------------|----------|---------------------------------|----------------------------------|----------|
| Pay Back Period |          | 2,500                           | 4,000                            |          |
|                 | = 1 year | 1 years + 7,500<br>= 1.33 years | 2 years + 12,000<br>= 2.33 years | = 1 year |

(11)

ARR =  $\frac{(CFAT - Depreciation) \times 1/No. of years}{Average investment}$ Project W:  $\frac{(₹ 10,000 - ₹ 10,000)1/1}{(₹ 10,000)\frac{1}{2}} = 0\%$ Project X:  $\frac{(₹ 15,000 - ₹ 10,000)1/2}{(₹ 10,000)\frac{1}{2}} = \frac{₹2,500}{₹ 5,000} = 50\%$  Project Y:  $\frac{(\overline{\mathbf{x}} \, 18,000 - \overline{\mathbf{x}} \, 10,000) \, 1/3}{(\overline{\mathbf{x}} \, 10,000) \, \frac{1}{2}} = \frac{\overline{\mathbf{x}} \, 2,667}{\overline{\mathbf{x}} \, 5,000} = 53\%$ Project Z:  $\frac{(\overline{\mathbf{x}} \, 16,000 - \overline{\mathbf{x}} \, 10,000) \, 1/3}{(\overline{\mathbf{x}} \, 10,000) \, \frac{1}{2}} = \frac{\overline{\mathbf{x}} \, 2,000}{\overline{\mathbf{x}} \, 5,000} = 40\%$ 

(III) IRR

**Project W:** The net cash proceeds in year 1 are just equal to investment. Therefore, r = 0% **Project X:** This project produces an annuity of ₹ 7,500 for two years. Therefore, the required PVAF is: ₹10,000/₹7,500 = 1.33

This factor is found under 32% column. Therefore, r = 32%

**Project Y:** Since cash flows are uneven, the trial and error method will be followed. Using 20% rate of discount the NPV is + ₹ 1,390. At 30% rate of discount, the NPV is - ₹ 634. The true rate of return should be less than 30%. At 27% rate of discount it is found that the NPV is - ₹ 90 and at 26% + ₹ 108. Through interpolation, we find r = 26.5%.

**Project Z:** In this case also by using the trial and error method, it is found that at 37.6% rate of discount NPV becomes almost zero. Therefore, r = 37.3%.

# (IV) NPV

| Project W: |   |
|------------|---|
| At 20%     | - ₹10,000 + ₹10,000 x 0.833 = - ₹ 1,670                                       |
| At 30%     | - ₹10,000 + ₹10,000 × 0.769 = - ₹ 2,310                                       |
| Project X: |   |
| At 20%     | - ₹10,000 + ₹7,500 (0.833 + 0.694) = + ₹ 1,453                                |
| At 30%     | -₹10,000 + ₹7,500 (0.769 + 0.592) = + ₹ 208                                   |
| Project Y: |   |
| At 20%     | - ₹10,000 + ₹ 2,000 x ₹ 0.833 + ₹ 4,000 x 0.694 + ₹12,000 x 0.579 = + ₹ 1,390 |
| At 30%     | - ₹10,000 + ₹ 2,000 x ₹ 0.769 + ₹ 4,000 x 0.592 + ₹12,000 x 0.455 = - ₹ 634   |
| Project Z: |   |
| At 20%     | - ₹10,000 + ₹10,000 x 0.833 + ₹ 3,000 (0.694 + 0.579) = +₹ 2,149              |
| At 30%     | - ₹10,000 + ₹10,000 x 0.769 + ₹ 3,000 (0.592 + 0.455) = + ₹ 831               |

The projects are ranked as follows according to the various methods:

|         | Ranks |     |     |           |           |  |
|---------|-------|-----|-----|-----------|-----------|--|
| Project | PBP   | ARR | IRR | NPV (20%) | NPV (30%) |  |
| W       | 1     | 4   | 4   | 4         | 4         |  |
| Х       | 2     | 2   | 2   | 2         | 2         |  |
| Y       | 3     | 1   | 3   | 3         | 3         |  |
| Z       | 1     | 3   | 1   | 1         | 1         |  |

(ii) Payback and ARR are unsound methods for choosing between the investment projects. Between the two DCF investment criteria, NPV and IRR, NPV gives consistent results. In the present case, except Project W all the three projects should be accepted if the discount rate is 20%. Only Projects X and Z should be undertaken if the discount rate is 30%.

If it is assumed that the projects are mutually exclusive, then under the assumption of 30% discount rate, the choice is between X and Z (W and Y are unprofitable). Both criteria IRR and NPV give the same results Z is the best. Again under the assumption of 20% discount rate, ranking according to IRR and NPV is same. In the both cases, project Z should be accepted.

# (b) "A typical financial model comprises of the Income statement, Balance Sheet and Cash Flow." — Describe the need and importance of the financial models in this respect.

#### Answer:

### Financial Model – Need and Importance:

- 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.

# Question 2.

(a) Lily Ltd. purchased a machine five years ago. A proposal is under consideration to replace it by a new machine. The life of the machine is estimated to be 10 years. The existing machine can be sold at its written – down value.

As a Cost Accountant of the company you are required to submit your recommendation based on the following information:

|                                | <b>Existing Machine</b> | New Machine |
|--------------------------------|-------------------------|-------------|
| Initial Cost (₹)               | 25,000                  | 50,000      |
| Machine hours p.a.             | 2,000                   | 2,000       |
| Wages per running hour (₹)     | 1.25                    | 1.25        |
| Power per hour                 | 0.50                    | 2.00        |
| Indirect Material p. a. (₹)    | 3,000                   | 4,500       |
| Other expenses p. a. (₹)       | 12,000                  | 15,000      |
| Cost of materials per unit (₹) | 1                       | 1           |

| Number of units produced per hour                     | 12 | 18 |
|---|----|----|
| Selling price per unit (₹)                            | 2  | 2  |
| Interest to be paid at 10% on fresh capital invested. |    |    |

#### Answer:

|  | Existing Machine |        | New Machine |        |
|--|------------------|--------|-------------|--------|
|  | ₹                | ₹      | ₹           | ₹      |
| Sales  |                  |        |             |        |
| (2,000 × 12) × ₹2                                  |                  | 48,000 |             | -      |
| (2,000 × 18) × ₹2                                  |                  | -      |             | 72,000 |
|  |                  | 48,000 |             | 72,000 |
| Less: Cost of Materials (2,000 × 12) × ₹ 1         | 24,000           | -      |             |        |
| (2,000 × 18) × ₹ 1                                 |                  |        | 36,000      |        |
| Wages ( 2,000 × 1.25)                              | 2,500            |        | 2,500       |        |
| Power (2,000 × 0.50)                               | 1,000            |        |             |        |
| (2,000 × 2)  |                  |        | 4,000       |        |
| Indirect materials                                 | 3,000            |        | 4,500       |        |
| Other Expenses                                     | 12,000           |        | 15,000      |        |
| Depreciation                                       | 2,500            |        | 5,000       |        |
| Interest on Capital @ 10% on (₹ 50,000 – ₹ 12,500) | -                |        | 3,750       |        |
|  |                  | 45,000 |             | 70,750 |
| Profit   | 1                | 3,000  |             | 1,250  |
| Selling Price per unit                             |                  | 2.00   |             | 2.00   |
| Cost Price per unit (₹ 45,000 ÷ 24,000)            |                  | 1.88   |             |        |
| (₹ 71,250 ÷ 36,000)                                |                  |        |             | 1.97   |
|  |                  | 0.12   |             | 0.03   |

Hence, the existing machine should be continued since its per unit profit is more than the new machine.

# (b) Financial Modelling follows a step-by-step procedure on which it is build up. State the process.

#### Answer:

Generally following process is used for preparing Financial Model:

- (i) Gather historic financial statements and analyze it.
- (ii) Compute Ratios from Historic Financial Statements to develop some of the mechanical assumptions about revenue, fixed & variable cost, working capital.

- (iii) Need detailed discussions with all the departments of the organization. i.e. Productions, Sales, Commercial & Logistics, Finance.
- (iv) Develop Revenue, Expense, working capital and capital expenditures by working through value drivers.
- (v) Work through the Income Statement, then the Balance Sheet, then the Cash Flow Statement and finalize Balance sheet to check, for forecast years.
- (vi) Valuation, sensitivity analysis and presentation.

### SN – 2 [The Analysis of the Statement of Shareholders' Equity]

#### Question 3.

(a) On the basis of the following figures derived from the Accounts of Gold Ltd., prepare a report on the level of efficiency of financial and operational management of the company:

| Years | Capital Turnover Ratio | Net Profit on Sales (%) | ROI (%) | Current Ratio |
|-------|------------------------|-------------------------|---------|---------------|
| 1     | 1.0                    | 8                       | 8       | 6.0           |
| 2     | 2.0                    | 10                      | 20      | 4.0           |
| 3     | 3.0                    | 11.5                    | 34.5    | 2.0           |
| 4     | 4.5                    | 14                      | 63      | 0.5           |

# Answer:

#### Year 1:

- 1. Company's Capital Turnover ratio is one, which indicates that the Company is able to generate sales just one time in relation to its capital employed.
- 2. The Net Profit ratio is a modest 8%, which reflects a low level of profitability.
- 3. Since the Company's Net Profit ratio is only 8% & it is able to generate sales equal to just 1 time that of capital employed, consequently its ROI is also a meager 8%.
- 4. The Current Ratio is far away from being ideal, indicating the underutilization & ineffective management of current assets.

# Year 2:

- 1. The Company has now able to double its sales in relation to its capital employed, which is worth notice.
- 2. Even, its Net Profit ratio has increased slightly by 2%, which is due to increase in sales as mention in point (1).
- 3. The combined effect of increase in Capital Turnover Ratio & Net Profit ratio has magnified the Company's ROI from 8% to 20%, thus fostering Company's investment avenue.
- 4. The Current Ratio has improved in relation to the past year but still there is ineffective utilization of Current Assets.

# Year 3:

- 1. The Company is on a good path leading towards development, which is clearly reflective from its Capital Turnover Ratio, as it has been able to increase its sales, equal to thrice of its capital employed as compared to twice in the past year.
- 2. Increase in sales & operating efficiency for proper utilization of current assets has had a

positive effect/impact on Net Profit Ratio, which is gradually improving.

- 3. ROI of the Company has magnified manifold due to dual effect of sharp increase in Capital Turnover Ratio & Net Profit Ratio.
- 4. The short-term solvency position of Company is now ideal (2:1). Current assets are being effectively managed & utilised & there is a good amount of cover for the current debts.

# Year 4:

- 1. The utilisation of Capital to generate turnover has improved from 3 times in the last year to 4.5 times in the current year. This shows high efficiency of management in utilization of its long term funds.
- 2. The Net Profit Ratio is improving step by step & now it has reached upto the level of 14%.
- 3. ROI of the Company has almost doubled its self in comparison to last year. This is due to better utilisation of Capital employed by the management.
- 4. The short-term solvency position is alarming. It is quite surprising to see that the company is using Current Liabilities to finance its Fixed Assets as can be seen from the ratio that Current Assets are only half of that of Current Liabilities. It demands immediate attention at the company which is short of working capital and the Company is not in a position to pay its current liabilities from its Current Assets. If the short-term creditors are to be paid immediately, the Company may have to sell its long-term investments.

| Particulars             | ₹      |
|-------------------------|--------|
| Land and Building       | 55,000 |
| Plant and Machinery     | 40,000 |
| Stock                   | 30,000 |
| Debtors                 | 42,000 |
| Bills receivable        | 25,000 |
| Prepaid Expense         | 5,000  |
| Cash at bank            | 15,000 |
| Cash in hand            | 10,000 |
| Creditors               | 25,000 |
| Outstanding Salary      | 5,000  |
| Bank Overdraft          | 3,000  |
| Bills payable           | 4,000  |
| Proposed Dividend       | 6,000  |
| Long – Term Liabilities | 46,000 |
| Provision for Bad debts | 2,000  |

(b) Compute the Liquid Ratio from the following information for the year ended 31<sup>st</sup> March 2014 and also interpret the result:

#### Answer:

#### **Components of Liquid Assets and Liquid Liabilities**

| Liquid Assets                 | ₹      | ₹      |
|-------------------------------|--------|--------|
| Debtors                       | 42,000 |        |
| Less: Provision for Bad Debts | 2,000  | 40,000 |
| Bills receivable              |        | 25,000 |
| Cash at bank                  |        | 15,000 |
| Cash in hand                  |        | 10,000 |
|                               |        | 90,000 |

| Liquid Liability   | ₹ | ₹      |
|--------------------|---|--------|
| Creditors          |   | 25,000 |
| Outstanding Salary |   | 5,000  |
| Bills payable      |   | 4,000  |
| Proposed dividend  |   | 6,000  |
|                    |   | 40,000 |

∴ Liquid ratio =  $\frac{\text{Liquid Assets}}{\text{Liquid Liabilities}} = \frac{₹90,000}{₹40,000} = 2.25:1.$ 

#### Interpretation and Significance:

It can be stated that liquid ratio is, practically, the true test of liquidity. It measures the capacity of the firm to pay-off its liabilities as soon as they become mature for payment. Thus, a high liquid ratio indicates that the firm is quite able to pay-off its current obligations without difficulty, whereas, a low liquid ratio will create an opposite situation i.e. it is not possible for the firm to pay-off its current obligations, which indicates the liquidity position is not sound at all.

Although it is stated that a 1:1 ratio is considered as good but the same cannot safely be concluded since if percentage of debtors is more than other liquid assets, and if the same is not realised (if the debtors do not pay), it indicates that problem will arise to liquidate current obligations although the normal liquid ratio is maintained. Similarly, a low liquid ratio does not ensure a bad liquidity position since stocks are not absolutely non-liquid in character. Thus, a high liquid ratio does not always prove a satisfactory liquidity position if the firm has slow—paying customers, and vice versa in the opposite case i.e. a low liquid ratio may ensure a sound liquidity position if the firm has fast-moving stocks.

#### Question 4.

#### (a) The Balance Sheets (Extracts) of Centak Ltd. for the last 3 years read as below:

| Sources                        | ₹ in lakhs |          |          |
|--------------------------------|------------|----------|----------|
|                                | 31.03.12   | 31.03.13 | 31.03.14 |
| Shareholders' Fund:            |            |          |          |
| Share Capital (shares of ₹ 10) | 2,000      | 2,000    | 3,000    |
| Securities Premium             | 1,500      | 1,500    | 500      |
| Reserves (after 10% dividend)  | 1,500      | 1,700    | 1,800    |
| Non-current Liabilities:       |            |          |          |
| Long Term Loan                 | 1,000      | 800      | 800      |
|                                | 6,000      | 6,000    | 6,100    |
| Represented by:                |            |          |          |
| Non-current Assets:            |            |          |          |
| Fixed Assets                   | 2,000      | 2,500    | 3,000    |
| Less: Depreciation             | (700)      | (950)    | (1,250)  |

|                          | 1,300 | 1,550   | 1,750   |
|--------------------------|-------|---------|---------|
| Capital Work-in-progress | 800   | 900     | 700     |
| Investments              | 200   | 200     | 200     |
|                          | 2,300 | 2,650   | 2,650   |
| Current Assets:          |       |         |         |
| Debtors                  | 1,700 | 1,800   | 1,850   |
| Stocks                   | 1,800 | 1,900   | 2,400   |
| Cash and Bank            | 500   | 500     | 500     |
| Others Current Assets    | 400   | 600     | 1,400   |
|                          | 4,400 | 4,800   | 6,150   |
| Current Liabilities      | (700) | (1,450) | (2,700) |
|                          | 3,700 | 3,350   | 3,450   |
| Sales                    | 3,900 | 4,000   | 5,000   |

Required: Calculate for the year 2012-13 and 2013-14:

(i) Fixed Assets Turnover Ratio, (ii) Stock Turnover Ratio, (iii) Debtors Turnover Ratio in terms of number of days' sales assuming 360 days in a year, (iv) Earnings per share. Briefly comment on the performance of the company.

Answer:

# **Calculation of Ratios**

|  |                                   | (₹ in lakh)                         |
|--|-----------------------------------|-------------------------------------|
|  | 2012-13                           | 2013-14                             |
| (i) Fixed Assets Turnover ratio<br>Sales<br>Average Fixed Assets   | ₹ 4,000<br>₹ 1,425 = 2.81         | ₹ 5,000<br>₹ 1,650 = 3.03           |
| (ii) Stock Turnover Ratio          Sales         Average Inventory   | ₹ 4,000<br>₹ 1,850 = 2.16         | ₹ 5,000<br>₹ 2,150 = 2.33           |
| <ul> <li>(iii) Debtors Turnover Ratio in terms of number of<br/>day's sales</li> <li>Average Receivable</li> </ul> |                                   |                                     |
| = Opening Debtors + closing Debtors<br>2   | ₹ 1,700+₹ 1,800<br>2<br>- ₹ 1,750 | ₹ 1,800 + ₹ 1,850<br>2<br>- ₹ 1,825 |
| Average Receivables<br>Credit Sales × No.ofdaysina year  | ₹ 1,750<br>₹ 4,000×360            | ₹ 1,850<br>₹ 5,000 × 360            |
|  | = 157.5                           | = 133.2                             |
| (iv) Earnings Per share<br>Increase in reserves during the year<br>Add: Dividends                                  | ₹ 200<br>₹ 200                    | ₹ 100<br>₹ 300                      |
| Total Earnings for the year (after tax)  | ₹ 400                             | ₹ 400                               |
| Earnings attributable to equity shareholders<br>Number of Equity Shares  | = ₹ 400 lakhs<br>200 lakhs = 2    | = ₹ 400 lakhs<br>300 lakhs = 1.33   |

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# Comments:

Fixed Assets turnover ratio is a measure of the efficiency or use of fixed assets—a high ratio indicates a high degree of efficiency in asset utilisation and a low ratio reflects inefficiency in the use of assets. In 2013-14, the ratio has increased from 2.81 to 3.03 showing better efficiency in the utilisation of fixed assets.

Similarly better turnover ratios in 2013-14 as compared to 2012-13, relating to current assets — inventory and receivables indicate improved management of current assets. However inventory holding period is very high; its comparison with the industry average may actually reveal the degree of efficiency in inventory management.

EPS has declined; perhaps one of the reasons is increase in number of shares on account of utilisation of securities premium account for issuing fully paid bonus shares. While the net profit ratio has declined, the dividend payout ratio on share capital has remained the same in 2013-14 as compared to 2012-13.

#### Note:

- (i) In the absence of information about the cost of sales, stock turnover ratio has been calculated on the basis of sales.
- (ii) For the purpose of calculating debtors' turnover ratio, the entire sales have been assumed to be made on credit.

#### (b) 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 equity dividends.
- (iii) Earnings per shares.
- (iv) Price-earnings ratio.

#### Answer:

(i) Dividend yield on the equity shares: = 
$$\frac{\text{Dividend per share}}{\text{Market price per share}} \times 100 = \frac{₹ 2 [0.20 \times ₹ 10]}{₹ 40} \times 100$$
$$= 5 \text{ per cent}$$

(ii) Cover for the equity dividends =

Profit after taxes - Preference share dividend

Dividend payable to equity shareholders at current rate of ₹ 2 per share

= ₹ 2,70,000 - ₹ 27,000 ₹ 1,60,000 [80,000 shares x ₹ 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 =  $\frac{\text{Market price per share}}{\text{Earnings per share}} = \frac{₹ 40}{₹ 3.04} = 13.2 \text{ times}$ 

# Question 5.

(a) 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:

| 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.

(b) Rowdy Company's equity shares are being traded in the market at ₹ 54 per share with a price-earnings ratio of 9. The Company's dividend payout is 75%. It has 1,00,000 equity shares of ₹ 10 each and no preference shares. Book value per share is ₹ 47.

Calculate: (i) Earnings per share, (ii) net income, (iii) Dividend yield, and (iv) return on equity.

#### Answer:

The calculation of ratios of Rowdy Company as follows:

(i) Earnings per Share: Price/ Earnings Ratio (given) = 9 P/E ratio =  $\frac{M \operatorname{arke} \operatorname{Price}}{\operatorname{FPS}}$ 

# SN – 3 [The Analysis of the Balance Sheet and Income Statement]

Question 6.

(a) The summarized results of operations of Big Ltd. are given below:

|                        | For the year ended 31 <sup>st</sup> March, |             |  |
|------------------------|--|-------------|--|
|                        | 2013 2014                                  |             |  |
|                        | (₹ in lakh)                                | (₹ in lakh) |  |
| Sales                  | 120  | 129.6       |  |
| Material Cost of sales | 80   | 91.1        |  |
| Variable overheads     | 20   | 24.0        |  |
| Fixed Expenses         | 14   | 18.5        |  |

During 2013-14, average prices increased over the previous year by:

- (i) 20% in the case of sales.
- (ii) 15% in the case of materials.
- (iii) 10% in overheads

Analyse the reasons for variations in profit.

#### Answer:

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|---------------------------------|--------------------|--------------------------------|------------------|
| Statement showing he            | r profit for the v | ear ended 31º March            |                  |
| oraronnonn snovning no          |                    |                                | 2010 4114 2011   |

|                          |      |         |      | (₹ in lakh) |
|--------------------------|------|---------|------|-------------|
|                          | 201  | 2012-13 |      | 3-14        |
|                          | ₹    | ₹       | ₹    | ₹           |
| Sales                    |      | 120.0   |      | 129.6       |
| Less: Material Cost      | 80.0 |         | 91.1 |             |
| Variable overheads       | 20.0 | 100.0   | 24.0 | 115.1       |
| Gross Profit             |      | 20.0    |      | 14.5        |
| Fixed Expenses           |      | 14.0    |      | 18.5        |
| Net Profit/(Net Loss)    |      | 6.0     |      | (4.0)       |
| 1461 116111/ (1461 2033) | _    | 0.0     |      | (+.(        |

Percentage of gross profit in 2012-13 =  $\frac{20}{120}$  x100 = 16 $\frac{2}{3}$ %

Statement showing Factor wise contribution to increase in Profit in 2013-14 over 2012-13

|       |  |                | (₹ in Lakh) |
|-------|--|----------------|-------------|
|       |  | (₹)            | (₹)         |
| (i)   | Increase in profit due to increase in selling price:<br>Actual Sales of 2013-14  | 129.6          |             |
|       | Less: Sales of 2013-14 at 2012-13 price $\left[\frac{100}{120} \times 129.6\right]$  | 108.0          | 21.6        |
| (ii)  | Decrease in profit due to decrease in volume:<br>Sales in 2013-14 at 2012-13 price<br>Less: Sales in 2012-13   | 108.0<br>120.0 | 2           |
|       | Decrease in sales due to volume decrease   | 12.0           |             |
|       | Percentage of volume decrease = $\left[\frac{12.0}{120} \times 100 = 10\%\right]$  |                |             |
|       | Loss of Gross profit at 16 $rac{2}{3}$ % on ₹ 12.0 lakh   |                | (2.0)       |
| (iii) | Decrease in profit due to increase in usage of material:<br>Cost of material in 2012-13<br>Less: Decrease in volume (10%)                                    | 80.00<br>8.00  |             |
|       | Permitted material cost of 2013-14 at 2012-13 price  | 72.00          |             |
|       | Actual material cost of 2013-14 at 2012-13 price $\left[\frac{100}{115}$ x91.1 \right]   | 79.22          | (7.22)      |
| (i∨)  | Decrease in profit due to increase in material price:  |                |             |
|       | Actual material cost of 2013-14 at 2012-13 price   | 79.22          |             |
|       | Less: Actual material cost of 2013-14  | 91.10          | (11.88)     |
| (~)   | Effect on profit due to variable overhead efficiency variance:<br>Variable overhead in 2012-13<br>Expected decrease due to volume decrease by 10% in 2013-14 | 20.00<br>2.00  |             |
|       | Permitted variable overhead in 2013-14 at 2012-13 price  | 18.00          |             |
|       | Actual variable overhead in 2013-14 at 2012-13 price $\left[\frac{100}{110} \times 24.00\right]$   | 21.82          | (3.82)      |
| (∨i)  | Effect on profit due to variable overhead price variance:<br>Actual variable overhead in 2013-14 at 2012-13 price<br>Actual variable overhead in 2013-14     | 21.82<br>24.00 | (2.18)      |
| (∨ii) | Effect on profit due to Fixed overhead volume variance:<br>Fixed overhead in 2012-13   | 14.00          |             |

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|        | Actual fixed overhead in 2013-14 at 2012-13 rate $\left[\frac{100}{110} \times 18.5\right]$ | 16.82 | (2.82)  |
|--------|---|-------|---------|
| (∨iii) | Effect on profit due to fixed overhead price variance:                                      |       |         |
|        | Fixed overhead in 2013-14 at 2012-13 price  | 16.82 |         |
|        | Actual fixed overhead in 2013-14  | 18.50 | (1.68)  |
|        | Decrease in Net Profit in 2013-14 over 2012-13 ₹ (-4.00 – 6.00)                             |       | (10.00) |

# (b) Calculate the trend percentage from the following figures of Tenta Ltd. and interpret them.

| Year    | Sales Revenue (₹ '000) | Inventory (₹ '000) | Earnings before Tax (₹ '000) |
|---------|------------------------|--------------------|------------------------------|
| 2009-10 | 1,995                  | 820                | 325                          |
| 2010-11 | 2,390                  | 910                | 422                          |
| 2011-12 | 2,805                  | 940                | 478                          |
| 2012-13 | 3,140                  | 1,055              | 549                          |
| 2013-14 | 3,650                  | 1,368              | 699                          |

### Answer:

The trend value of an accounting number of current years will be calculated as below:

| Tenta Ltd.           |
|----------------------|
| Trend Percentage     |
| (Base year: 2009-10) |

| Year    | Sales Reve   | enue  | Inventory                  |       | Inventory          |             | iue Inventory |  | Earnings before Tax |  |
|---------|--------------|-------|----------------------------|-------|--------------------|-------------|---------------|--|---------------------|--|
|         | Amount (₹ in | Trend | Amount (₹ in '000) Trend A |       | Amount (₹ in '000) | Trend Value |               |  |                     |  |
|         | '000)        | Value |                            | Value |                    |             |               |  |                     |  |
| 2009-10 | 1,995        | 100.0 | 820                        | 100.0 | 325                | 100.0       |               |  |                     |  |
| 2010-11 | 2,390        | 119.8 | 910                        | 111.0 | 422                | 129.8       |               |  |                     |  |
| 2011-12 | 2,805        | 140.6 | 940                        | 114.6 | 478                | 147.1       |               |  |                     |  |
| 2012-13 | 3,140        | 157.4 | 1,055                      | 128.7 | 549                | 168.9       |               |  |                     |  |
| 2013-14 | 3,650        | 183.0 | 1,368                      | 166.8 | 699                | 215.1       |               |  |                     |  |

# Interpretation:

- 1. The sales increased in all the years over the period of study. Particularly, in the last year of the period of the study, the increase in sales was quite satisfactory. While comparing to 100 in the base year 2009-10, the percentage jumped from 157.4 in 2012-13 to 183.0 in 2013-14.
- 2. It is being noted that over the first four years of the period of study inventory increased more or less consistently along with sales. But in the last year, inventory jumped to 166.8% from 128.7% of just previous year as compared to 100 in the base year 2009-10. Excessive inventory is not desirable from the profitability point of view. So further investigation is required to see whether the purchase of material was more than what was required in the last year of the period of study or whether slow moving items got accumulated.
- 3. Profit before tax has increased very satisfactorily over the period of study. It was more than doubled just in five years period. Particularly in the last year the comparative increase was very impressive as compared to others years.

The analysis of trend percentages of sales revenue, inventory and earnings before tax reveals that Tenta Ltd. expanded in all directions in just five years time. It should be further noted that the profit increased more than the sales revenue in all the years. It indicates that the company exercised proper control over cost of goods sold. So it can be concluded that the performance of the company was satisfactory.

#### Question 7.

(a) The following informations are available from the book of MP Ltd. as on 31<sup>st</sup> March 2014:

**Balance Sheet (Extracts)** 

| as at 31 <sup>st</sup> March, 2014 |          |                          |          |  |  |
|------------------------------------|----------|--------------------------|----------|--|--|
| Equities & Liabilities             | ₹        | Assets                   | ₹        |  |  |
| Shareholders' Fund:                |          | Non-current Assets:      |          |  |  |
| Equity Share Capital @ ₹ 10 each   | 1,00,000 | Land & Building (Net)    | 3,50,000 |  |  |
| Reserves & Surplus                 | 50,000   | Other Fixed Assets (Net) | 1,80,000 |  |  |
| Non-current Liabilities:           |          | Current Assets:          |          |  |  |
| 10% Debentures                     | 3,00,000 | Stock                    | 60,000   |  |  |
| 12% Long Term Loan                 | 1,00,000 | Debtors                  | 40,000   |  |  |
| Current Liabilities:               |          | Cash & Bank              | 20,000   |  |  |
| Creditors                          | 50,000   |                          |          |  |  |
| Bank overdraft                     | 50,000   |                          |          |  |  |
|                                    | 6,50,000 |                          | 6,50,000 |  |  |

Additional Information:

(i) Income Tax rate is 30%.
 (ii) Net Sales of MP Ltd. during 2013-2014 is ₹ 7,80,000.

(iii) EPS as on 31<sup>st</sup> March, 2014 is ₹ 0.975.

(iv) Price Earnings Ratio is 9.

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

# Answer:

The Z score of multivariate model as developed by Altman is —

 $Z = 1.2X_1 + 1.4X_2 + 3.3X_3 + 0.6X_4 + 1.0X_5$ 

Where, Z = Overall discriminant score

 $X_1 = \frac{\text{Working Capital}}{\text{Total Assets}}$ Working Capital = Current Assets - Current Liabilities = ₹ (60,000 + 40,000 + 20,000) - ₹ (50,000 + 50,000) = ₹ 20,000 Total Assets = Fixed Assets + Current Assets = ₹ 6,50,000  $\therefore X_1 = \frac{₹20,000}{₹6,50,000} = 0.03077, i.e., 3.077\%$ 

X<sub>2</sub> = 
$$\frac{\text{Retained Earnings}}{\text{Total Assets}} = \frac{₹50,000}{6,50,000} = 0.07692, i.e., 7.692\%$$

 $X_3 = \frac{\text{Earnings before Interest and Tax (EBIT)}}{\frac{1}{2}}$ 

Total Assets Computation of EBIT:

|   | ₹      |
|---|--------|
| Total earnings available to Equity Shareholders                 | 9,750  |
| [EPS x No. of Equity Shares, i.e., ₹ 0.975 x 10,000]            |        |
| Tax added back: @ 30% i.e. $\frac{0.30}{2000} \times 9.750$     | 4.170  |
| (1-0.30)  | 4,179  |
| Earnings Before Tax (EBT)                                       | 13,727 |
| Interest added back:  |        |
| Debenture Interest = ₹ 3,00,000 x $\frac{10}{(100)}$ = ₹ 30,000 |        |
| 12 = 12000  |        |
| $\frac{1000}{(100)} = \frac{12,000}{(100)}$                     | 42,000 |
| EBIT  | 55,929 |

∴ 
$$X_3 = \frac{₹55,929}{₹6,50,000} = 0.0860$$
, i.e., 8.60%

 $X_{4} = \frac{\text{Market Value of Equity}}{\text{Book Value of Total Debt}}$ Market value of each equity share = Price Earnings Ratio x EPS = 9 x 0.975 = ₹ 8.775 So, total market value of equity = ₹ 8.775 x 10,000 = ₹ 87,750  $X_{4} = \frac{\text{₹87,750}}{\text{₹(3,00,000 + 1,00,000 + 50,000)}} = 0.1755, i.e. 17.55\%$ 

X<sub>5</sub> = <u>Sales</u> = <del>₹7,80,000</del> = 1.2 times

Putting the values of all variables as above in the discriminant function, we get —  $Z = (1.2 \times 0.03077) + (1.4 \times 0.07692) + (3.3 \times 0.0860) + (0.6 \times 0.1755) + (1 \times 1.2)$ Or, Z = 0.0369 + 0.1077 + 0.2838 + 0.1053 + 1.2000Or Z = 1.7337

According to Altman, if a firm's Z score is less than 1.81, it would be a bankrupt firm. So, MP Ltd. may be considered as bankrupt as its Z score is 1.7337.

(b) A ₹ 1,000 par value bond bears a coupon rate of 14 percent and matures after 5 years. Interest is payable semi-annually. Compute the value of the bond if the required rate of return is 16 percent. Given PVIFA8%, 10 years = 6.710 and PVIF8%, 10 years = 0.463.

### Answer:

In this case the number of half yearly period is 10, the half-yearly interest payment is ₹ 7, and the discount rate applicable to a half-yearly period is 8 percent. Hence the value of the bond is:

$$V = \sum_{t=1}^{10} \frac{7}{(1.08)^{t}} + \frac{1000}{(1.08)^{10}}$$
  
= 7 (PVIFA<sub>8%, 10 years</sub>) + 1,000 (PVIF<sub>8%, 10 years</sub>)  
= 7 (6.710) + 1,000 (0.463)  
= 46.97 + 463  
= ₹ 509.97

#### Question 8.

The following are the Balance Sheet of Maharaj Ltd. as on 31.03.13 and 31.03.14:-

|                                       | 31.03.13<br>(₹) | 31.03.14<br>(₹) |
|---------------------------------------|-----------------|-----------------|
| Current Assets:                       |                 |                 |
| Cash and Bank Balance                 | 23,600          | 2,000           |
| Debtors                               | 41,800          | 38,000          |
| Inventory                             | 32,000          | 26,000          |
| Other Current Assets                  | 6,400           | 2,600           |
| (A)                                   | 1,03,800        | 68,600          |
| Non-current Assets:                   |                 |                 |
| Fixed Assets:                         |                 |                 |
| Land and Building                     | 54,000          | 34,000          |
| Plant and Machinery                   | 62,000          | 1,57,200        |
| Furniture                             | 5,800           | 9,600           |
| (B)                                   | 1,21,800        | 2,00,800        |
| Non-current investment (C)            | 9,200           | 11,800          |
| Total assets (A + B + C)              | 2,34,800        | 2,81,200        |
| Current Liabilities (D)               | 52,400          | 25,400          |
| Non-current Liabilities:              |                 |                 |
| Long-term debt (E)                    | 40,000          | 65,000          |
| Shareholders' Fund :                  |                 |                 |
| Equity share capital                  | 80,000          | 1,20,000        |
| Reserve and surplus                   | 62,400          | 70,800          |
| (F)                                   | 1,42,400        | 1,90,800        |
| Total equities & liabilities (D+E+ F) | 2,34,800        | 2,81,200        |

#### Prepare Comparative Balance Sheet and study its financial position.

#### Answer:

| -                                      | 21 02 10        | 21 02 12                     | Amountof    | Percentage   |
|--|-----------------|------------------------------|-------------|--------------|
|  | 31.03.1Z<br>(7) | 31.03.13<br>( <del>7</del> ) | Amouni or   | incrogeo (+) |
|  |                 |                              | or decrease | or decrease  |
|  |                 |                              | (-)         | (-)          |
|  |                 |                              | (₹)         | ()           |
| Current Assets :                       |                 |                              |             |              |
| Cash and Bank Balance                  | 23,600          | 2,000                        | (-) 21,600  | (-) 91.5     |
| Debtors                                | 41,800          | 38,000                       | (-) 3,800   | (-) 9.1      |
| Inventory                              | 32,000          | 26,000                       | (-) 6,000   | (–) 18.8     |
| Other Current Assets                   | 6,400           | 2,600                        | (–) 3,800   | (-) 59.4     |
| (/                                     | A) 1,03,800     | 68,600                       | (-) 35,200  | (–) 33.9     |
| Non-current Assets:                    |                 |                              |             |              |
| Fixed Assets :                         |                 |                              |             |              |
| Land and Building                      | 54,000          | 34,000                       | (-) 20,000  | (–) 37       |
| Plant and Machinery                    | 62,000          | 1,57,200                     | (+) 95,200  | (+) 153.5    |
| Furniture                              | 5,800           | 9,600                        | (+) 3,800   | (+) 65.5     |
| (B                                     | ) 1,21,800      | 2,00,800                     | (+) 79,000  | 64.9         |
| Non-current investment (0              | C) 9,200        | 11,800                       | (+) 2,600   | (+) 28.3     |
| Total assets (A + B +                  | C) 2,34,800     | 2,81,200                     | (+) 46,400  | (+) 19.8     |
|  |                 |                              |             |              |
| Current Liabilities (D                 | ) 52,400        | 25,400                       | (–) 27,000  | (–) 51.5     |
| Non-current Assets:                    |                 |                              |             |              |
| Long-term debt (E                      | 40,000          | 65,000                       | (+) 25,000  | (+) 62.5     |
| Shareholders' Fund:                    |                 |                              |             |              |
| Equity share capital                   | 80,000          | 1,20,000                     | (+) 40,000  | (+) 50.0     |
| Reserve and surplus                    | 62,400          | 70,800                       | (+) 8,400   | (+) 13.5     |
| (F                                     | ) 1,42,400      | 1,90,800                     | (+) 48,400  | (+) 34       |
| Total liabilities and capital (D + E + | F) 2,34,800     | 2,81,200                     | (+) 46,400  | (+) 19.8     |

#### Comparative Balance Sheet of Maharaj Ltd. as on 31.03.2012 and 31.03.2013

Comparative balance sheet shows the balance of different assets and liabilities of two different periods of same company and shows absolute increase / decrease of each item in 31.03.2014 over 31.03.2013 and also shows the percentage change. Interpretations of these changes are as follows:-

- (i) The current assets of Maharaj Ltd. have decreased by ₹35,200 in the year 2013-14 over 2012-13, whereas current liabilities have decrease by ₹27,000 only. But it has no adverse effect on short term liquidity or on current ratio because current assets have decreased by 33.9% and current liabilities have decreased by 51.5%.
- (ii) Cash at Bank have decreased by 91.5%. It implies an adverse cash position of the company. The company may face problem in meeting its short-term obligations.
- (iii) The long-term debt of the company has increased by 62.5%, whereas its owners' equity has improved by 34% only. It implies that the financial risk (in terms of dependency on outsiders and in terms of contractual obligation) associated with the company has increased significantly during the period under study.
- (iv) There has been a substantial increase in the fixed assets by the company. The fixed assets have increased by ₹ 79,000 (64.9%). This is mainly due to significant increase in the plant and machinery of the company. The plant and machinery have increased by ₹ 95,200 (153.5%). It indicates a remarkable improvement in the production

capacity of the company during the study period. Such cost of assets have financed by proprietors fund and long term loan raised. It indicates the long term stability of the business.

# Question 9.

(a) The following are the Profit and Loss Accounts (Extracts) of X Ltd. and Y Ltd., who are engaged in the same line of business:

| (₹ | lakhs) |
|----|--------|

|         |  |   | ( lukiis)   |
|---------|--|---|---|
| Partic  | ulars  | X Ltd. for the<br>year ended<br>31st March,<br>2014 | Y Ltd. for the<br>year ended<br>31st<br>December,<br>2013 |
| Sales   |  | 32.00   | 28.00   |
| Add:    | Excess of closing stocks over opening stocks | 5.00  | 4.00  |
|         |  | 37.00   | 32.00   |
| Less:   | Raw materials consumed                       | 8.30  | 7.80  |
|         | Wages  | 4.15  | 3.90  |
|         | Direct manufacturing expenses                | 0.90  | 0.60  |
|         | Indirect manufacturing expenses              | 0.30  | 0.18  |
|         | Administrative expenses                      | 1.00  | 0.90  |
|         | Selling and distribution expenses            | 0.90  | 0.90  |
|         | Depreciation                                 | 2.50  | 2.00  |
|         | Interest                                     | 2.00  | 0.92  |
|         |  | 20.05   | 17.20   |
| Profits | before tax                                   | 16.95   | 14.80   |

Other information:

- (i) There was an increase of 10% in the price of products with effect from 1st January, 2014.
- (ii) Cost of raw materials was increased by 15% from 1st January, 2014.
- (iii) X Ltd. follows FIFO method of valuation of its finished goods, whilst Y Ltd. follows Simple Average method. If X were to accept Simple Average method, its closing inventory valuation will come down by ₹ 20,000.
- (iv) Y Ltd. follows straight line method of depreciation whilst X Ltd. follows the WDV method. The difference in depreciation between the two methods in the case of X Ltd. will be ₹ 50,000 excess provision in its books.

(v) Production and sales of the two companies are evenly spread throughout the year.

Prepare a common size statement and interpret the results with appropriate reasons and working notes.

#### Answer:

Working Notes:

(1) Smoothening of increase in Sales due to 10% increase in price of products from 1st January 2014.

Let monthly sales of X Ltd. be 'x'

| 9 months sales of X Ltd.   | = | 9x                           |
|----------------------------|---|------------------------------|
| Next 3 months sales X Ltd. | = | $3 \times \frac{110}{100} x$ |
| 12 months sales            | = | $9x + \frac{33x}{10}$        |
| $9x + \frac{33x}{10}$      | = | ₹ 32,00,000                  |
| $\frac{99x + 33x}{10}$     | = | ₹ 32,00,000                  |
| 123x                       | = | ₹32,00,000 × 10              |
| Х                          | = | ₹3,20,00,000/123             |
| Х                          | = | ₹2,60,163                    |
|                            |   |                              |

| Sales before the effect of 10% price increased                             | (₹)            |
|--|----------------|
| Total sales  | 32,00,000      |
| Less: Sales prior to effect of 10% price increase (12 months × ₹ 2,60,163) | 31,21,956      |
|  | 78,044         |
|  | say₹0.78 lakhs |

(2) Smoothening of increases in Raw material cost due to 15% increase in cost from 1st January, 2014.

Let monthly Raw material cost of X Ltd. be 'y'

9 months cost of raw material = 9y  
3 months cost of raw material = 
$$3 \times \frac{115}{110} y$$
  
 $9y + 3 \times \frac{11.5y}{10}$   
 $9y + \frac{34.5y}{10} = ₹ 8,30,000$   
 $\frac{90y + 34.5y}{10} = ₹ 8,30,000$ 

124.5y = ₹8,30,000 × 10 Y = ₹83,00,000/124.5 Y = ₹66,667

| Raw Material Cost Before the effect of 15% incre    | ase            |           |           | (₹)           |
|---|----------------|-----------|-----------|---------------|
| Total raw material cost                             |                |           | 8,        | 30,000        |
| Less: Raw material cost prior to effect of 10% incr | ease (12 month | ns ×₹66,6 | 67) 8,    | 00,000        |
|   |                |           |           | <u>30,000</u> |
|   |                |           | say₹0.30  | ) lakhs       |
| Revised Figures of X Ltd.                           |                |           | (₹ lakhs) |               |
| (i) Sales   | = 32-0.78      | =         | 31.22     |               |
| (ii) Excess of closing stock over opening stock     | = 5 - 0.20     | (Simple   | Average   | adjustment)   |
|   | = 4.80         |           |           |               |
| (iii) Raw material consumption                      | = 8.30 - 0.30  | =         | 8         |               |
| (iv) Depreciation                                   | = 2.50 - 0.50  | (SLM adju | stment) = | 2             |

### Common Size Income Statement as on 31.12.2013

|                  |     | X Ltd.  |        | Y Ltd.  |        | Variance %     |
|------------------|-----|---------|--------|---------|--------|----------------|
|                  |     | ₹ lakhs | %      | ₹ lakhs | %      | (Y Ltd X Ltd.) |
|                  |     |         |        |         |        |                |
| Sales            |     | 31.22   | 86.67  | 28.00   | 87.50  |                |
| Stock adjustment |     | 4.80    | 13.33  | 4.00    | 12.50  |                |
|                  | (i) | 36.02   | 100.00 | 32.00   | 100.00 |                |

| Costs:                            |       |       |       |       |        |
|-----------------------------------|-------|-------|-------|-------|--------|
| Raw material consumption          | 8.00  | 22.21 | 7.80  | 24.38 | + 2.17 |
| Wages                             | 4.15  | 11.52 | 3.90  | 12.19 | + 0.67 |
| Direct manufacturing expenses     | 0.90  | 2.50  | 0.60  | 1.88  | -0.62  |
| Indirect manufacturing expenses   | 0.30  | 0.83  | 0.18  | 0.56  | -0.27  |
| Administration expenses           | 1.00  | 2.78  | 0.90  | 2.81  | + 0.03 |
| Selling and distribution expenses | 0.90  | 2.50  | 0.90  | 2.81  | + 0.31 |
| Depreciation                      | 2.00  | 5.55  | 2.00  | 6.25  | + 0.70 |
| Interest                          | 2.00  | 5.55  | 0.92  | 2.88  | -2.67  |
| (ii)                              | 19.25 | 53.44 | 17.20 | 53.75 | + 0.31 |
| Profit before tax (i) - (ii)      | 16.77 | 46.56 | 14.80 | 46.25 | -0.31  |

Comments:

- (1) X Ltd. shows favourable result over Y Ltd. in respect of raw material consumption. This may be due to liberal credit terms, discounts, favourable material usage variance etc.
- (2) X Ltd. shows savings over Y Ltd. in Wages, Administrative expenses and Selling and distribution expenses.

- (3) It appears that X Ltd. expended more on direct and indirect manufacturing expenses, as compared to Y Ltd.
- (4) Higher depreciation charge in respect of Y Ltd. may be due to higher investment in fixed assets by Y Ltd. X Ltd. is in advantageous position than Y Ltd. as regards investment in Fixed Assets.
- (5) Interest charges of X Ltd. are much higher over Y Ltd. X Ltd. appears to be highly geared and is subject to leverage risk.

### (b) Describe Off-Balance-Sheet Financing.

#### Answer:

#### **Off-Balance-Sheet Financing:**

A form of financing in which large capital expenditure are kept off of a company's balance sheet through various classification methods. Companies will often use off-balance-sheet financing to keep their debt to equity (D/E) and leverage ratio low, especially if the inclusion of a large expenditure would break negative debt covenants.

Contrast to loans, debt and equity, which do appear on the balance sheet. Examples of Offbalance – sheet financing includes joint ventures, research and development partnerships, and operating leases (rather than purchases of capital equipment).

Operating lease are one of the most common forms of off-balance-sheet financing. In these cases, the asset itself is kept on the lessor's balance sheet and the lessee reports only the required rental expenses for use of the asset.

This term came into popular use during the Enron bankruptcy. Many of the energy traders' problems stemmed from setting up inappropriate off-balance-sheet entities.

#### SN – 4 [The Analysis of the Cash Flow Statement]

#### Question 10.

The Balance Sheet (Extracts) of A Ltd. as on 31st March, 2014 is as follows:

| Equities & Liabilities   | ₹ ('000) | Assets                                      | ₹ ('000) |
|--------------------------|----------|---|----------|
| Shareholders' Fund:      |          | Non-current Assets:                         |          |
| Equity Share Capital     | 6,000    | Fixed Assets (at cost) 16,250               |          |
| 8% Preference Share      |          | Less: Depreciation written off <u>5,200</u> | 11,050   |
| Capital                  | 3,250    | Current Assets:                             |          |
| Reserve & Surplus        | 1,400    | Stock                                       | 1,950    |
| Non-current Liabilities: |          | Sundry Debtors                              | 2,600    |
| 10% Debentures           | 1,950    | Cash  | 250      |
| Current Liabilities:     |          |   |          |
| Sundry Creditors         | 3,250    |   |          |
| Total                    | 15,850   | Total                                       | 15,850   |

The following additional information is available:

- (i) The Stock Turnover Ratio based on cost of goods sold would be 6 times.
- (ii) The Cost of Fixed Assets to sales ratio would be 1.4.
- (iii) Fixed Assets costing ₹ 30,00,000 to be installed on 1st April, 2014, payment would be made on March 31, 2015.
- (iv) In March, 2015, a dividend of 7% on equity capital would be paid.
- (v) ₹ 5,50,000, 11% Debentures would be issued on 1st April, 2014.
- (vi) ₹ 30,00,000, Equity shares would be issued on 31st march, 2015.
- (vii) Creditors would be 25% of materials consumed.
- (viii) Debtors would be 10% of sales.
- (ix) The cost of goods sold would be 90% of sales include material 40% and depreciation 5% of sales.
- (x) The profit is subject to debenture interest and taxation @ 30%.

**Required**:

- (i) Prepare the projected Balance Sheet as on 31st March, 2015.
- (ii) Prepare projected Cash Flow Statement in accordance with AS-3.

### Answer:

(1) Working Notes:

|   | ₹ ('000) |
|---|----------|
| (1) Cost of Fixed Assets b/d on 1.4.14            | 16,250   |
| (+) Cost of Fixed Assets installed on 1.4.14      | 3,000    |
| Cost of Fixed Assets used during the year 2014-15 | 19,250   |

# Cost of Fixed Assets Sales

(2) Cost of Fixed Assets to Sales = 1.4 =

19,250

1.4 = Sales (₹ '000) Sales = 13,750 (₹ '000)

(3) Debtors = 10% x 13,750 = 1,375 (₹ '000)

(4) Cost of Goods Sold = 90% x 13,750 = 12,375 (₹ '000)

1,950 + Closing Stock

2,062.5 = 2 (₹ '000) Closing Stock = 4,125 - 1,950 = 2,175 (₹ '000)

(6)

|  | (₹ '000) |
|--|----------|
| Interest on 10% Debentures = 1,950 x 10% = | 195      |
| Interest on 11% Debentures = 550 x 11% =   | 60.5     |
| Total Interest                             | 255.5    |

(7) Raw Material Consumed = 13,750 x 40% = 5,500 (₹ '000) Depreciation = 5% x 13,750 = 687.5 (₹ '000)

(8) Creditors = 25% × 5,500 = 1,375 (₹ '000)

(9)

| GP                            | (10% x 13,750) | 1,375    |
|-------------------------------|----------------|----------|
| Less: Interest                |                | (255.5)  |
| EBT                           |                | 1,119.50 |
| Less: Income Tax (30%)        |                | (335.85) |
| EAT                           |                | 783.65   |
| Less: Preference dividends (  | 8% x 3,250)    | (260)    |
| Earnings Available for Equity | Shareholders   | 523.65   |
| Less: Equity Dividends        |                | (420.00) |
| Retained Earnings             |                | 103.65   |

Note: It is being assumed that tax has been paid.

(i)

Projected Balance Sheet (31st March 2015) (₹ '000)

| Equities & Liabilities      | (₹ '000)  | Assets                         | (₹ '000)  |
|-----------------------------|-----------|--------------------------------|-----------|
| Shareholders' Fund:         |           | Non-current Assets:            |           |
| Equity Share Capital        | 9,000     | Fixed Assess (at cost)         | 19,250    |
| 8% Preference Share Capital | 3,250     | Less: Depreciation Written off | (5,887.5) |
| Reserves & Surplus          | 1,503.65  | Fixed Assets (Net)             | 13,362.5  |
| Non-current Liabilities:    |           | Current Assets:                |           |
| 10% Debentures              | 1,950     | Stock                          | 2,175     |
| 11% Debentures              | 550       | Sundry Debtors                 | 1,375     |
| Current Liabilities:        |           | Cash                           | 716.15    |
| Sundry Creditors            | 1,375     |                                |           |
|                             | 17,628,65 |                                | 17,628.65 |

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Cash Flow Statement

|   |          | (₹ '000) |
|---|----------|----------|
| (A) Cash Flows from Operating Activities: |          |          |
| Net Profit Before Tax                     | 1,119.50 |          |
| Add: Interest                             | 255.50   |          |
| Add: Depreciation                         | 687.50   |          |

| Operating Profits before Working Capital changes | 2,062.50 |         |
|--|----------|---------|
| Less: Reduction in Sundry Creditors              | (1,875)  |         |
| Less: Increase in Stock                          | (225)    |         |
| Add: Reduction in Sundry Debtors                 | 1225     |         |
| Cash Flows from Operating Activity before Tax    | 1187.50  |         |
| Less: Tax Paid                                   | (335.85) | 851.65  |
| (B) Cash Flows from Investing Activities:        |          |         |
| Less: Purchase of Fixed Assets                   | (3,000)  | (3,000) |
| (C) Cash Flows from Financing Activities         |          |         |
| Issue of Equity Share Capital                    | 3,000    |         |
| Add: Issue of 11% Debentures                     | 550      |         |
| Less: Interest Paid                              | (255.5)  |         |
| Less: Dividends Paid                             | (680)    | 2614.5  |
| Net Increase in Cash & Cash Equipments           |          | 466.15  |
| Add: Opening Cash & Cash Equipments              |          | 250     |
| Closing Cash & Cash Equipments                   |          | 716.15  |

# Question 11.

Pawan Ltd.

# The summarized Balance Sheets of the company as on 31st March 2013 and 2014 were:

| Equities & Liabilities | 2013<br>₹ | 2014<br>₹ | Assets                          | 2013<br>₹ | 2014<br>₹                                    |
|------------------------|-----------|-----------|---------------------------------|-----------|--|
| Shareholders' Fund:    | •         | •         | Non-current Assets              |           |  |
| Issued Share           |           |           | Freehold Property at            |           |  |
| Capital                | 1.00.000  | 1.50.000  | cost                            | 1,10,000  | 1.30.000                                     |
| Securities Premium     | 15 000    | 35 000    | Plant & Machinery at            | 1,10,000  | 1,00,000                                     |
| Profit & Loss A/c      | 28,000    | 70,000    | cost                            | 1 20 000  | 1 51 000                                     |
| Non-current            | 20,000    | , 0,000   | less <sup>.</sup> Provision for | 1,20,000  | 1,01,000                                     |
| Lighilities            |           |           | Depreciation                    | 45 000    | 54 000                                       |
| Debentures             | 70 000    | 30 000    | Depresianon                     | 75 000    | <u>97 000</u>                                |
| Current Ligbilities    | 70,000    | 00,000    | Furniture & Fixture at          | 70,000    | <i>,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</i> |
| Bank Overdraft         | 14 000    |           | cost                            | 24 000    | 29 000                                       |
| Creditors              | 34 000    | 48 000    | Less: Provision for             | 24,000    | 27,000                                       |
| Broposed               | 54,000    | 40,000    | Depreciation                    | 13 000    | 15 000                                       |
| Dividends              | 15 000    | 20 000    | Depreciation                    | 11,000    | 14 000                                       |
| Dividends              | 15,000    | 20,000    | Current Assets:                 | 11,000    | 14,000                                       |
|                        |           |           | Stocks                          | 43 000    | 44 000                                       |
|                        |           |           | Debtere                         | 43,000    | 44,000                                       |
|                        |           |           | Deptors                         | 37,000    | 51,000                                       |
|                        |           |           | Bank                            |           | 16,000                                       |
|                        |           |           | Premium on                      |           |  |
|                        |           |           | Redemption of                   |           |  |
|                        |           |           | debentures                      |           | 1,000  |
|                        | 2,76,000  | 3,53,000  |                                 | 2,76,000  | 3,53,000                                     |

The following additional information is relevant:

- (i) There had been no disposal of freehold property in the year.
- (ii) The Machine tool which has cost ₹ 8,000 and in respect of which ₹ 6,000 depreciation

has been provided, was sold for ₹ 3,000, and fixtures, which had cost ₹ 5,000 in respect of which depreciation of ₹ 2,000 has been provided, were sold for ₹ 1,000. The Profit and losses on these transactions had been dealt with through the Profit and Loss Account.

- (iii) The actual premium of the redemption of debentures was ₹ 2,000 of which ₹ 1,000 had been written-off to the Profit and Loss A/c.
- (iv) No interim dividend has been paid.
- (v) Interest paid on debentures amounted to ₹ 4,500.

After reading the above financial statements and informations, answer the following questions:

- I. Calculate the cash flows from the operating activities. Necessary workings should be part of the answer.
- II. Find out those ratios which are essential to analyse the financial position of the company, based on cash flows. Provided —

Net cash flows from Investing Activities: (-)₹65,000

Net cash flows from Financing Activities: ₹ 8,500

Interpret and comment on the financial position of the company, based on the data obtained from above point (I).

#### Answer:

#### I. Calculation of Cash Flows from Operating Activities

For the year ended 31<sup>st</sup> March 2014

|  | ₹      | ₹      | ₹ |
|--|--------|--------|---|
| Net Profit during the year:  |        |        |   |
| Net Profit for the year 2013-14  | 70,000 |        |   |
| Less: Net Profit for the year 2012-13                                  | 28,000 |        |   |
|  |        | 42,000 |   |
| Add: Non-Operating Expenses  |        |        |   |
| Depreciation (₹ 15,000 + ₹ 4,000)                                      | 19,000 |        |   |
| Loss on Sale of Fixtures   | 2,000  |        |   |
| Discount on Debenture  | 1,000  |        |   |
| Proposed Dividend  | 20,000 |        |   |
| Debenture Interest   | 4,500  |        |   |
|  |        | 46,500 |   |
|  |        | 88,500 |   |
| Less: Non-Operating Income   |        |        |   |
| Profit on Sale of Plant  |        | 1,000  |   |
|  |        | 87,500 |   |
| Add: Decrease in Current Assets or Increase in<br>Current Liabilities: |        |        |   |
| Decrease in Current Assets   |        | Nil    |   |
| Increase in Current Liabilities:                                       |        |        |   |
| Increase in Creditors  | 14,000 |        |   |
|  |        | 14,000 |   |

|   |        | 1,01,500 |        |
|---|--------|----------|--------|
| Less: Increase in Current Assets or Decrease in |        |          |        |
| Current Liabilities:                            |        |          |        |
| Increase in Current Assets:                     |        |          |        |
| Increase in Stock                               | 1,000  |          |        |
| Increase in Debtors                             | 14,000 |          |        |
|   |        | 15,000   |        |
|   |        |          |        |
| Net Cash Flows from Operating Activities        |        |          | 86,500 |

Workings:

#### Plant & Machinery A/c

| Dr.                               |          |                               | Cr.      |
|-----------------------------------|----------|-------------------------------|----------|
|                                   | ₹        |                               | ₹        |
| To Balance b/d                    | 1,20,000 | By Bank Account – Sale        | 3,000    |
| `` Profit & Loss Account – Profit |          | `` Provision for Depreciation | 6,000    |
| on Sale                           | 1,000    | `` Balance c/d                | 1,51,000 |
| `` Bank A/c – Purchase            | 39,000   |                               |          |
|                                   | 1,60,000 |                               | 1,60,000 |

# Fixtures & Fittings A/c

| Dr.                        |        |                               | Cr.    |
|----------------------------|--------|-------------------------------|--------|
|                            | ₹      |                               | ₹      |
| To Balance b/d             | 24,000 | By Bank Account – Sale        | 1,000  |
| `` Bank Account – Purchase | 10,000 | `` Profit & Loss Account –    |        |
|                            |        | Loss on Sale                  | 2,000  |
|                            |        | `` Provision for Depreciation | 2,000  |
|                            |        | `` Balance c/d                | 29,000 |
|                            | 34,000 |                               | 34,000 |

#### Provision for Depreciation on Plant & Machinery A/c

| Dr.                          |        |                          | Cr.    |
|------------------------------|--------|--------------------------|--------|
|                              | ₹      |                          | ₹      |
| To Plant & Machinery Account | 6,000  | By Balance b/d           | 45,000 |
| `` Balance c/d               | 54,000 | `` Profit & Loss Account | 15,000 |
|                              | 60,000 |                          | 60,000 |

#### Provision for Depreciation on Fixtures & Fittings A/c

| Dr.                    |        |                          | Cr.    |
|------------------------|--------|--------------------------|--------|
|                        | ₹      |                          | ₹      |
| To Furniture & Fixture | 2,000  | By Balance b/d           | 13,000 |
| `` Balance c/d         | 15,000 | `` Profit & Loss Account | 4,000  |
|                        | 17,000 |                          | 17,000 |

# II. Ratios required to analyse financial position:

=

(i) Ratio of Dividend to Operating Cash Flow (OCF)

| (ii)   | Depreciation to Cash Flow<br>= ₹19,000<br>₹86,500 x 100 = 21.97%   |
|--------|--|
| (iii)  | Debts Coverage Ratio<br>= $\frac{\text{OCF-Interest-Dividend}}{\text{Debts}} = \frac{\text{₹86,500-₹4,500-₹15,000}}{\text{₹30,000}} = \frac{\text{₹67,000}}{\text{₹30,000}} = 2.23 \text{ times}$                                      |
| (i∨)   | Interest Coverage Ratio<br>= $\frac{\text{Operating Cash Flow (OCF)}}{\text{Interest}} = \frac{\text{₹86,500}}{\text{₹4,500}} = 19.22 \text{ times}$   |
| (∨)    | Return of Cash to Total Assets<br>= $\frac{\text{Operating Cash Flow}}{\text{Total Assets}} \times 100 = \frac{₹86,500}{₹4,21,000} \times 100 = 20.55\%$   |
| (vi)   | Dependence of Capital Investment on Internal Fund<br>= $\frac{\text{Operating Cash Flow - Increase in Cash Balance}}{\text{Investing Cash Flow}} = \frac{₹86,500 - ₹30,000}{₹65,000} \times 100 = 86.92\%$                             |
| (vii)  | Return of Cash on Net Worth<br>= $\frac{\text{Operating Cash Flow - Interest}}{\text{Net Worth}} \times 100 = \frac{₹86,500 - ₹4,500}{(₹1,50,000 + ₹35,000 + ₹70,000 - ₹1,000)}$<br>= $\frac{₹82,000}{₹2,54,000} \times 100 = 32.28\%$ |
| (∨iii) | Dependence of Extra Funds for Capital Expenditure Ratio<br>= $\frac{\text{Financing Cash Flow}}{\text{Investing Cash Flow}} \times 100 = \frac{\text{₹8,500}}{\text{₹65,000}} \times 100 = 13.08\%$                                    |

# III. Comments and Interpretation:

Rate of Dividend to Operating Cash Flow is found to be 17.34% which indicates that percentage of cash generated through operational activities which may be considered as good. But if it is found to be 'good', more cash will be required for paying dividend.

Similarly, Rate of Depreciation of Operating Cash Flow ratio is computed as only 21.96% which reveals percentage of cash used to replace fixed assets. It may be considered as normal. But Debt Coverage Ratio is found to be 2.23 times which is very poor and the same is used to redeem the existing debts by the amount of net cash generated from operation.

Interest Coverage Ratio, on the other hand, is found to be 19.22 times. It means ability of the firm to repay interest and also indicates the proportion of interest of 'cash generated from operation'. This ratio is high which invites obstruction to take the benefit of trading on equity. Return of cash to total assets ratio is found to be satisfactory, i.e., percentage of OCF to total assets is 20.55% which is considered as good. Similarly, dependence of capital investments on internal funds ratio is taken as 86.93% which reveals that percentage of OCF to Investing Cash Flow is 86.93% i.e., 86.93%, of capital expenditure has been founded out of cash to be generated from internal funds.

Return of Cash to Net worth ratio is found to be 32.28% which may be considered as good, and it indicates that shareholder's fund is efficiently used. Dependence of External Funds to Capital Expenditure Ratio is found to be 13.08% which reveals that external funds are used only a little portion and the rest is used as Working Capital.

From the discussion made so far, it may be concluded that the overall position to be measured in terms of Cash Flow Statement may be considered as sound. But whether such ratios are satisfactory or not can be measured by making proper comparison with the industry average ratio.

# SN – 5 [The Analysis of Profitability]

# Question 12.

(a) The following data relate of Anik Ltd.:

| Sales                                   | ₹ 2,00,000 |
|---|------------|
| Less: Variable expenses (30%)           | ₹ 60,000   |
| Contribution                            | ₹ 1,40,000 |
| Fixed operating expenses                | ₹1,00,000  |
| EBIT (Earnings before Interest & Taxes) | ₹ 40,000   |
| Less: Interest                          | ₹ 5,000    |
| Taxable income                          | ₹ 35,000   |

- 1. Using the concept of leverage, by what percentage will taxable income increase if sales increase by 6 per cent?
- 2. Using the concept of operating leverage by what percentage will EBIT increase if there is a 20 per cent increase in sales?
- 3. Using the concept of financial leverage, by what percentage will taxable income increase if EBIT increases by 6 per cent?

# Answer:

(1) Degree of composite leverage on sales level of ₹ 2,00,000:

 $\frac{\text{Contribution}}{\text{Taxable income}} = \frac{1,40,000}{35,000} = 4$ 

If sales increase by 6 per cent, taxable income will increase by  $4 \times 6 = 24$  per cent:

$$\frac{8,400\times100}{35,000} = 24\%$$

Workings:

| Sales                         | ₹ 2,12,000 |
|-------------------------------|------------|
| Less: Variable expenses (30%) | ₹ 63,600   |
| Contribution                  | ₹1,48,400  |
| Less: Fixed expenses          | ₹1,00,000  |
| EBIT                          | ₹ 48,400   |
| Less: Interest                | ₹ 5,000    |
| Taxable income                | ₹ 43,400   |

Increase in taxable Income ₹8,400 i.e. 24% over ₹35,000.

(2) Degree of operating leverage on sales level of ₹2,00,000:

 $\frac{\text{Contribution}}{\text{EBIT}} = \frac{1,40,000}{40,000} = 3.5$ 

If sales increase by 20 per cent, EBIT will increase  $3.5 \times 20 = 70$  per cent: Working:

| Sales                   | ₹ 2,40,000 |
|-------------------------|------------|
| Less: Variable expenses | ₹ 72,000   |
| Contribution            | ₹1,68,000  |
| Less: Fixed expenses    | ₹1,00,000  |
| EBIT                    | ₹ 68,000   |

Increase is ₹ 68,000 - ₹ 40,000 or  $\frac{28,000 \times 100}{40,000} = 70\%$ 

(3) Degree of financial leverage on sales level of ₹2,00,000:

$$\frac{\text{EBIT}}{\text{Taxable Income}} = \frac{40,000}{35,000} = 1.15$$

If EBIT increase by 6 per cent, taxable income will increase by  $1.15 \times 6 = 6.9 \%$ Workings:

| EBIT           | ₹40,000  |
|----------------|----------|
| Add: 6%        | ₹ 2,400  |
|                | ₹ 42,400 |
| Less: Interest | ₹ 5,000  |
| Taxable income | ₹ 37,400 |

Increase is ₹37,400 – 35,000 or 
$$\frac{2,400 \times 100}{35,000}$$
 = 6.9%

(b) Firm X and Firm Y manufacture the same product and their cost sheets are given below: (₹/unit)

| RTP_ | _Final_ | _Syllabus | 2012 | _Dec'2014 |
|------|---------|-----------|------|-----------|
|------|---------|-----------|------|-----------|

|                             | Firm X    | Firm Y    |
|-----------------------------|-----------|-----------|
| Units manufactured and sold | 30,000    | 30,000    |
| Direct material             | 10        | 10        |
| Direct labour               | 5         | 5         |
| Variable overheads          | <u>5</u>  | <u>5</u>  |
|                             | 20        | 20        |
| Contribution                | <u>10</u> | <u>10</u> |
| Selling price               | 30        | 30        |

The fixed overheads of Firm X and Firm Y are  $\gtrless$  1,50,000 and  $\gtrless$  2,25,000 respectively. You are required to calculate the operating leverage for both the firms and comment on them.

#### Answer:

#### Calculation of Operating Leverage:

| Particulars                            | Firm X              | Firm Y            |
|--|---------------------|-------------------|
| Contribution for 30,000 units          | 3,00,000            | 3,00,000          |
| Less: Fixed overheads                  | <u>1,50,000</u>     | 2,25,000          |
| EBIT                                   | 1,50,000            | 75,000            |
| Operating leverage (Contribution/EBIT) | (3,00,000/1,50,000) | (3,00,000/75,000) |
|  | = 2                 | = 4               |

**Comment –** Firm Y's operating leverage is twice of Firm X, as the fixed overheads are higher. The higher the operating leverage ratio the situation is more risky. While a low ratio indicates a large absorption capacity of a firm in times of adversity.

#### Question 13.

(a) Madona Ltd. had budgeted the following sales for the month of August, 2014 :

| Product X: | 800 units | @₹100 per unit.           |
|------------|-----------|---------------------------|
| Product Y: | 700 units | @ <b>₹ 200 per unit</b> . |

The actual sales for month were as follows :

| Product X: | 900 units | @₹110 per unit. |
|------------|-----------|-----------------|
| Product Y: | 800 units | @₹180 per unit. |

The costs per unit of products X and Y were ₹ 80 and ₹ 170 respectively.

You are required to compute the Profit Value Variance, Profit Price Variance and Profit Volume Variance to explain the difference between the budgeted and actual profits.

Answer:

Calculation budgeted and Actual sales, Cost and Profit

| Product | Sales Data |                       | Cost Data   |                | Profit Data |                  |            |
|---------|------------|-----------------------|-------------|----------------|-------------|------------------|------------|
|         | Units      | Selling Price<br>p.u. | Amount<br>₹ | Cost p.u.<br>₹ | Amount<br>₹ | Profit p.u.<br>₹ | Total<br>₹ |
|         |            | ۲                     |             |                |             |                  |            |

| I Budgeted data      |                       |              |                  |           |             |             |        |  |
|----------------------|-----------------------|--------------|------------------|-----------|-------------|-------------|--------|--|
| Х                    | 800                   | 100          | 80,000           | 80        | 64,000      | 20          | 16,000 |  |
| Y                    | 700                   | 200          | 1,40,000         | 170       | 1,19,000    | 30          | 21,000 |  |
| Total                | 1,500                 |              | 2,20,000         |           | 1,83,000    |             | 37,000 |  |
| II Actual Data       |                       |              |                  |           |             |             |        |  |
| Х                    | 900                   | 110          | 99,000           | 80        | 72,000      | 30          | 27,000 |  |
| Y                    | 800                   | 180          | 1,44,000         | 170       | 1,36,000    | 10          | 8,000  |  |
| Total                | 1,700                 |              | 2,43,000         |           | 2,08,000    |             | 35,000 |  |
| Calculation of Dro   | fil                   |              |                  |           |             |             |        |  |
| (1) Profit Value V   | ariance:              |              |                  |           |             |             |        |  |
| Budgeted Pro         | ofit - Actual P       | Profit =     |                  |           |             |             |        |  |
| =₹37.000 – ₹3        | 35.000                | Tom          |                  |           |             | =₹2.000 (A) |        |  |
| ,                    |                       |              |                  |           |             | ,           |        |  |
| (2) Profit Price Vo  | ariance               |              |                  |           |             |             |        |  |
| Actual Qty. (        | Std. rate of P        | rofit – Actu | al rate of P     | rofit)    |             |             |        |  |
| X = 900 (20 - 3)     | 30)                   | =₹9          | 9,000(F)         |           |             |             |        |  |
| Y = 800 (30 -        | 10)                   | = <u>₹1</u>  | <u>6,000 (A)</u> | -         | =₹7,000 (A) |             |        |  |
| (3) Profit Volume    | Variance              |              |                  |           |             |             |        |  |
| Std. rate of Pr      | rofit (Budgete        | ed Qty. – A  | ctual Qty.)      |           |             |             |        |  |
| X = 20 (800 - 9)     | 900)                  | =₹2          | 2,000 (F)        |           |             |             |        |  |
| Y = 30 (700 - 8)     | 800)                  | = <u>₹3</u>  | 3,000 (F)        | -         |             | =₹5,000 (F) |        |  |
| Summary of Profit    | variances             |              |                  |           |             | (₹)         |        |  |
| Price Variance       |                       |              |                  |           |             | 7,000 (A)   |        |  |
| Volume variance      | ;                     |              |                  |           |             | 5,000 (F)   |        |  |
| Profit Value Varia   | Profit Value Variance |              |                  |           | 2,000 (A)   |             |        |  |
| Statement showin     | a variation o         | f Budaeted   | and Actua        | al Profit |             | (₹)         |        |  |
| Budgeted Profit      | Budgeted Profit       |              |                  |           | 37.000      |             |        |  |
| Add: Volume Variance |                       |              |                  | 5,000 (F) |             |             |        |  |
|                      |                       |              |                  |           |             | 42,000      |        |  |
| Less: Price Varian   | се                    |              |                  |           |             | 7.000 (A)   |        |  |
| Actual Profit        |                       |              |                  | 35,000    |             |             |        |  |

(b) From the following Profit and Loss Account (Extracts) of Taj Ltd., prepare a Gross Value Added Statement. Show also the reconciliation between gross value added and profit before taxation:

| Profit and Loss Account | (Extracts) for the year | ended 31st March, 2014 |
|-------------------------|-------------------------|------------------------|
|-------------------------|-------------------------|------------------------|

| Particulars  | Notes | ₹ Lakhs |  |
|--------------|-------|---------|--|
| Income       |       |         |  |
| Sales        |       | 206.42  |  |
| Other income |       | 10.20   |  |

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|   |   |        | 216.62 |
|---|---|--------|--------|
| Expenditure                               |   |        |        |
| Production and operational expenses       | 1 | 166.57 |        |
| Administration expenses                   | 2 | 6.12   |        |
| Interest and other charges                | 3 | 8.00   |        |
| Depreciation                              |   | 5.69   | 186.38 |
| Profit before tax                         |   |        | 30.24  |
| Provision for tax                         |   |        | 3.00   |
|   |   |        | 27.24  |
| Investment allowance reserve written back |   |        | 0.46   |
| Balance as per last Balance Sheet         |   |        | 1.35   |
|   |   |        | 29.05  |
| Transferred to:                           |   |        |        |
| General reserve                           |   | 24.30  |        |
| Proposed dividend                         |   | 3.00   | 27.30  |
| Surplus carried to Balance Sheet          |   |        | 1.75   |
|   |   |        | 29.05  |

Notes:

(1) Production and Operational Expenses

|   | (₹ lakhs) |
|---|-----------|
| Increase in stock                         | 30.50     |
| Consumption of raw materials              | 80.57     |
| Consumption of stores                     | 5.30      |
| Salaries, wages, bonus and other benefits | 11.80     |
| Cess and local taxes                      | 4.20      |
| Other manufacturing expenses              | 34.20     |
|   | 166.57    |

(2) Administration expenses include inter alia audit fees of ₹ 1 lakh, salaries and commission to directors ₹ 2.20 lakhs and provision for doubtful debts ₹ 2.50 lakhs.

(3) Interest and Other charges

|  | (₹ lakhs) |
|--|-----------|
| On fixed loans from financial institutions | 3.90      |
| On debentures                              | 1.80      |
| On working capital loans from bank         | 2.30      |
|  | 8.00      |

#### Answer:

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

| Particulars   |        | ₹ lakhs | % |
|---|--------|---------|---|
| Sales   |        | 206.42  |   |
| Less: Cost of bought –in materials and services     |        |         |   |
| Production and operational expenses                 | 150.57 |         |   |
| Administration expenses                             | 3.92   |         |   |
| Interest on working capital loans                   | 2.30   | 156.79  |   |
| Value added by manufacturing and trading activities |        | 49.63   |   |
| Add: Other income                                   |        | 10.20   |   |
| Total Value Added                                   |        | 59.83   |   |

| Application of Value Added:               |       |       |       |
|---|-------|-------|-------|
| To Employees                              |       |       |       |
| Salaries, wages, bonus and other benefits |       | 11.80 | 19.72 |
| To Directors                              |       |       |       |
| Salaries and commission                   |       | 2.20  | 3.68  |
| To Government                             |       |       |       |
| Cess and local taxes                      | 4.20  |       |       |
| Income-tax                                | 3.00  | 7.20  | 12.03 |
| To Providers of Capital                   |       |       |       |
| Interest on debentures                    | 1.80  |       |       |
| Interest on fixed loans                   | 3.90  |       |       |
| Dividend                                  | 3.00  | 8.70  | 14.54 |
| To provide for Maintenance and expansion  |       |       |       |
| Depreciation                              | 5.69  |       |       |
| General reserve (24.30 – 0.46)            | 23.84 |       |       |
| Retained profit (1.75 – 1.35)             | 0.40  | 29.93 | 50.03 |
|   |       | 59.83 | 100.0 |

Reconciliation between Total Value Added and Profit before Taxation

|   |       | (₹ lakhs) |
|---|-------|-----------|
| Profit before tax                         |       | 30.24     |
| Add back:                                 |       |           |
| Depreciation                              | 5.69  |           |
| Salaries, wages, bonus and other benefits | 11.80 |           |
| Directors' remuneration                   | 2.20  |           |
| Cess and local taxes                      | 4.20  |           |
| Interest on debentures                    | 1.80  |           |
| Interest on fixed loans                   | 3.90  | 29.59     |
| Total Value Added                         |       | 59.83     |

#### Question 14.

- (a) A firm has sales of ₹75,00,000, variable cost of ₹42,00,000 and fixed cost of ₹6,00,000. It has a debt of ₹ 45,00,000 at 10% and equity of ₹ 55,00,000.
  - (i) What is the firm's Return on Investment (ROI)?
  - (ii) Does it have favourable financial leverage?
  - (iii) If the firm belongs to an industry whose asset turnover is 3, does it have a high or low asset leverage?
  - (iv) What are the operating, financial and combined leverages of the firm?
  - (v) If the sales drop to ₹ 50,00,000, what will be the new EBIT?
  - (vi) At what level the EBT of the firm will be equal to zero?

#### Answer:

#### **Basic Calculations**

|                | ₹         |
|----------------|-----------|
| Sales          | 75,00,000 |
| Less: Variable | 42,00,000 |
| Contribution   | 33,00,000 |

| Les: Fixed Cost                           | 6,00,000  |
|---|-----------|
| Earnings before Interest and Taxes (EBIT) | 27,00,000 |
| Less: Interest at 9% on Debt ₹45,00,000   | 4,50,000  |
| Earnings before Taxes (EBT)               | 22,50,000 |

(i) ROI = <u>EBIT</u> <u>Capital Employed</u> ×100<sup>=</sup> ₹ <u>27,00,000</u> 1,00,00,000 ×100 = 27%

- (ii) The return on investment at 27% is higher than the interest payable on debt at 10%. The firm has a favourable financial leverage.
- (iii) Asset Turnover =  $\frac{\text{Net Sales}}{\text{Total Assets}}$ Firm's Assets Turnover is = ₹ $\frac{75,00,000}{1,00,00,000}$  = 0.75 The industry average is 3. Hence, the firm has a low asset leverage.
- (iv) Operating leverage =  $\frac{\text{Contribution}}{\text{EBIT}} = ₹ \frac{33,00,000}{27,00,000} = 1.2222$ Financial leverage =  $\frac{\text{EBIT}}{\text{EBT}}$  = ₹  $\frac{27,00,000}{22,50,000} = 1.2$ Combined Leverage =  $\frac{\text{Contribution}}{\text{EBT}}$  = ₹  $\frac{33,00,000}{22,50,000}$

Combined Leverage = Operating Leverage x Financial leverage

$$= 1.2222 \times 1.2 = 1.46664$$

- (v) If the sales drop to ₹ 50,00,000 from ₹ 75,00,000, the fall is by 33.33%. Hence, EBIT will drop by 40.73% (% Fall In Sales x Operating Leverage) Hence, the new EBIT will be ₹ 27,00,000 x (1 40.73%) = ₹ 16,00,290 or rounded to ₹ 16,00,000.
- (vi) EBT to become zero means 100% reduction in EBT. The combined leverage is1.438, hence, sales have to drop by 100/1.438 i.e. 68.18%. The new sales will therefore, be ₹75,00,000 x (1 68.18%) = ₹ 23,86,500 (approx.)

# (b) The financial statements of Square Infotech Ltd. are as follows:

|     |   |                        |      |          | (₹ in crores) |
|-----|---|------------------------|------|----------|---------------|
| Ref |   | Particulars            | Note | As at    | As at         |
| No. |   |                        | No.  | 31.03.14 | 31.03.13      |
|     |   |                        |      | (₹)      | (₹)           |
| I   |   | EQUITY AND LIABILITIES |      |          |               |
|     | 1 | Shareholders' fund     |      |          |               |

#### Balance Sheet as at: 31.03.14

|   |   | (a) Share capital                 |   | 1,121         | 931           |
|---|---|-----------------------------------|---|---------------|---------------|
|   |   | (b) Reserves and surplus          |   | 8,950         | 7,999         |
|   |   | (c) Money received against share  |   |               |               |
|   |   | warrants                          |   |               |               |
|   | 2 | Share application money pending   |   |               |               |
|   |   | allotment                         |   |               |               |
|   | 3 | Non-current liabilities           |   |               |               |
|   |   | (a) Long-term borrowings          | 1 | 245           | 374           |
|   |   | (b)Deferred tax liabilities (Net) |   | 320           | _             |
|   |   | (c)Other Long term liabilities    |   |               |               |
|   |   | (d) Long-term provisions          |   |               |               |
|   | 4 | Current Liabilities               |   |               |               |
|   |   | (a) Short-term borrowings         |   |               |               |
|   |   | (b) Trade payables                |   |               |               |
|   |   | (c)Other current liabilities      |   | 513           | 572           |
|   |   | (d) Short-term provisions         |   | 10,109        | 7,902         |
|   |   | <u>Total</u>                      |   | <u>21,258</u> | <u>17,778</u> |
| I |   | ASSETS                            |   |               |               |
|   | 1 | Non-current assets                |   |               |               |
|   |   | (a) Fixed assets                  |   |               |               |
|   |   | (i) Tangible assets               | 2 | 3,517         | 3,186         |
|   |   | (ii) Intangible assets            |   |               |               |
|   |   | (iii) Capital work-in-progress    |   | 27            | 28            |
|   |   | (iv) Intangible assets under      |   |               |               |
|   |   | development                       |   |               |               |
|   |   | (b) Non-current investments       |   | 288           | 222           |
|   |   | (c)Deferred tax assets (Net)      |   |               |               |
|   |   | (d) Long-term loans and advances  |   |               |               |
|   |   | (e) Other non-current assets      |   |               |               |
|   | 2 | Current assets                    |   |               |               |
|   |   | (a)Current investments            |   |               |               |
|   |   | (b) Inventories                   |   | 2,709         | 2,540         |
|   |   | (c) Trade receivables             |   | 9,468         | 9,428         |
|   |   | (d) Cash and cash equivalents     |   | 3,206         | 662           |
|   |   | (e)Short-term loans and advances  |   | 2,043         | 1,712         |
|   |   | (f) Other current assets          |   |               |               |
|   |   | Total                             |   | <u>21,258</u> | <u>17,778</u> |

# Workings:

|                           |          | (₹ in crores) |
|---------------------------|----------|---------------|
| 1. Long Term Borrowings   | 31.03.14 | 31.03.13      |
| Secured loans             | _        | 259           |
| Unsecured loans           | 74       | _             |
| Finance Lease Obligations | 171      | 115           |
| Total                     | 245      | 374           |

# (₹ in crores)

| 2. Tangible Assets             | 31.03.14 | 31.03.13 |
|--------------------------------|----------|----------|
| Gross Block                    | 6,667    | 5,747    |
| Less: Accumulated Depreciation | 3,150    | 2,561    |

Total

3,186

3,517

# Profit & Loss Account (Extracts) For the year ended 31.03.14

|   |         |        | (₹i     | n crores) |
|---|---------|--------|---------|-----------|
|   | 2013-14 |        | 2012-13 |           |
| 1. Income                               |         |        |         |           |
| Sales                                   |         | 23,436 |         | 17,849    |
| Other income                            |         | 320    |         | 306       |
|   |         | 23,756 |         | 18,155    |
| 2. Expenditure                          |         |        |         |           |
| Cost of materials                       |         | 15,179 |         | 10,996    |
| Personnel expenses                      |         | 2,543  |         | 2,293     |
| Other expenses                          |         | 3,546  |         | 2,815     |
| Depreciation                            | 419     |        | 383     |           |
| Less: Transfer from Revaluation Reserve | 7       | 412    | 6       | 377       |
| Interest                                |         | 164    |         | 88        |
|   |         | 21,844 |         | 16,569    |
| 3. Profit before Tax [1-2]              |         | 1,912  |         | 1,586     |
| 4. Provision for tax:                   |         |        |         |           |
| Current tax                             |         | 450    |         | 371       |
| Deferred tax                            |         | (6)    |         | -         |
| 5. Profit after tax [3-4]               |         | 1,468  |         | 1,215     |

You are required to:

- (i) Compute and analyse the return on capital employed (ROCE) with the help of Du-Pont analysis.
- (ii) Compute and analyse the average inventory holding period and average collection period.
- (iii) Compute and analyse the return on equity (ROE) by bringing out clearly the impact of financial leverage.

#### Answer:

(i) As per Du-Pont analysis,

```
Return on Capital Employed (ROCE) = Net Profit ratio × Capital Turnover ratio
```

In the year 2012-13, Operating profit before interest and tax = ₹ 1,368 crores Sales = ₹ 17,849 crores Capital employed = ₹ (3,186 + 12,630 - 8,474) crores = ₹ 7,342 crores Net Profit ratio = 7.66% Capital Turnover ratio = 2.43 times Therefore, ROCE = 18.61%

In the year 2013-14,
# RTP\_Final\_Syllabus 2012\_Dec'2014

Operating profit before interest and tax = ₹ 1,756 crores Sales = ₹ 23,436 crores Capital employed = ₹ (3,517 + 15,383 – 10,622) crores = ₹ 8,278 crores Net Profit ratio = 7.49% Capital Turnover ratio = 2.83 times Therefore, ROCE = 21.20%

Return on Capital Employed (ROCE) has increased in the year 2013-14 as compared to 2012-13 because capital turnover ratio has increased. This indicates better sales effort or effective use of capital by the firm. Capital turnover ratio has increased because sales with respect to capital employed in the firm have comparatively increased.

(ii) Average Inventory Holding Period =  $\frac{12}{\text{Inventory Turnover Rtaio}}$ Inventory Turnover Ratio =  $\frac{\text{Cost of goods sold}}{\text{Closing stock}}$ 

In the year 2012-13,

Inventory Turnover Ratio =  $\frac{10,996}{2,540}$  = 4.329 times

Average Inventory Holding Period =  $\frac{12}{4.329}$  = 2.77 months or 83 days

In the year 2013-14,

Inventory Turnover Ratio =  $\frac{15,179}{2,709}$  = 5.603 times

Average Inventory Holding Period =  $\frac{12}{5.603}$  = 2.14 months or 64 days

The average inventory holding period has got reduced in the year 2013-14 as compared to the year 2012-13. This shows that the company has been in a position to improve its turnover with lower inventory.

Average Collection Period =  $\frac{12 \times \text{Debtors}}{\text{Annual credit Sales}}$ 

In the year 2012-13,

Average Collection Period =  $\frac{12 \times 9,428}{17,849}$  = 6.34 month or 190 days

In the year 2013-14,

Average Collection Period =  $\frac{12 \times 9,468}{23,436}$  = 4.85 month or 145 days

The average collection period has reduced in the year 2013-14 as compared to the year 2012-13. The shorter the average collection period, the better is the quality of debtors as it implies quick payment by debtors.

(iii) Return on equity (ROE) =  $\frac{\text{Earnings available to equity shareholders}}{\text{Equity shareholders fund}} \times 100$ 

In the year 2012-13,

Return on equity =  $\frac{1,215}{(931+7,999)} \times 100 = 13.61\%$ 

In the year 2013-14,

Return on equity =  $\frac{1,468}{(1,121+8,950)} \times 100 = 14.58\%$ 

Return on equity has increased in the year 2013-14 as compared to the year 2012-13. This indicates high profitability of the firm. The higher the ROE, the better it is for the firm as it attracts prospective investors.

Impact of Financial Leverage:

| Year                            | 2012-13 | 2013-14 |
|---------------------------------|---------|---------|
| Return on equity (ROE)          | 13.61%  | 14.58%  |
| Return on Capital Employed      | 18.61%  | 21.2%   |
| Loan funds / total funds        | 4.02%   | 2.37%   |
| Shareholders fund / total funds | 95.98%  | 97.63%  |

Since financial leverage is also increased in the year 2013-14 as compared to the year 2012-13, hence there is increase of return on equity in the year 2013-14 over that in the year 2012-13. This is good since due to increase in return to the equity shareholders, prospective investors will be attracted to invest money in the company.

# SN – 6 [The Analysis of Growth and Sustainable Earnings]

Question 15.

(a) From the following details, compute Internal Growth Rate and Sustainable Growth Rate of a firm:

| Sales                   | - ₹ 100 lakhs  |
|-------------------------|----------------|
| Cost of sale            | - 70% of sales |
| <b>Taxation</b>         | - 35%          |
| Retained Earnings ratio | - 66.67%       |
| Total Assets            | - ₹ 100 lakhs  |
| Equity share capital    | - ₹ 76 Lakhs   |
| Borrowings              | - ₹ 24 Lakhs   |
|                         |                |

# Verify your computation of growth rates.

#### Answer:

| Computation of Internal Grow  | Computation of Internal Growth Rate (IGR)<br>(₹ in lakhs) |  |  |
|-------------------------------|---|--|--|
| Sales                         | 100.00  |  |  |
| Less: cost of sales           | 70.00   |  |  |
| Earnings Before tax (EBT)     | 30.00   |  |  |
| Less: Tax                     | 10.50   |  |  |
| Earnings after tax (EAT)      | 19.50   |  |  |
| Less: Dividend payout (33.3%) | 6.50  |  |  |
| Retained Earnings             | 13.00   |  |  |
| Total Assets                  | 100.00  |  |  |

| Paturn on Assats (POA) | _ EAT × 100          |
|------------------------|----------------------|
|                        | Total Assets         |
|                        | _ 19.5 ×100          |
|                        | - 100                |
|                        | = 19.50%             |
| IGR                    | $=$ ROA $\times$ b   |
|                        | 1–(ROA ×b)           |
|                        | = <u>19.5% × 2/3</u> |
|                        | 1_(19.5% × 2 / 3)    |
|                        | _ 13%                |
|                        | - 1-0.13             |
|                        | _ 13%                |
|                        | - 0.87               |
| IGR                    | = 14.94%             |

# Verification of Internal Growth Rate (IGR)

|   | (K in iakns) |
|---|--------------|
| Income Statement                                    |              |
| Sales Revenue (100 lakhs ×114.94/100)               | 114.94       |
| Less: Cost of Sales (70%)                           | 80.46        |
| Earnings Before Tax (EBT)                           | 34.48        |
| Less: Taxes (35%)                                   | 12.07        |
| Earnings After Tax (EAT)                            | 22.41        |
| Dividends paid (1/3 × ₹ 22.41 Lakhs)                | 07.47        |
| Retained Earnings (2/3 × ₹ 22.41 Lakhs)             | 14.94        |
| Balance Sheet                                       |              |
| Total Assets (Assets/Sales Ratio 1:1)               |              |
| i.e., Assets = Sales]                               | 114.94       |
| Equity Share Capital ₹ 76 lakhs + Retained earnings | 90.94        |
| ₹ 14.94 lakhs                                       |              |
| Debt  | 24.00        |

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| Total Liabilities                                   | 114.94 |
|---|--------|
| Return on Assets: (₹ 22.41 Lakhs/₹114.94 lakhs) (%) | 19.50  |
| (IGR will therefore be calculated above)            | 14.94% |
|   |        |

| RTP | Final | Syllo | abus | 2012 | Dec | '2014 |
|-----|-------|-------|------|------|-----|-------|
|     |       | /     |      | -    |     |       |

| Earnings after Tax<br>Shareholders' Funds | <u>₹ in lakhs</u><br>= 19.5<br>= 76.0                           |
|---|---|
| Return on Equity                          | $= \frac{19.5 \times 100}{76.0}$                                |
| SGR                                       | = 25.7%<br>= $\frac{25.66\% \times 2/3}{1 - (26\% \times 2/3)}$ |
|   | $=\frac{17.11\%}{1-17.11\%}$                                    |
|   | $=\frac{17.11\%}{0.829}$  |
|   | = 20.64%  |

The above computation shows that the company can grow at a maximum rate of 20.64% without equity financing and maintain the present debt equity ratio and return on equity. This can be confirmed by the following calculations:

| Verification of SGR                       |                 |  |
|---|-----------------|--|
| Income Statement                          |                 |  |
| Sales Revenue (100 lakhs ×120.64/100)     | 120.64          |  |
| Less: Cost of Sales (70%)                 | 84.49           |  |
| Earnings Before Tax (EBT)                 | 36.19           |  |
| Less: Taxes (35%)                         | 12.67           |  |
| Earnings After Tax (EAT)                  | 23.52           |  |
| Less: Dividends paid (1/3 × EAT)          | 07.84           |  |
| Retained Earnings                         | 15.68           |  |
| Balance Sheet                             |                 |  |
| Total Assets (Assets/Sales Ratio 1:1)     | 120.64          |  |
| Equity (₹76 lakhs + ₹15.68, retained ea   | rnings) 91.68   |  |
| Debt (Total Assets ₹120.64 lakhs – ₹91.68 | lakh) 28.96     |  |
| Total Liabilities                         | 120.64          |  |
| Return on Equity: (₹ 23.52 Lakhs/₹91.68 k | akhs) (%) 25.7% |  |
| SGR will therefore be calculated above    | 20.64%          |  |

# (b) Explain Price Earnings Ratio (P/E Ratio) and Price-Book Value Ratio (P/BV ratio).

#### Answer:

# Price Earnings Ratio (P/E Ratio):

The ratio indicates the market price of an equity share to the earnings per share. It measures the number of times the earnings per share discounts the market price of an equity share.

Price Earnings Ratio =  $\frac{\text{Current Market Price of Equity Share}}{\text{Earnings per Share}}$ 

The ratio indicates how much an investor is prepared to pay per rupee of earnings. The ratio helps to ascertain the value of equity share, if the EPS and probable price-earnings ratio of the industry to which the company belongs. The intrinsic value of share may be more or less than the market value which is influenced by company's track record and dividend distribution policy, speculative trading, state of economy, efficiency of management, capital gearing etc. Price-earning approach to share valuation is simple and more popular. This ratio reflects the market's assessment of the future earnings potential of the company. A ratio reflects high earnings potential and a low ratio reflects the low earnings potential. The ratio reflects the market's confidence on company's equity.

# Market Price to Book Value Ratio (P/BV ratio)

This ratio measures the relationship between the accounting value of the firm's assets and the market price of its stock. The ratio is calculated by dividing the stock price per share by the book value of share.

 $\frac{\text{Price} - \text{Book Value Ratio}}{\text{Book Value per Share}}$ 

Generally, the higher the rate of return a firm is earning on its common equity the higher will be the P/BV ratio. In case of growth firms i.e. firms with high growth of sales and earnings will have this ratio higher than 1, for the reason that the potential future growth in earnings is reflected in the current stock price. Whereas the book value of equity share is based on historical costs and it does not consider the potential growth.

# SN – 7 [Valuation Basics]

Question 16.

(a) What do you mean by valuation bias? Explain the different sources of valuation bias?

(b) How do you minimize valuation bias?

# Answer to 16 (a):

**Valuation bias:** 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 model models that we use and not surprisingly, our conclusions tend to reflect our biases. We will begin by considering the sources of bias in valuation and then move

on to evaluate how bias manifests itself in most valuations. We close with a discussion of how best to minimize or at least deal with bias in valuations.

#### Sources of valuation bias:

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.

In many valuations, there are institutional factors that add to this already substantial bias. For instance, it is an acknowledged fact that equity research analysts are more likely to issue buy rather than sell recommendations, i.e., that they are more likely to find firms to be undervalued than overvalued. This can be traced partly to the difficulties analysts face in obtaining access and collecting information on firms that they have issued sell recommendations on, and partly to pressure that they face from portfolio managers, some of whom might have large positions in the stock, and from their own firm investment banking arms which have other profitable relationships with the firms in question.

The reward and punishment structure associated with finding companies to be under and overvalued is also a contributor to bias. An analyst whose compensation is dependent upon whether she finds a firm is under or overvalued will be biased in her conclusions. This should explain why acquisition valuations are so often biased upwards. The analysis of the deal, which is usually done by the acquiring firm's investment banker, who also happens to be responsible for carrying the deal to its successful conclusion, can come to one of two conclusions. One is to find that the deal is seriously over priced and recommends rejection, in which case the analyst receives the eternal gratitude of the stockholders of the acquiring firm but little else. The other is to find that the deal makes sense (no matter what the price) and to reap the ample financial windfall from getting the deal done.

# Answer to 16 (b):

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 report our biases with our estimated values.

# Question 17.

# (a) Explain the Sources of Uncertainties?

# (b) How do you react to various uncertainties during the process of business valuation?

# Answer to 17 (a):

**Sources of Uncertainties:** Uncertainty is part and parcel of the valuation process, both at the point in time that we value a business and in how that value evolves over time as we get new information that impacts the valuation. That information can be specific to the firm being valued, more generally about the sector in which the firm operates or even be general market information (about interest rates and the economy).

When valuing an asset at any point in time, we make forecasts for the future. Since none of us possess crystal balls, we have to make our best estimates, given the information that we have at the time of the valuation. Our estimates of value can be wrong for a number of reasons, and we can categorize these reasons into three groups.

**Estimation Uncertainty:** Even if our information sources are impeccable, we have to convert raw information into inputs and use these inputs in models. Any mistakes or mis-assessments that we make at either stage of this process will cause estimation error.

**Firm-specific Uncertainty:** The path that we envision for a firm can prove to be hopelessly wrong. The firm may do much better or much worse than we expected it to perform, and the resulting earnings and cash flows will be very different from our estimates.

**Macroeconomic Uncertainty:** Even if a firm evolves exactly the way we expected it to, the macroeconomic environment can change in unpredictable ways. Interest rates can go up or down and the economy can do much better or worse than expected. These macroeconomic changes will affect value.

The contribution of each type of uncertainty to the overall uncertainty associated with a valuation can vary across companies. When valuing a mature cyclical or commodity company, it may be macroeconomic uncertainty that is the biggest factor causing actual numbers to deviate from expectations. Valuing a young technology company can expose analysts to far more estimation and firm-specific uncertainty. Note that the only source of uncertainty that can be clearly laid at the feet of the analyst is estimation uncertainty. Even if we feel comfortable with our estimates of an asset's values at any point in time, that value itself will change over time, as a consequence of new information that comes out both about the firm and about the overall market. Given the constant flow of information into financial markets, a valuation done on a firm ages quickly, and has to be updated to reflect current information.

# Answer to 17 (b):

The advantage of breaking uncertainty down into estimation uncertainty, firm-specific and macroeconomic uncertainty is that it gives us a window on what we can manage, what we can control and what we should just let pass through into the valuation.

Building better models and accessing superior information will reduce estimation uncertainty but will do little to reduce exposure to firm-specific or macro-economic risk. Even the best-constructed model will be susceptible to these uncertainties.

In general, analysts should try to focus on making their best estimates of firm-specific information – how long will the firm are able to maintain high growth? How fast will earnings grow during that period? What type of excess returns will the firm earn? – and steer away from bringing in their views on macro economic variables. To see why, assume that you believe that interest rates today are too low and that they will go up by about 1.5% over the next year. If you build in the expected rise in interest rates into your discounted cash flow valuations, they will all yield low values for the companies that you are analyzing. A person using these valuations will be faced with a conundrum because she will have no way of knowing how much of this over valuation is attributable to your macroeconomic views and how much to your views of the company.

In summary, analysts should concentrate on building the best models they can with as much information as they can legally access, trying to make their best estimates of firm-specific components and being as neutral as they can on macro economic variables. As new information comes in, they should update their valuations to reflect the new information. There is no place for false pride in this process. Valuations can change dramatically over time and they should if the information warrants such a change.

# SN – 8 [Valuation Models]

Question 18.

(a) The Directors of a Public Limited Company are considering the acquisition of the entire Share Capital of an existing Company Subham Ltd engaged in a line of business suited to them. The Directors feel that acquisition of Subham Ltd will not create any further risk to their business interest. The following is the Balance Sheet of Subham Ltd as at 31.3.2013 –

| Equity and Liability                 | ₹         | Assets                        | ₹         |
|--------------------------------------|-----------|-------------------------------|-----------|
| (1) Shareholders Fund:               |           | (1) Non-Current Assets:       |           |
| (a) Share Capital                    |           | (a) Fixed Assets              |           |
| 4,000 Equity Share Capital of ₹ 100  | 4,00,000  | (i) Tangible Assets:          |           |
| each                                 |           | (Cost Less Depreciation)      | 6,00,000  |
| (b) Reserve & Surplus                |           |                               |           |
| – General Reserve                    | 3,00,000  | (2) Current Assets:           |           |
|                                      |           | (a) Inventories (Stock & WIP) | 2,00,000  |
| (2) Current Liabilities:             |           | (b) Trade Receivables         |           |
| (a) Short Term Borrowings – Bank O/D | 2,40,000  | -Sundry Debtors               | 3,40,000  |
| (b) Trade Payables                   |           | (c) Cash & Cash Equivalents   | 1,00,000  |
| – Sundry Creditors                   | 3,00,000  |                               |           |
|                                      |           |                               |           |
|                                      |           |                               |           |
| Total                                | 12,40,000 | Total                         | 12,40,000 |

#### Subham Ltd's financial records for the past five years were as under — ( $\overline{\mathbf{x}}$ )

| Particulars                         | 2012-13 | 2011-12 | 2010-11 | 2009-10 | 2008-09 |
|-------------------------------------|---------|---------|---------|---------|---------|
| Profits before Extra-ordinary items | 80,000  | 74,000  | 70,000  | 60,000  | 62,000  |
| Adj: Extra Ordinary Item            | 3,500   | 4,000   | (6,000) | (8,000) | 1,000   |
| Profit after Extra – Ordinary Items | 83,500  | 78,000  | 64,000  | 52,000  | 61,000  |
| Less: Dividends                     | 48,000  | 40,000  | 40,000  | 32,000  | 32,000  |
| Net balance                         | 35,500  | 38,000  | 24,000  | 20,000  | 29,000  |

The following additional information is available:

- (i) There were no changes in the Issued Share Capital of Subham Ltd during this period.
- (ii) The estimated values of Subham Ltd's assets on 31.3.2013 are  $(\overline{\mathbf{T}})$

| Particulars   | Replacement Cost | Realizable Value |
|---------------|------------------|------------------|
| Fixed Assets  | 8,00,000         | 5,40,000         |
| Stock and WIP | 3,00,000         | 3,20,000         |

- (iii) It is anticipated that 1% of the may prove difficult to be realized.
- (iv) The cost of capital of Chandra Ltd is 10%.
- (v) The current Return on Investment of Public Limited Co. is 10% Quoted Companies with business activities and activities as Subham Ltd have a PE ratio approximating to 8, although these companies tend to be larger than Subham.

Required: Estimate the value of the total Equity Capital of Subham Ltd as on 31.3.2013 using each of the following bases – (a) Balance Sheet Value (b) Replacement Cost; (c) Realizable Value; (d) Gordon's Dividend Growth Model and (e) PE Ratio Model.

(b) XM Ltd had earning per share of ₹ 11.04 in 2012-13 and paid a dividend of ₹ 7 per share. The growth rate in earnings and dividends in the long term is expected to be 5%. The return on equity at XM Ltd is expected to be 13.66%. The beta of XM Ltd is 0.80 and the risk free Treasury bond is 6% while risk premium is 4%. Based on the information, calculate Price to Book Value Ratio.

Answer to 18 (a):

| 1. Balance Sheet Value | Capital ₹4,00,000 + Reserves ₹3,00,000   | =₹7,00,000  |
|------------------------|--|-------------|
| 2. Replacement Value   | Capital + Reserves + Appreciation in Fixed Assets and<br>Stock<br>= 4,00,000 + 3,00,000 + (8,00,000 - 6,00,000)+(3,00,000 -<br>2,00,000) | =₹10,00,000 |

#### Valuation of Equity Capital of Subham Ltd under various methods

#### 3. Realizable value = Capital + Reserves + Change in Fixed Assets, Stock and Debtors

|                                 | Particulars           |          |  |  |  |  |
|---------------------------------|-----------------------|----------|--|--|--|--|
| Capital                         |                       | 4,00,000 |  |  |  |  |
| Reserve                         |                       | 3,00,000 |  |  |  |  |
| Appreciation in Stock           | (3,20,000 – 2,00,000) | 1,20,000 |  |  |  |  |
| Less: Reduction in Fixed Assets | (6,00,000 - 5,40,000) | (60,000) |  |  |  |  |
| Less: Reduction Debtors         | (3,40,000 X 1%)       | (3,400)  |  |  |  |  |
| Total Value                     | 7,56,600              |          |  |  |  |  |

**Note:** It is assumed that the estimated Bad Debts are not relevant to Balance Sheet Value and Replacement Value.

4. Gordon's Dividend Growth Model is given by the rule:  $P = [Ex (1 - b)] \div [(k-br)]$ ,

# Where,

P = Price Per Share; E = Earnings Per Share; b= retention Ratio; k = Cost of Capital;

br= g= Growth rate and r= Rate of Return on Investment.

# The calculation is made as under –

Step 1: Average Profit Retained and Profit earned: Profit Retained: 35,500 + 38,000 +24,000 +20,000 +29,00 = ₹1,46,500 Profit Earned: 83,500 + 78,000 +64,000 +52,000 + 61,000 = ₹3,38,500

**Step 2:** Calculation of b = ₹1,46,500 ÷ 3,38,500 = 0.433 (approx)

**Step 3**: Calculation of r = year ended 31.3.2013

Where, Avg. Investment = (Capital + Reserve  $-\frac{1}{2}$  of Profit Retained)

Or, r =  $\frac{\text{Pr of it before extra ordinary items}}{\text{Capital} + \text{Reserve} - \frac{1}{2}\text{of profit retained}} \times 100$ 

∴r = 
$$\frac{80,000}{4,00,000 + 3,00,000 - \frac{1}{2} \times 35,500} \times 100$$
  
=  $\frac{80,000}{6,82,250} \times 100 = 11.73\%$ 

**Step 4**: Calculation of b×r = g = Return x Retention Ratio

= 11.73% x 0.433 = 5.08% **Step 5**: Avg Profit = ₹(3,38,500 ÷ 5) = ₹67,700

Step 6: Market Value = 
$$\frac{E(1-b)}{K_e - b.r} = \frac{67,700(1-0.433)}{0.10-0.0508}$$
  
=  $\frac{38,385.90}{0.0492} = ₹7,80,201.22$ 

**Step 7**: P/E Ratio Model: Comparable companies have P/E Ratio of 8, but Subham Ltd is much smaller.

| If P/E Ratio is taken at 6, the valuation will be 80,000 x 6              | =₹4,80,000 |
|---|------------|
| If P/E Ratio is taken at 8, maximum possible value will be (₹ 80,000 × 8) | =₹6,40,000 |

# Answer to 18 (b):

Current dividend payout ratio =  $7/11.04 \times 100 = 63.41\%$ Expected growth rate in earnings and dividends = 5%Return on equity = 13.66%Cost of equity =  $6\% + 0.80 \times 4\% = 6\% + 3.2\% = 9.20\%$ **PBV Ratio=** ROE × Payout Ratio/(Cost of equity - Growth rate) =  $0.1366 \times 0.6341/(0.092-0.05) = 2.06$ . Question 19.

- (a) Describe the situations when FCFE models and dividend discount valuation models provide similar as well as dissimilar results?
- (b) SMT Air Ltd is a telecommunications firm that generates ₹ 300 lakh in pretax operating income and reinvested ₹ 60 lacs in most recent financial year. As a result of tax deferrals the firm has an effective tax rate of 20% while its marginal tax rate is 40%. Both the operating income and the reinvestment are expected to grow 10% a year for 5 years and 5% thereafter. The firm's cost of capital is 9% and is expected to remain unchanged over time.
  - Estimate the value of SMT Air Ltd. using the different assumptions about tax rates:
  - (i) The effective tax rate-----20% to be considered.
  - (ii) The marginal tax rate-----40% to be considered.

# Answer to 19 (a):

# FCFE model is alternative to dividend discounting model. But at times both provide similar results: When result obtained from FCFE and Dividend discount model may be same:

- (i) Where dividends are equal to FCFE.
- (ii) Where FCFE is greater than dividends but excess cash (FCFE- dividends) is invested in projects with NPV = 0 (Investments are fairly priced)

# When results from FCFE and Dividend discounting models are different:

- (i) When FCFE is greater than dividends and excess cash earns below market interest rates or is invested in negative NPV value projects, the value from FCFE will be greater than the value from discount model.
- (ii) When dividends are greater than FCFE, the firm will have to issue either new stock or new debt to pay their dividends- with attendant costs.
- (iii) Paying too much of dividend can lead to capital rationing constraints when good projects are rejected, resulting in loss of wealth.

# Conclusion:

The dividend model uses a strict definition of cash flows to equity, i.e. expected dividends on stock, while FCFE model uses an expensive definition of cash flows to equity as the residual cash flows after meeting all financial obligations and investment needs.

When the firms have dividends that are different from FCFE, the values from two models will be different.

In valuing firms for takeover or where there is reasonable chance of changing corporate control, the value from the FCFE provides the better value.

#### Answer to 19 (b):

|                 |         |       |       |       |       |       | Ę        | tin lacs |
|-----------------|---------|-------|-------|-------|-------|-------|----------|----------|
|                 | Year    |       |       |       |       |       | Terminal | Total    |
|                 | Current | 1     | 2     | 3     | 4     | 5     |          |          |
| EBIT            | 300     | 330   | 363   | 399   | 439   | 483   | 507      |          |
| EBIT(1-T)       | 240     | 264   | 290   | 319   | 351   | 386   | 406      |          |
| Reinvestment    | 60      | 66    | 73    | 80    | 88    | 97    | 102      |          |
| FCFF            | 180     | 198   | 217   | 239   | 263   | 289   | 304      |          |
| Terminal value  |         |       |       |       |       |       |          |          |
| PV factor at 9% | 1.00    | 0.917 | 0.842 | 0.773 | 0.708 | 0.649 | 7600*    |          |
| PV              |         | 182   | 183   | 185   | 186   | 188   | 4932     | 5856     |

# (i) Computation of the value of SMT Air Ltd assuming the effective tax rate (T) to be 20%

The value of SMT Air Ltd as per effective tax rate of 20% is ₹ 924 lacs +₹ 4932 lacs= ₹ 5856 lacs.

# (ii)Value of SMT Air Ltd. assuming marginal tax rate (T) of 40%

|                 | Year    |       |       |       |       |       | Terminal | Total |
|-----------------|---------|-------|-------|-------|-------|-------|----------|-------|
|                 | Current | 1     | 2     | 3     | 4     | 5     |          |       |
| EBIT            | 300     | 330   | 363   | 399   | 439   | 483   | 507      |       |
| EBIT(1-T)       | 180     | 198   | 218   | 239   | 263   | 290   | 304      |       |
| Reinvestment    | 60      | 66    | 73    | 80    | 88    | 97    | 102      |       |
| FCFF            | 120     | 132   | 145   | 159   | 175   | 193   | 202      |       |
| Terminal value  |         |       |       |       |       |       | 5050**   |       |
| PV factor at 9% | 1.00    | 0.917 | 0.842 | 0.773 | 0.708 | 0.649 | 0.649    |       |
| PV              | -       | 121   | 122   | 123   | 124   | 125   | 3277     | 3892  |

Value of SMT Air Ltd as per marginal tax rate of 40%is ₹ 615 lacs +₹ 3277 lacs=₹ 3892 lacs. \*304/(9%-5%)

\*\*202/ (9%-5%)

# Question 20.

(a) The directors of True Value Fund are keen on acquiring the business of Gem Ltd. They have approached you given your valuation expertise for mergers and acquisitions for help. Gem Ltd. has an invested capital of ₹ 50 million. Its return on invested capital (ROIC) is 12% and its weighted average cost of capital (WACC) is 11%. The expected growth rate in Gem Ltd.'s invested capital will be 20% for the first three years, 12% for the following two years and 8% thereafter forever. The forecast of G Ltd's free cash flows is given below:

| Year                                   | 1       | 2       | 3       | 4     | 5     | 6      | 7      |
|--|---------|---------|---------|-------|-------|--------|--------|
| Invested Capital                       | 50      | 60      | 72      | 86.40 | 96.77 | 108.38 | 117.05 |
| Net operating profit less adjusted tax | 6       | 7.20    | 8.64    | 10.37 | 11.61 | 13.00  | 14.05  |
| Net investment                         | 10      | 12.00   | 14.40   | 10.37 | 11.61 | 8.67   | 9.36   |
| Free cash flow                         | (-)4.00 | (-)4.80 | (-)5.76 | -     | -     | 4.33   | 4.69   |

(₹ in Million)

₹ In lacs

| RTP | Final | Sylla | bus 2 | 2012 | Dec | 2014 |
|-----|-------|-------|-------|------|-----|------|
|     |       |       |       |      |     |      |

| Cost of Capital (%) | 11   | 11   | 11   | 11   | 11    | 11    | 11    |
|---------------------|------|------|------|------|-------|-------|-------|
| Capital charge      | 5.50 | 6.60 | 7.92 | 9.50 | 10.64 | 11.92 | 12.88 |
| Economic Profit     | .50  | .60  | .72  | .87  | .97   | 1.08  | 1.17  |
| Growth rate (%)     | 20   | 20   | 20   | 12   | 12    | 8     | 8     |

Value Gem Ltd. under:

(i) Discounted cash flow method and

(ii) Present value of economic profit method.

Can the consideration paid for the shares exceed the valuation, if so, under what circumstances?

(b) The following information is available of a concern; calculate E.V.A.:

| Debt capital 12%             | ₹ 2,000 crores  |
|------------------------------|-----------------|
| Equity capital               | ₹ 500 crores    |
| Reserve and surplus          | ₹ 7,500 crores  |
| Capital employed             | ₹ 10,000 crores |
| Risk-free rate               | 9%              |
| Beta factor                  | 1.05            |
| Market rate of return        | 19%             |
| Equity (market) risk premium | 10%             |
| Operating profit after tax   | ₹2,100 crores   |
| Tax rate                     | 30%             |
|                              |                 |

#### Answer to 20 (a):

The present value of free cash flow (FCF) during the planning period is:

$$\mathsf{PV}(\mathsf{FCF}) = \frac{-4.00}{1.11} + \frac{-4.80}{(1.11)^2} + \frac{-5.76}{(1.11)^3} + \frac{0}{(1.11)^4} + \frac{0}{(1.11)^5} + \frac{4.33}{(1.11)^6} = -9.4 \text{ million.}$$

The horizon value at the end of six years, applying constant growth model, is

V+1 = 
$$\frac{\text{FCFH+1}}{\text{WACC-g}} = \frac{4.68}{0.11-0.08} = 156.0 \text{ million}$$

The present value of VH is

$$\frac{156.0}{(1.11)^6}$$
 = 83.4 million.

Adding the present value of free cash flow during the planning period and present value of horizon value, gives the enterprise DCF value

 $V_{\circ} = -9.4 + 83.4 = 74.0$  million.

# The present value of Economic profit stream is

$$\frac{0.50}{1.11} + \frac{0.60}{(1.11)^2} + \frac{0.72}{(1.11)^3} + \frac{0.87}{(1.11)^4} + \frac{0.97}{(1.11)^5} + \frac{1.08}{(1.11)^6} + \frac{1.17}{(0.11-.08)} \times \frac{1}{(1.11)^6} = 24.0 \text{ million.}$$

Adding the invested capital to the present value of EP stream given the enterprise value:  $V_0= 50+24 = 74$  million.

Thus, the two models lead to identical valuation.

In the case of Mergers and Acquisitions the actual consideration paid for the shares can exceed the valuation of shares under the DCF method and /or under the Present Value of Economic Profit method in situations where the merger /acquisition is likely to result in synergy providing additional benefits arising out of the M&A. Examples are where the target company has patents or other key facilities/factors like access to resources, raw material, location, markets etc. which can be better utilized by the existing acquirer company, thereby enhancing its profitability. This can also arise where the target company is a key competitor. In such situations the consideration paid can exceed the valuation based on present value using DCF or PV of economic profit.

#### Answer to 20 (b):

E.V.A. = NOPAT – COCE

- NOPAT = Net Operating Profit after Tax
- COCE = Cost of Capital Employed
- COCE = Weighted Average Cost of Capital × Average Capital Employed
  - = WACC × Capital Employed

| Debt Capital      |               |       | ₹2,000 crores  |
|-------------------|---------------|-------|--|
| Equity capital 50 | 00 + 7,500    | =     | ₹8,000 crores  |
| Capital employ    | ed            | =     | 2,000+8,000 = ₹10,000 crores                           |
| Debt to capital   | employed      | =     | 2,000  |
|                   |               |       | 10,000=0.20  |
| Equity to         | Capital       | =     | 8,000  |
| employed          |               |       | $\frac{10,000}{10,000} = 0.80$                         |
| Debt cost befor   | e Tax         |       | 12%  |
| Less: Tax (30%    | of 12%)       |       | 3.6%   |
| Debt cost after   | Tax ,         |       | 8.4%   |
| According to C    | apital Asset  | Prici | ng Model (CAPM)  |
| Cost of Equity C  | apital = Risk | Fre   | e Rate + Beta × Equity Risk Premium                    |
|                   |               |       | Or   |
|                   | = Risk        | Fre   | e Rate + Beta (Market Rate – Risk Free Rate)           |
|                   | = 9+          | 1.05  | 5 × (19-9)   |
|                   | = 9+          | 1.05  | 5 × 10 = 19.5%   |
|                   |               |       |  |
| WACC              | = Equity to   | o Cl  | E x Cost of Equity capital + Debt to CE x Cost of debt |
|                   | = 0.8>        | < 19. | .5% + 0.20× 8.40%                                      |
|                   | = 15.6        | 60%   | + 1.68% = 17.28%                                       |
|                   |               |       |  |
| COCE              | = WA          | СС    | × Capital employed                                     |
|                   | = 17.2        | 28%   | $\times$ 10,000 crores = 1728 crores                   |
|                   |               |       |  |
| E.V.A.            | = NO          | PAT   | - COCE   |
|                   | = ₹2,         | 100   | – ₹ 1,728 = ₹ 372 crores                               |

#### SN – 9 [Mergers and Acquisitions: Valuation]

#### Question 21.

(a) K Ltd. processes raw material M to make product A. Contribution per unit of A is ₹ 32. Each unit of A requires two units of M. The company can process maximum 20,000 units of M to produce 10,000 units of A. Demand for product is unlimited at present selling price but annual production is restricted to 6,000 units due to restricted supply of raw materials. B Ltd is the only supplier of the raw material.

K Ltd. wishes to acquire controlling interest in B Ltd. to ensure supply of raw material M. B Ltd. makes two products M and N using same production facilities. Machine hour required for each unit of M and N are 4 and 5 respectively. Total machine hour available in a year is 75,000. Contribution per unit of M is ₹ 8 and that per unit of N is ₹ 15. Demand for N is restricted to 5,400 units.

Share capital of B Ltd. consists of 50,000 ordinary shares of ₹ 10 each. Tax rate is 40% and cost of capital is 10%.

Determine (i) maximum price K Ltd. Can offer for 51% interest in B Ltd; (ii) Likely change in value of B Ltd. if the acquisition is successful.

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

#### Answer to 21 (a):

|                                 | Product M | Product N |
|---------------------------------|-----------|-----------|
| Contribution per unit           | 8.00      | 15.00     |
| Machine hours required per unit | 4         | 5         |
| Contribution per machine hour   | 2.00      | 3.00      |

Since availability of machine hour is restricted and N gives higher contribution per machine hour, presumably, B Ltd. prefers to produce N to satisfy the entire demand of 5,400 units. This takes 27,000 (5,400 units x 5 machine hours per unit) machine hours, leaving 48,000 machine hours for production of M. The available machine hour permits B Ltd. to produce 12,000 units of M (48,000 machine hours / 4 machine hours per unit), which it supplies to K Ltd.

If the acquisition is successful, K Ltd. will require B Ltd. to use whole of 75,000 hours for production of M. This means, B Ltd. will lose Re 1 per hour (₹ 3.00 – ₹ 2.00) for each of 27,000 hours currently used for production of N.

If acquisition is successful, the PAT of B Ltd. is expected to fall by ₹ 16,200 annually [₹ 27,000 (1-0.40)]. Since cost of capital is 10%, value of B Ltd. is expected to fall by ₹ 1,62,000 (₹ 16,200 / 0.10) after acquisition. In 75,000 machine hours, B Ltd. will make 18,750 units of M allowing K Ltd. to produce 9,375 units of A. If acquisition is successful, K Ltd. can expect to produce and sell 9,375 units of A instead of current 6,000 units. The additional contribution expected from additional sale of 3,375 units is ₹ 1,08,000 (3375 units × ₹ 32 per unit).

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If acquisition is successful, K Ltd can expect its PAT to increase by ₹ 64,800 annually [₹ 1,08,000 (1-0.40)]. Since cost of capital is 10%, value of K Ltd. is expected to rise by ₹ 6,48,000 [₹ 16,200 / 0.10) after acquisition. The maximum consideration, that K Ltd. can offer for controlling interest in B Ltd. is ₹ 6,48,000.

B Ltd. has 50,000 shares outstanding, 51% interest in this share capital consists of 25,500 shares. Maximum price per share = ₹ 25.41 (₹ 6,48,000 / 25,500)

# Answer to 21 (b):

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

Question 22.

(a) Alpha Ltd. is investigating the acquisition of Gama Ltd. Gama Ltd.'s balance sheet is given below:

| 10% Cumulative preference shares                          |     | 100 |
|---|-----|-----|
| Ordinary share capital (30 crore shares @ ₹ 10 per share) |     | 300 |
| Reserves & Surplus  |     | 150 |
| 14% Debentures  |     | 80  |
| Current Liabilities                                       |     | 100 |
| Total   |     | 730 |
| Net fixed assets  |     | 275 |
| Investments   |     | 50  |
| Current assets  |     |     |
| Stock   | 190 |     |
| Book debts  | 150 |     |
| Cash & Bank   | 65  | 405 |
| Total   |     | 730 |

Gama Ltd: Balance Sheet (₹ in crore)

Alpha Ltd. proposed to offer the following to Gama Ltd.

- (i) 10% cumulative preference shares of ₹ 100 crore in Alpha Ltd. for paying 10% cumulative preference capital of Gama Ltd.
- (ii) 12% convertible debentures of ₹ 84 crore in Alpha Ltd. to redeem 14% debentures of Gama Ltd.
- (iii) One ordinary share of Alpha Ltd. for every three shares held by Gama Ltd.'s shareholders, the market price being ₹ 42 for Alpha Ltd.'s shares and ₹ 20 for Gama Ltd.'s shares.

After acquisition, Alpha Ltd. is expected to dispose of Gama Ltd.'s stock for ₹ 150 crore, book debts for ₹ 102 crore and investments for ₹ 55 crore. It would pay entire current liabilities. What is the cost of acquisition to Alpha Ltd.? If Alpha Ltd.'s required rate of return is 20% how much should be the annual after tax cash flows from Gama Ltd.'s acquisition assuming a time horizon of 8 years and a zero salvage value? Would your answer change if there is a salvage value of ₹ 30 crore after 8 years?

Given, Present Value of ₹ 1 discounted @ 20% cumulative for 1 to 8 years = 3.837 and Present Value of ₹ 1 in 8th year discounted @ 20% = 0.233.

(b) Define Business Strategy? What are the different strategies for entering to a new business?

#### Answer to 22 (a):

|                                    |       |     | ₹ in Crore |
|------------------------------------|-------|-----|------------|
| 10% Cumulative Preference share    |       |     | 100        |
| 12% Convertible debentures         |       |     | 84         |
| Ordinary share capital ₹ (30/3x42) |       |     | 420        |
| Payment of current liabilities     |       |     | 100        |
| Gross payment                      | (A)   |     | 704        |
| Less realization from              |       |     |            |
| Investment                         |       | 55  |            |
| Stock                              |       | 150 |            |
| Book debts                         |       | 102 |            |
| Cash & Bank                        | (B)   | 65  | 372        |
| Net Cost                           | (A-B) |     | 332        |

#### **Cost of Acquisition**

#### Computation of annual after-tax cash flows.

332 = A x PVAF (0.20, 8) 332 = A x 3.837 or A = ₹ 86.53 crore (Annual Cash Flows)

#### Computation of annual after-tax cash flows with salvage value.

332 = A x PVAF (0.20, 8) + 30 x PVF (0.20, 8)
332 = 3.837A +0.233x30
332 = 3.837A +6.99
A = ₹ 84.70 Crores (Annual cash flows with salvage value of ₹ 30 crore after 8 years.)

#### Answer to 22 (b):

A business strategy typically is a document that clearly articulates the direction that a business will pursue and the steps it will take to achieve its goals. In a standard business plan, the business strategy results from goals established to support the stated mission of the business. A typical business strategy is developed in three steps: analysis, integration and implementation.

An organization can enter into a new or unrelated business in any of the following three forms:

- (i) Acquisition
- (ii) Internal start-up
- (iii) Joint Ventures or strategic partnerships

Question 23.

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

|                                  | Q Ltd.     | R Ltd.    |
|----------------------------------|------------|-----------|
| Profit after tax                 | ₹18,00,000 | ₹3,60,000 |
| Equity shares outstanding (Nos.) | 6,00,000   | 1,80,000  |
| EPS                              | ₹3         | ₹2        |
| PE Ratio                         | 10 times   | 7 times   |
| Market price per share           | ₹30        | ₹14       |

**Required**:

- (i) The number of equity shares to be issued by Q Ltd. for acquisition of R Ltd.
- (ii) What is the EPS of Q Ltd. after the acquisition?
- (iii) Determine the equivalent earnings per share of R Ltd.
- (iv) What is the expected market price per share of Q Ltd. after the acquisition, assuming its PE multiple remains unchanged?
- (v) Determine the market value of the merged firm.
- (b) What are the Strategic Imperatives behind successful mergers acquisitions?

#### Answer to 23 (a):

 (i) The number of shares to be issued by Q Ltd.: The Exchange ratio is 0.5
 So, new Shares = 1,80,000 x .5 = 90,000 shares.

# (ii) EPS of Q Ltd. after acquisition:

| Total Earnings | (18,00,000+3,60,000)  | ₹21,60,000 |
|----------------|-----------------------|------------|
| No. of Shares  | (6,00,000 + 90,000)   | 6,90,000   |
| EPS            | (21,60,000)/6,90,000) | ₹3.13      |

# (iii) Equivalent EPS of R Ltd.:

| No. of new Shares          | 0.5   |
|----------------------------|-------|
| EPS                        | ₹3.13 |
| Equivalent EPS (3.13 x .5) | ₹1.57 |

# (iv) New Market Price of Q Ltd. (P/E remaining unchanged): Present P/E Ratio of QLtd.

| Present P/E Ratio of QLtd.        | 10 times |
|-----------------------------------|----------|
| Expected EPS after merger         | ₹3.13    |
| Expected Market Price (3.13 x 10) | ₹31.30   |

# (v) Market Value of merged firm:

| Total number of Shares         | 6,90,000     |
|--------------------------------|--------------|
| Expected Market Price          | ₹31.30       |
| Total value (6,90,000 x 31.30) | ₹2,15,97,000 |

#### Answer to 23 (b):

The first priority for successful acquisition implementation is to know precisely what you are buying and what are you going to do if and when the deal is completed.

#### • Valid strategy for successful acquisition policy:

- (i) To obtain presence for core business.
- (ii) To leverage marketing: Applying a massive marketing capability to a good product line is an excellent base for an acquisition strategy.
- (iii) To build an enlarged base
- (iv) To reposition the business

#### • Drucker's five commandments for successful acquisitions

- (i) The acquirer must contribute something to the acquired company
- (ii) Common ore of unity is required.
- (iii) Acquirer must respect the business of acquired company
- (iv) Within a year or so, acquiring company must be able to provide top management to the acquired company.
- (v) Within the first year of merger, management's in both companies should receive promotions across the entities.

#### Weston's Commentary on Drucker's Pentalegue

- (i) Relatedness is a necessary requirement, but complimentary is an even greater virtue. e.g., combining a company, strong in research but weak in marketing with a company strong in marketing but weak in research may bring blessings to both.
- (ii) Relatedness or complementarities apply to general management functions such as research, plants control and financial manager as well as firm specific operations of production and marketing.
- (iii) Thus companies with cash flows or managerial capabilities in excess of investment opportunities could effectively combine with companies lacking in financial or managerial resources to make the most of the prospects for growth and profits in their industries.
- (iv) An acquiring firm will experience negative results if it pays too much. It is difficult to accurately evaluate another organization. There can be great surprises on both sides after marriage. Expectation that a firm can improve average risk return relationship in an unfamiliar market or industries is likely to be disappointed.

#### Golden Rules of Integration

- (i) Plan First: If you don't know what you are going to do, don't do it.
- (ii) Implement quickly: If you are going to do it, do it immediately.
- (iii) Communicate frankly: Cost of error is always on the side of inadequate communication. A change of plan can always be explained or admitted, with less adverse effect on morale and hence productivity, than a policy of silence.
- (iv) Sensitivity in the treatment of people, recognition of long service and proper and generous separation arrangements all count here.

Question 24.

(a) Frontier Company Limited (FCL) is in negotiation for taking over Back Moving Company Limited (BMCL). The management of FCL is seeing strong strategic fit in taking over BMCL provided it is a profitable proposition. Mr. Amit, GM (Finance) has been asked to look into the viability of the probable takeover of BMCL. He has collected the following necessary information.

Summarized Balance Sheet of Back Moving Company Limited (BMCL) as on March 31, 2014

| LIABILITIES  | Amount (₹ in crores) |
|--|----------------------|
| Shareholders' Fund:                                  |                      |
| Equity Share Capital (₹10 par)                       | 200.00               |
| 12% Preference Capital (₹100 par)                    | 75.00                |
| Reserves and Surplus                                 | 125.00               |
|  | 400.00               |
| Non-Current Liabilities:                             |                      |
| 10% Debentures                                       | 40.00                |
| Long Term Loans                                      | 25.00                |
|  | 65.00                |
| Current Liabilities:                                 |                      |
| Current Liabilities                                  | 24.75                |
| Total Liabilities                                    | 489.75               |
| ASSETS   |                      |
| Non-Current Assets                                   |                      |
| Net Fixed Assets                                     | 332.75               |
| Investments  | 125.00               |
|  | 457.75               |
| Current Assets:                                      |                      |
| Inventories  | 10.00                |
| Debtors  | 15.00                |
| Cash in Hand and at Bank                             | 4.25                 |
| Loans and Advances                                   | 1.75                 |
|  | 31.00                |
| Miscellaneous Expenses to the extent not written off | 1.00                 |
| Total Assets   | 489.75               |

Proposed Purchase Consideration:

- 10.50% Debentures of FCL for redeeming 10% Debentures of BMCL ₹44 crores.
- 11% Convertible Preference Shares of FCL for the payment of Preference Shareholders BMCL-₹100 crores.
- 12.50 crores of Equity Shares of FCL would be issued to the shareholders of BMCL at the prevailing market price of ₹ 20 each.
- FCL would meet all dissolution expenses of ₹0.50 crores.

The management of FCL would dispose any asset and liability which may not be required after takeover:

- Investments ₹150 crores
- Debtors ₹15 crores
- Inventories ₹ 9.75 crores
- Payment of Current Liabilities ₹ 25 crores
- All intangible assets will be written off

The management of FCL would like to run the taken over company, BMCL, for next 7 years and after that, it would discontinue with it. It is expected that for the next 7 years, the taken over company would generate the following yearly operating cash flows after tax:

|                                | 1  | 2  | 3  | 4  | 5   | 6   | 7   |
|--------------------------------|----|----|----|----|-----|-----|-----|
| Operating Cash Flows After Tax | 70 | 75 | 85 | 90 | 100 | 125 | 140 |
| (₹ In crores)                  |    |    |    |    |     |     |     |

It is estimated that the terminal cash flows of BMCL would be ₹ 50 crores at the end of 7th year.

If the cost of capital of FCL is 16%, then you are required to find out whether the decision to takeover BMCL at the terms and conditions mentioned above will be a profitable decision:

| Year                     | 1      | 2      | 3      | 4      | 5      | 6      | 7      |
|--------------------------|--------|--------|--------|--------|--------|--------|--------|
| Discounting Factor @ 16% | 0.8621 | 0.7432 | 0.6407 | 0.5523 | 0.4761 | 0.4104 | 0.3538 |

#### (b) Discuss the major theories of Mergers & Acquisitions.

Answer to 24 (a):

| Cost of Acquisition:              |        |        |
|-----------------------------------|--------|--------|
| Proposed Payments:                |        |        |
| Dissolution Expenses              | 0.50   |        |
| Current Liabilities               | 25.00  |        |
| 10.50% debentures                 | 44.00  |        |
| 11% Convertible Preference Shares | 100.00 |        |
| Equity Shares                     | 250.00 |        |
|                                   |        | 419.50 |
| Less:                             |        |        |
| Sales proceeds from-              |        |        |
| Investments                       | 150.00 |        |
| Debtors                           | 15.00  |        |
| Inventories                       | 9.75   |        |

|                         | 174.75 |        |
|-------------------------|--------|--------|
| Cash and Bank Balance   | 4.25   | 179.00 |
| Net cost of Acquisition |        | 240.50 |

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|------------------|-----|---------|------|-----|-------|---|
|                  | _ / |         | _    |     |       |   |

| Year | Cash Flows (in ₹ crores) | Discounting factor | Present Value |
|------|--------------------------|--------------------|---------------|
| 1    | 70                       | 0.8621             | 60.34         |
| 2    | 75                       | 0.7432             | 55.74         |
| 3    | 85                       | 0.6407             | 54.46         |
| 4    | 90                       | 0.5523             | 49.71         |
| 5    | 100                      | 0.4761             | 47.61         |
| 6    | 125                      | 0.4104             | 51.31         |
| 7    | 140                      | 0.3538             | 49.54         |
| 7    | 50                       | 0.3538             | 17.69         |
|      | Total                    |                    | 386.39        |

Since the present Value of the future cash flows is more than the cost of acquisition, it will be a profitable proposition to take over the said company, BMCL.

# Answer to 24 (b):

The following theories of mergers and acquisitions are discussed below:

- (i) Synergy or Efficiency: In this theory, the total value from the combination is greater than the sum of the values of the component companies operating independently.
- (ii) Hubris: The result of the winner's curse, causing bidders to overpay. It is possible that value is unchanged.
- (iii) Agency: The total value here is decreased as a result of mistakes or managers who put their own preferences above the well-being of the company.

While the target company always gains, the acquirer gains when synergy accrues from combined operations, and loses under the other two theories. The total value becomes positive under synergy, becomes zero under the second, and becomes negative under the third.

SN – 10 [Valuation of Assets and Liabilities]

Question 25.

(a) SB Finance Ltd. is a non-banking finance company. It makes available to you the costs and market price of various investments held by it as on 31.3.2014.

|                        |  | (₹ Lakhs)  |
|------------------------|--|--|
|                        | Cost   | Market Price   |
| Equity Shares-         |  |  |
| E-1                    | 60.00  | 61.20  |
| E-2                    | 31.50  | 24.00  |
| E-3                    | 60.00  | 36.00  |
| E-4                    | 60.00  | 120.00   |
| E-5                    | 90.00  | 105.00   |
| E-6                    | 75.00  | 90.00  |
| E-7                    | 30.00  | 6.00   |
| Mutual funds-          |  |  |
| MF-1                   | 39.00  | 24.00  |
| MF-2                   | 30.00  | 21.00  |
| MF-3                   | 6.00   | 9.00   |
| Government securities- |  |  |
| GV-1                   | 60.00  | 66.00  |
| GV-2                   | 75.00  | 72.00  |
|                        | Equity Shares-<br>E-1<br>E-2<br>E-3<br>E-4<br>E-5<br>E-6<br>E-7<br>Mutual funds-<br>MF-1<br>MF-2<br>MF-3<br>Government securities-<br>GV-1<br>GV-2 | Cost           Equity Shares-           E-1         60.00           E-2         31.50           E-3         60.00           E-4         60.00           E-5         90.00           E-6         75.00           E-7         30.00           MF-1         39.00           MF-2         30.00           MF-3         6.00           GV-1         60.00 |

- (i) Can the company adjust depreciation of a particular item of investment within a category?
- (ii) What should be the value of investments as on 31.3.2014?
- (iii) Is it possible to off-set depreciation in investment in mutual funds against appreciation of the value of investment in equity shares and government securities?
- (b) From the following details, compute the total value of human resources of skilled and unskilled group of employees according to Lev and Schwartz (1971) model.

| Particulars   | Skilled   | Unskilled |
|---|-----------|-----------|
| Annual average earning of an employee till the retirement age | ₹1,20,000 | ₹80,000   |
| Age of retirement   | 65 years  | 62 years  |
| Discount rate   | 18%       | 18%       |
| No of employees in the group                                  | 25        | 35        |
| Average age   | 62 years  | 60 years  |

- (c) A share of GHB Ltd. is currently quoted at, a price earning ratio of 7.5 times. The retained earning per share being 37.5% is ₹ 3 per share. Compute:
  - (i) The company's cost of equity, if investors expect annual growth rate of 12%.
  - (ii) If anticipated growth rate is 13% p.a., calculate the indicated market price, with same cost of capital.

# Answer to 25 (a):

(i) Quoted current investments for each category shall be valued at cost or market value, whichever is lower. For this purpose, the investments in each category shall be considered scrip-wise and the cost and market value aggregated for all investments in each category. If the aggregate market value for the category is less than the aggregate cost for that category, the net depreciation shall be provided for or charged to the profit and loss account. If the aggregate market value for the category exceeds the aggregate cost for the category, the net appreciation shall be ignored. Therefore, depreciation of a particular item of investments can be adjusted within the same category of investments.

| Type of Investment         | Valuation Principle           | Value     |
|----------------------------|-------------------------------|-----------|
|                            |                               | ₹in lakhs |
| Equity Shares (Aggregated) | Lower of cost or market Value | 406.50    |
| Mutual Funds               | NAV (Market value, assumed)   | 54.00     |
| Government securities      | Cost                          | 135.00    |
|                            |                               | 595.50    |

#### (ii) Value of Investments as on 31.3.2014

As per para 14 of AS 13 "Accounting for Investments", the carrying amount for current investments is the lower of cost and market price. Sometimes, the concern of an enterprise may be with the value of a category of related current investments and not with each individual investment, and accordingly, the investments may be computed at the lower of cost and market value computed category wise.

(iii) Inter category adjustments of appreciation and depreciation in values of investments cannot be done. It is not possible to offset depreciation in investment in mutual funds against appreciation of the value of investments in equity shares and Government securities.

# Answer to 25 (b):

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|    | Particulars   | Skilled    | Unskilled  |
|----|---|------------|------------|
| 1. | Average Age   | 62 years   | 60 years   |
| 2. | Age of retirement   | 65 years   | 62 years   |
| 3. | Remaining period of employment                            | 3 years    | 2 years    |
| 4. | Annual earnings/Employee                                  | 1,20,000   | 80,000     |
| 5. | Annuity factor at 18% for 3 & 2 years                     | 2.1743     | 1.5656     |
| 6. | Value of employees= PV of Future Earnings of Employees =  |            |            |
|    | Annual Earnings x Annuity factor                          |            |            |
|    | (a) Skilled(1,20,000 x annuity factor at 18% for 3 years) | ₹2,60,916  |            |
|    | (b) Unskilled(80,000 x annuity factor at 18% for 2 years) |            | ₹1,25,248  |
| 7. | No of employees   | 25         | 35         |
| 8. | Therefore total value of Human Resources                  | ₹65,22,900 | ₹43,83,680 |

#### Total value of Human Resources

| Skilled   | ₹65,22,900   |
|-----------|--------------|
| Unskilled | ₹43,83,680   |
| Total     | ₹1,09,06,580 |

#### Answer to 25 (c):

# (i) Calculation of cost of capital

| Retained earnings | 37.5%  | ₹3 per share |
|-------------------|--------|--------------|
| Dividend*         | 62.5%  | ₹5 per share |
| EPS               | 100.0% | ₹8 per share |

P/E ratio 7.5 times

Market price is ₹ 7.5 × 8 = ₹ 60 per share

Cost of equity capital = (Dividend\*/price × 100) + growth %

 $= (5/60 \times 100) + 12\% = 20.33\%.$ 

(ii) Market price = Dividend/(cost of equity capital % – growth rate %)

= 5/(20.33% - 13%)

= 5/7.33%

= ₹ 68.21 per share.

\*Dividend = ₹(3/37.5)×62.5=₹ 5

# Question 26.

(a) Given below is the Balance Sheet of Sandip Ltd as on 31.03.2014

| Equity and Liability  | ₹in           | Assets   | ₹in          |
|---|---------------|--|--------------|
|   | lakhs         |  | lakhs        |
| (1) Shareholders Fund:  |               | (1) Non-Current Assets:  |              |
| (a) Share Capital   |               | (a) Fixed Assets - Tangible Assets   | 72.00        |
| Equity Share Capital of ₹ 10 each                                 | 50.00         | (b) Non-Current Investments (Non Trade)  | 12.00        |
| (b) Reserve & Surplus<br>(i) Reserve<br>(ii) P & L Account        | 32.00<br>3.00 | (2) Current Assets:<br>(a) Inventories<br>(b) Trade Receivables - Sundry Debtors | 7.80         |
| (2) Current Liabilities:<br>(a) Trade Payables – Sundry Creditors |               | (c) Cash and Cash Equivalents  | 6.20<br>5.20 |
| (b) Short Term Provision - Proposed                               | 8.20          |  |              |
| Dividend  | 10.00         |  |              |
|   |               |  |              |
| Total   | 103.20        | Total  | 103.20       |

Other Information:

1. Profit Before Tax and Other relevant information: (₹ Lakhs)

| Year | Profit Before Tax | Provision for Gratuity required | Gratuity Paid | Loss of uninsured stock |
|------|-------------------|---------------------------------|---------------|-------------------------|
| 2010 | 42.00             | 2.20                            | -             | -                       |
| 2011 | 39.00             | 2.30                            | 1.67          | 0.62                    |
| 2012 | 44.00             | 2.50                            | 0.32          | -                       |
| 2013 | 42.00             | 2.60                            | 1.42          | -                       |
| 2014 | 37.00             | 2.70                            | 0.12          | -                       |

2. Past Tax rate is 51% while Expected Tax Rate is 45%.

3. The Company wants to switch over towards maintaining gratuity provision on actuarial calculation rather than accounting on payment basis. The Company's Non- Trade Investments fetched 11%.

Find out value of Goodwill. It may be assumed that Super Profit, if any, is maintainable for 5 years. 18% should be the appropriate discount factor. Normal Rate of Return may be taken as 15%.

(b) State the features of Credit Derivative.

(c) Calculate the price of 3 months ABC futures, if ABC (FV ₹10) quotes ₹220 on NSE and the three months future price quotes at ₹230 and the one month borrowing rate is given as 15 percent and the expected annual dividend yield is 25 percent per annum payable before expiry.

Answer to 26 (a):

#### 1. Computation of Future Maintainable Profits

(₹ Lakhs)

| Particulars  | 2010   | 2011   | 2012   | 2013    | 2014   |
|--|--------|--------|--------|---------|--------|
| Profit Before Tax  | 42.00  | 39.00  | 44.00  | 42.00   | 37.00  |
| Less: Provision for Gratuity   | (2.20) | (2.30) | (2.50) | (2.60)  | (2.70) |
| Add: Gratuity Paid   | _      | 1.67   | 0.32   | 1.42    | 0.12   |
| Add: Abnormal Loss   | _      | 0.62   | _      | _       | _      |
| Adjusted Profits   | 39.80  | 38.99  | 41.82  | 40.82   | 34.42  |
| Simple Average Profit (See Note below) (39.80 + 38.99 + 41.82 + 40.82 + 34.42)÷5 |        |        |        |         | 39.17  |
| Less : Income from Non-Trade Investments at 11% of ₹12 Lakhs                     |        |        |        | (1.32)  |        |
| Adjusted Profit Before Tax = Future Maintainable PBT                             |        |        |        | 37.85   |        |
| Less : Tax Expense at 45%  |        |        |        | (17.03) |        |
| Adjusted Profit After Tax = Future Maintainable PAT                              |        |        |        | 20.82   |        |

**Note:** Since Profits show an oscillating trend, Simple Average Profit shall be more appropriate than Weighted Average or Trend Equation Methods.

# 2. Computation of Average Capital Employed

| Particulars   |       | ₹ Lakhs |  |
|---|-------|---------|--|
| Total of Assets as per Balance Sheet                              |       | 103.20  |  |
| Less: Non- Trade Investments and Sundry Creditors (12.00 +8.20)   |       | (20.20) |  |
| Closing Capital Employed  |       | 83.00   |  |
| Less: 50% of Profit After Tax earned in 2014 as per Books         |       |         |  |
| PAT = PBT less Tax at 51% = 37.00 Less 51% thereon = ₹18.13 Lakhs | 18.13 |         |  |
| 50% of the above PAT for the year                                 |       | (9.07)  |  |
| Average Capital Employed  |       | 73.93   |  |

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# 3. Computation of Goodwill (₹ Lakhs)

#### (a) Capitalization Method:

| Expected Capital (Future Maintainable Profit ÷ NRR) =₹20.82 Lakhs ÷ 15% | 138.80 |
|---|--------|
| Less: Closing Capital Employed Less Proposed Dividend = 83.00-10.00     | 73.00  |
| Goodwill using Capitalization Method                                    | 65.80  |

# (b) Super Profit Method:

| Future Maintainable Profit  | 20.82 |
|---|-------|
| Less: Normal Profit at 15% Average Capital Employed (15% of ₹73.93 Lakhs) | 11.09 |
| Super Profits   | 9.73  |
| Goodwill at 5 years' purchase of Super Profits                            | 48.65 |

Note: Alternatively Normal Profit can be computed based on Closing Capital Employed

#### (c) Annuity Method:

| Super Profits                     | 9.73  |
|-----------------------------------|-------|
| Annuity Factor for 5 years at 18% | 3.127 |
| Goodwill using Annuity Method     | 30.43 |

#### Note and Assumptions:

- 1. Under Capitalization Method, Closing Capital is considered, whereas under Super Profit Method, Average Capital Employed is considered for calculating Normal Profits.
- 2. Discount Rate and Normal Rate of Return given above are after tax rates.

# Answer to 26 (b):

# In general, credit derivative products have following features;

- It is a contract between two counterparties protection buyer and protection seller
- The contract is based on reference asset. It could be bank loan, corporate loan, corporate bond and debenture or trade receivables.
- Protection buyer pays premium for exchanging /transferring credit risk to protection seller
- The credit event for which protection is bought and sold is also predefined. It could be bankruptcy, insolvency, payment default, price decline etc.
- The settlement between protection buyer and protection seller on the credit event can be cash settled.

# Answer to 26 (c):

Future's Price = Spot + cost of carry – Dividend

 $F = 220 + 220 \times 0.15 \times 0.25 - 0.025^{**} \times 10$ 

= 225.75

\*\* Entire 25% dividend is payable before expiry, which is ₹2.50.

Thus we see that futures price by calculation is ₹225.75 which is quoted at ₹230 in the exchange.

# Analysis:

Fair value of Futures less than Actual futures Price: Futures Overvalued .Hence it is advised to sell.

# Question 27.

(a) J Ltd. purchased machinery from K Ltd. on 30.09.2013. The price was ₹ 370.44 lakhs after charging 8% Sales-tax and giving a trade discount of 2% on the quoted price. Transport charges were 0.25% on the quoted price and installation charges come to 1% on the quoted price.

A loan of ₹ 300 lakhs was taken from the bank on which interest at 15% per annum was to be paid.

Expenditure incurred on the trial run was Materials ₹ 35,000, Wages ₹ 25,000 and Overheads ₹ 15,000.

Machinery was ready for use on 1.12.2013. However, it was actually put to use only on 1.5.2014. Find out the cost of the machine and suggest the accounting treatment for the expenses incurred in the interval between the dates 1.12.2013 to 1.5.2014. The entire loan amount remained unpaid on 1.5.2014.

(b) The following abridged Balance Sheet as at 31.03.2013 pertains to Jupiter Ltd. (₹Lakhs)

| Equity & Liabilities                        | ₹      |
|---|--------|
| (1) Shareholders' Funds:                    |        |
| (a) Share Capital - Equity Share Capital    |        |
| (i) 180 Lakhs Shares of ₹10, fully paid up  | 1,800  |
| (ii) 90 Lakhs Shares of ₹10, ₹8 paid up     | 720    |
| (iii) 150 Lakhs Shares of ₹5, fully paid up | 750    |
| (b) Reserves & Surplus                      | 5 628  |
| (2) Non-Current Liabilities:                | 0,010  |
| Long Term Borrowings - Secured Loans        | 4 500  |
| (3) Current Liabilities:                    | 4,500  |
| (a) Other Current Liabilities               | 1 242  |
| (b) Short Term Provisions                   | 1,242  |
|   | 960    |
| Total                                       | 15,600 |

| Assets                            |        |
|-----------------------------------|--------|
| (1) Non-Current Assets:           |        |
| (a) Fixed Assets:                 |        |
| (i) Tangible Assets               | 11,166 |
| (ii) Intangible Assets - Goodwill | 420    |
| (b) Other Non-Current Assets      |        |
| - Miscellaneous Expenditure       | 171    |
| (2) Current Assets:               |        |
| (a) Short Term Loans & Advances   | 943    |
| (b) Other Current Assets          | 2,900  |
| Total                             | 15,600 |

You are required to calculate the following for each one of three categories of Equity Shares appearing in the above mentioned Balance Sheet -

- Intrinsic Value on the basis of Book Values of Assets and Liabilities including Goodwill,
- Value per Share on the basis of Dividend Yield. Normal Rate of Dividend in the concerned Industry is 15%, whereas Jupiter Ltd has been paying 20% Dividend for the last four years and is expected to maintain it in the next few years, and
- Value per Share on the basis of EPS, For the year ended 31<sup>st</sup> March, 2013 the Company has earned ₹1,371 Lakhs as Profit after tax, which can be considered to be normal for the Company. Average EPS for a fully paid Share of ₹10 of a Company in the same Industry is ₹2.

# Answer to 27 (a):

|  | ₹ (in Lacs) | (₹ in Lacs)   |           |
|--|-------------|---------------|-----------|
| Quoted price (refer to working note)             | 350.00      |               |           |
| Less: 2% Trade Discount                          | 7.00        |               |           |
|  | 343.00      |               |           |
| Add: 8% Sales tax (8% × ₹ 343 lacs)              | 27.44       | 370.44        |           |
| Transport charges (0.25% × ₹ 350 lacs)           |             | 0.88          | (approx.) |
| Installation charges (1% × ₹ 350 lacs)           |             | 3.50          |           |
| Financing cost (15% on ₹300 Lacs) for the period |             |               |           |
| 30.9.2013 to 1.12.2013                           |             | 7.50          |           |
| Trial Run Expenses                               |             |               |           |
| Material   | 0.35        |               |           |
| Wages  | 0.25        |               |           |
| Overheads  | <u>0.15</u> | 0.75          |           |
| Total cost                                       |             | <u>383.07</u> |           |

Interest on loan for the period 1.12.2013 to 1.05.2014 is ₹ 300 lakhs ×  $\frac{15}{100}$  ×  $\frac{5}{12}$  = ₹18.75 lacs

This expenditure may be charged to Profit and Loss Account or deferred for amortization between say three to five years. Assumed that no other expenses are incurred on the machine during this period.

# Working Note:

Let the quoted price 'X' Less: Trade Discount 0.02X. Actual Price = 0.98X. Sale Tax @8% = 1.08 × 0.98X or X =  $\frac{₹ 370.44 \text{ lakhs}}{1.08 \times 0.98} = ₹ 350 \text{ lakhs}$ 

# Answer to 27 (b):

#### A. Computation of Capital employed

(₹ in Lakhs)

| Particulars   | Amount | Amount |
|---|--------|--------|
| Goodwill at Cost                                      |        | 420    |
| Other fixed assets                                    |        | 11,166 |
| Current Assets  |        | 2,900  |
| Loans and advances                                    |        | 943    |
| Total assets Less: Outside liabilities                |        | 15,429 |
| Secured loans .'                                      | 4,500  |        |
| Current liabilities                                   | 1,242  |        |
| Provisions  | 960    | 6,702  |
| Capital employed attributable to Equity Share Holders |        | 8,727  |

| B. Computation of Value pe  | r Share under Intrinsic V | alue Method             | (₹ in Lo | akhs) |
|---|---------------------------|-------------------------|----------|-------|
|   | Particulars               |                         | Amo      | ount  |
| Capital employed as on valu   | vation Date i.e. Balance  | Sheet Date              |          | 8,727 |
| Add: Notional call on share:  | s partly paid up (90 Lakh | s shares ×₹2 per share) |          | 180   |
| Net assets available to equit   | y shareholders            | [A]                     |          | 8,907 |
| Equivalent value of equity sh   | are capital (at par value | e)                      |          |       |
| 180 + 90 Lakhs Shares of ₹ 10   |                           |                         |          | 2,700 |
| 150 Lakhs Shares of ₹ 5   |                           |                         |          | 750   |
| Face value of equity share c  | apital                    | [B]                     |          | 3,450 |
| Value per share of $\mathbf{E} 1 = \frac{\mathbf{A}}{\mathbf{B}} = \frac{\mathbf{A}}{\mathbf{B}}$ | ₹8,907<br>₹3,450          |                         |          | ₹2.58 |
| Value per Share   |                           |                         |          |       |
| ₹ 10 Share, fully paid-up   | =₹ 10 ×₹2.58              |                         | ₹        | 25.80 |
| ₹10 Share, × 8 paid-up  | =₹ 25.80 <b>Less</b> × 2  | Unpaid                  | ₹        | 23.80 |
| ₹ 5 Share, fully paid-up  | =₹ 5×₹2.58                |                         | ₹        | 12.90 |

**Note:** Unpaid amount on partly paid up shares is assumed to be called up in the immediate future.

| Particulars   |        |
|---|--------|
| Company's Dividend rate                                     | 209    |
| Normal industry dividend                                    | 15%    |
| Value per share   |        |
| ₹ 10 Shares, fully paid up = $\frac{₹10 \times 20\%}{15\%}$ | ₹ 13.3 |
| ₹ 10 Shares, ₹ 8 paid up = ₹8×20%<br>15%                    | ₹ 10.6 |
| ₹ 5 Shares, Fully paid up = $\frac{₹5 \times 20\%}{15\%}$   | ₹6.6   |
|   |        |

#### C. Computation of Value per Share under Dividend Yield Method (₹ in lakhs)

**Note:** Dividend is payable only on the paid up value. Hence under dividend - yield Method, the value per share for different Categories of shares, should be taken on pro- rata basis, as indicated above.

| Particulars   | ₹ in Lakhs |
|---|------------|
| Profit after Tax for the year                                   | 1,371      |
| Paid up Equity share capital [1,800+720+750]                    | 15%        |
| Company's EPS for a share of ₹1 = <u>₹1,371</u><br>₹3,270       | 0.42       |
| Value per share = Face Value × Company EPS per ₹1<br>Market EPS |            |
| ₹ 10 Shares, fully paid up = $\frac{₹10 \times 0.42}{0.20}$     | ₹ 21.00    |
| ₹ 10 Shares, ₹ 8 paid up = <del>₹8×0.42</del><br>0.20           | ₹ 1680     |
| ₹ 5 Shares, fully paid up = $\frac{₹5 \times 0.42}{0.20}$       | ₹10.50     |

#### Summary of value per under different methods

| Particulars                | Intrinsic value<br>method | Dividend yield<br>method | EPS method |
|----------------------------|---------------------------|--------------------------|------------|
| ₹ 10 Shares, fully paid up | ₹25.80                    | ₹13.33                   | ₹21.00     |
| ₹ 10 Shares, ₹ 8 paid up   | ₹23.80                    | ₹10.67                   | ₹16.80     |
| ₹ 5 Shares, fully paid up  | ₹12.90                    | ₹6.67                    | ₹10.50     |

**Note:** Under Intrinsic Value / Net Assets Method, the difference between fully and partly paid up share will reflect the uncalled amount. However, under Dividend and EPS methods, the difference between the fully and partly paid up shares will be proportional to the paid up value.

Question 28.

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

In the background of the relevant accounting standard, advice the company on the cutoff date for capitalization of the project cost.

- (b) In view of the provisions of Accounting Standard 25 on Interim Financial Reporting, on what basis will you calculate, for an interim period, the provision in respect of defined benefit schemes like pension, gratuity etc. for the employees?
- (c) In May, 2013 Q 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 ₹ 24 lacs, whereas the total interest payable to the bank on the loan for the period till 31st March, 2014 amounted to ₹ 31 lacs.

Can ₹ 31 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?

(d) IT Limited has set up its business in a designated backward area which entitles the company to receive from the Government of India a subsidy of 20% of the cost of investment. Having fulfilled all the conditions under the scheme, the company on its investment of ₹ 50 crore in capital assets, received ₹ 10 crore from the Government in January, 2014 (accounting period being 2013-2014). The company wants to treat this receipt as an item of revenue and thereby reduce the losses on profit and loss account for the year ended 31st March, 2014.

Keeping in view the relevant Accounting Standard, discuss whether this action is justified or not.

# Answer to 28 (a):

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

#### Answer to 28 (b):

Accounting Standard 25 suggests that provision in respect of defined benefit schemes like pension and gratuity for an interim period should be calculated based on the yearto-date basis by using the actuarially determined rates at the end of the prior financial year, adjusted for significant market fluctuations since that time and for significant curtailments, settlements or other significant one-time events.

#### Answer to 28 (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 up to the date of completion (January, 2014) i.e.  $\gtrless$  24 lac alone can be capitalized. It cannot be extended to  $\gtrless$  31 lacs.

#### Answer to 28 (d):

As per para 10 of AS 12 'Accounting for Government Grants', where the government grants are of the nature of promoters' contribution, i.e. they are given with reference to the total investment in an undertaking or by way of contribution towards its total capital outlay (for example, central investment subsidy scheme) and no repayment is ordinarily expected in respect thereof, the grants are treated as capital reserve which can be neither distributed as dividend nor considered as deferred income.

In the given case, the subsidy received is neither in relation to specific fixed asset nor in relation to revenue. Thus it inappropriate to recognise government grants in the profit and loss statement, since they are not earned but represent an incentive provided by government without related costs. The correct treatment is to credit the subsidy to capital reserve. Therefore, the accounting treatment followed by the company is not proper.

# Question 29.

(a) How do you classify different types of real estate? What are the Advantages of Real Estate investing?

|  |        | ₹i     | n crores |
|--|--------|--------|----------|
| Year ended 31 <sup>st</sup> March                          | 2014   | 2013   | 2012     |
| PBIT   | 696.03 | 325.65 | 155.86   |
| Non branded income   | 53.43  | 35.23  | 3.46     |
| Inflation compound factor@8%                               | 1.000  | 1.087  | 1.181    |
| Remuneration of Capital(5% of Average Capital<br>Employed) | 55.57  |        |          |
| Tax@30%  |        |        |          |
| Multiple applied   | 22.18  |        |          |

(b) Estimate the brand value of ABC Tech Ltd with help of following information:
(c) LM Pvt Ltd. is negotiating to sell their business to a public limited company. The following is a summarized extract from Balance Sheet as on 31<sup>st</sup> March, 2014 of LM Pvt Ltd.

|  |                 | (<)              |
|--|-----------------|------------------|
| Share Capital(1000 shares of ₹1000 each) |                 | 10,00,000        |
| Free reserve                             |                 | <u>2,00,000</u>  |
|  |                 | 12,00,000        |
| Fixed Assets at depreciated cost         |                 | 6,40,000         |
| Current assets                           | 7,20,000        |                  |
| Less: Current Liabilities                | <u>1,60,000</u> | <u>5,60,000</u>  |
|  |                 | <u>12,00,000</u> |

The profits of LM Pvt. Ltd. for the last 5 years has been in existence after eliminating any extraneous or non-recurring debits and credits were ₹ 90,000; ₹ 1,30,000; ₹ 1,15,000; ₹2,40,000; and ₹ 2,75,000. A return on capital employed at 10% is considered to be reasonable and it is expected that future requirements as to capital will not materially vary from capital employed as on 31<sup>st</sup> March.

Ignoring extraneous factors that may affect the position, suggest the amount that should reasonably be paid to the company for goodwill for acquiring the company. You may make necessary assumptions.

Answer to 29 (a):

# Types of real estate:

- (1) Raw land: Undeveloped land may be purchased by an investor who hopes that its market price will rise in the coming years. If the investor is energetic and the location desirable, the land can be developed by subdividing it and installing roads and sewers and other amenities. Then parcels of the developed land can be sold.
- (2) **Rental residences:** Investors may purchase residential space to generate rental income. The owner or hired manager must collect rents, maintain the premises, and keep the premises rented.
- (3) Office buildings: Rental income from a commercial office building can be tax-sheltered. Keeping the building well maintained and rented to compatible tenants usually requires professional management.
- (4) Warehouses: A building that is to be leased as storage space does not require much active management with a responsible tenant that will sign a long-term lease.
- (5) Neighborhood shopping centres: A profitable shopping centre can be wonderful source money so long as the neighborhood remains attractive and competing shopping centres are scarce.
- (6) Travel accommodations: A hotel or motel located near a heavily traveled route can be profitable, but such an asset generally requires professional management.
- (7) Private residences: The single-family residence remains the most popular investment in the United States now a day in India also. In fact, the psychic income associated with home ownership clouds the rational economic thinking of many prospective buyers.

#### The advantages are:

- (1) Financial Leverage: Financial leverage can be defined as the use of borrowed money to buy an investment with a larger value than what the buyer could have afforded without any borrowed money. When an individual can invest borrowed money and earn a rate of return higher than the rate of interest payable on the loan, the financial leverage is profitable. Traditionally, real estate investors borrow from 60 to 80 percent of the value of the properties they acquire, which is a much higher leverage ratio (of loan to asset value) than is available on most other forms of investment.
- (2) Tax Shelter: Real estate investors benefit from tax; laws that encourage real estate ownership. Rental property can be depreciated, and this depreciation is a taxdeductible expense that will reduce taxes on the rental income.
- (3) Control: Real estate owners can control all physical aspects of their properties-the color their house is painted, how often the grass is cut, how soon leaking plumbing is repaired, and other factors, all of which may give them psychic income.

#### Answer to 29 (b):

| Year ended 31 <sup>st</sup> March                       | 2014    | 2013   | 2012   |
|---|---------|--------|--------|
| PBIT  | 696.03  | 325.65 | 155.86 |
| Less: Non branded income                                | 53.43   | 35.23  | 3.46   |
| Adjusted profits  | 642.60  | 29.42  | 152.40 |
| Inflation compound factor@8%                            | 1.000   | 1.087  | 1.181  |
| Present value of profits for the brand                  | 642.60  | 315.69 | 179.98 |
| Weightage factor  | 3       | 2      | 1      |
| Weightage profits                                       | 1927.80 | 631.38 | 179.98 |
| Three years average weighted profits                    | 456.53  | -      | -      |
| Remuneration of Capital(5% of Average Capital Employed) | 55.57   |        |        |
| Brand related profits                                   | 400.96  |        |        |
| Tax at 30%  | 120.29  |        |        |
| Brand earnings  | 280.67  |        |        |
| Multiple applied  | 22.18   |        |        |
| Brand value   | 6225.26 |        |        |

#### The Computation of Brand Value for ABC Tech Ltd is as follows:

# Answer to 29 (c):

Calculation of average profit of last 5 years = ₹ (90,000+130,000+115,000+240,000+275,000)/5

Expected return on capital employed

= ₹850000/5 = ₹170000

Super profit

= ₹1200000 ×10/100 = ₹ 120000

= ₹170000 - ₹ 120000 = ₹ 50000

(Fin crores)

| Goodwill (assumed to be 3 years super profit) | =₹50000 ×3 =₹ 150000.       |
|---|-----------------------------|
| Alternatively,                                |                             |
| As per Capitalisation method, Goodwill is     | = (₹170000/.10) - ₹ 1200000 |
|   | =₹1700000-₹1200000          |
|   | =₹500000/-                  |

#### Question 30.

- (a) 14 years ago a man took a 21 years lease of a premises on payment of salami and rent which was equivalent to a net rent of ₹ 3000/- per month. The net Rack Rent of the property is ₹ 5000/- per month. He now wishes to cancel his existing lease and to take a new lease for 21 years at the existing rental. What should be the value of fair premium or salami for him to pay? Assume interest on capital is required at 9 % and sinking fund of 3%.
- (b) Discuss the financial aspect of valuation of farm house.
- (c) KBC Bank had issued a tax saving bond carrying an interest of 8% on face value of ₹10000/per bond with 6 years to maturity and interest payable each year. BB Finance had also issued a tax saving bond of ₹ 10000 each with 8 years to maturity and carrying a coupon rate of 6%.

As on date, i.e two years after the issue date, when a new bond with 6 years to maturity carries a coupon rate of 7% and bonds with 8 years to maturity carries 5%, and both these bonds are priced correctly, which is cheaper to buy and how many bonds can be bought for ₹ 5 lacs (assume part of a bond can also be bought)?

# Answer to 30 (a):

| Net Rack rent<br>Less: Rent reserved on leas                       | =₹5000 p.m<br>e = <u>₹3000 p.m</u><br><u>₹2000 p.m</u>  |
|--|---|
| Profit on rental<br>Multiplying by years' purch                    | = ₹ 2000 × 12 = ₹ 24000p.a<br>hase (Y.P) at 9% and 3% for 14 years<br>= 1/(i+S)<br>= 1/[i+{r(1+r) <sup>n</sup> -1}] |
| Where, i= interest on capito<br>r=interest on sinking<br>n= years. | al<br>g fund  |
| Substituting,  | = 1/[.09 + P{0.03/(1 + 0.03) <sup>14</sup> -1<br>=6.7328126   |

And present value of Re. 1 @ 9% for 7 years=1/(1+i)<sup>n</sup>=1/(1+.0.09)<sup>7</sup> =0.5470342

Y.P dual rate 9% and 3% for 14 years deferred by 7 years

|                              | = 6.7328126 × 0.5470342 × ₹24000 |
|------------------------------|----------------------------------|
|                              | = 3.6830791 × ₹24000             |
|                              | =₹88393.898                      |
| Or,                          | = ₹ 88394/-                      |
| Amount of premium to be paid | =₹88394/-                        |
|                              |                                  |

# Answer to 30 (b):

- The Farm building happens to be part of the whole farm. General modes of valuation of farm houses are as follows:
- (i) Land and Building method: This method is used for farm houses located within 8 km from municipal limit. Capital gains tax is applicable to transfer of such properties.
- (ii) Comparative Sales method: The sales comparison approach in farm house valuation is based primarily on the principle of substitution. This approach assumes a prudent individual will pay no more for a property than it would cost to purchase a comparable substitute property. The approach recognizes that a typical buyer will compare asking prices and seek to purchase the property that meets his or her wants and needs for the lowest cost. In developing the sales comparison approach, the appraiser attempts to interpret and **measure** the actions of parties involved in the marketplace, including buyers, sellers, and investors. This method may be applied if sale values of comparable farm houses are available from Revenue Authorities.
- (iii) The income capitalization approach (often referred to simply as the "income approach") is used to value resorts in and around cities/towns. It should be remembered that the appurtenant land and the land for amenities with building do not give additional agricultural income. Because it is intended to directly reflect or model the expectations and behaviors of typical market participants, this approach is generally considered the most applicable valuation technique for income-producing properties, where sufficient market data exists.

In a commercial income-producing property this approach capitalizes an income stream into a value indication. This can be done using revenue multipliers or capitalization rates applied to a Net Operating Income (NOI). Usually, an NOI has been stabilized so as not to place too much weight on a very recent event. An example of this is an unleased building which, technically, has no NOI. A stabilized NOI would assume that the building is leased at a normal rate, and to usual occupancy levels. The Net Operating Income (NOI) is gross potential income (GPI), less vacancy and collection loss (= Effective Gross Income) less operating expenses (but excluding debt service, income taxes, and/or depreciation charges applied by accountants).

(iv) Replacement Cost less depreciation method: Farm houses generally have constraints of free access and hence lack ability or marketability of the buildings thereon as separate units. This then rules out capitalization mode of valuation. Hence replacement cost less depreciation is the prominent method used for valuation of farm house buildings.

# Answer to 30 (c):

| Daudt  |   | KDO     |         |
|--------|---|---------|---------|
| Parti  | culars  | KBC     | BB      |
| (i)    | Desired Yield   | 7%      | 5%      |
| (ii)   | Face Value  | ₹10000  | ₹10000  |
| (iii)  | Annual Coupon Rate  | 8%      | 6%      |
| (iv)   | Period of maturity  | 4 years | 6 years |
| (v)    | Annual cash flows(Interest)(i×ii)   | ₹ 800   | ₹ 600   |
| (vi)   | PV of Interest Factor for Annuity for period to maturity at the rate of yield | 3.387   | 5.076   |
| (vii)  | Present Value of Interest Payments (iv×v)                                     | ₹ 2710  | ₹ 3046  |
| (viii) | Maturity Value  | ₹10000  | ₹10000  |
| (ix)   | PV at Yield Rate at the time of maturity( $4^{th}$ year and $6^{th}$ year)    | 0.763   | 0.746   |
| (x)    | Present Value of maturity proceeds(viii×ix)                                   | ₹ 7630  | ₹ 7460  |
| (xi)   | Value of Bond today(vii+x)  | ₹ 10340 | ₹ 10506 |

# Value of Bonds based on expected yields:

#### **Evaluation**:

Cheaper Bond is that issued by KBC Bank.

Bonds that can be bought: ₹ 500000/Market price of Bond = ₹500000/10340= 48.35 Bonds.