1. Calculate operating leverage, financial leverage and combined leverage under situation 1 and 2 in financial plans A & B from the following information relating to the operation and capital structure of a company.

Installed capacity – 2,000 units
Actual production and sales – 50% of the capacity
Selling price ₹20 per unit
Variable Cost ₹10 per unit

**Fixed Cost:**
- Under Situation I ₹4,000
- Under Situation II ₹5,000

**Capital Structure:**

<table>
<thead>
<tr>
<th></th>
<th>Financial Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A (₹)</td>
</tr>
<tr>
<td>Equity</td>
<td>5,000</td>
</tr>
<tr>
<td>Debt (Rate of Interest 10%)</td>
<td>15,000</td>
</tr>
<tr>
<td></td>
<td>20,000</td>
</tr>
</tbody>
</table>

(M.com II – Oct 12)

**Solution:**

<table>
<thead>
<tr>
<th></th>
<th>Situation I</th>
<th>Situation II</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Plan A (1,000 Units)</td>
<td>Plan B (1,000 Units)</td>
</tr>
<tr>
<td>Amt</td>
<td>P.U</td>
<td>Amt</td>
</tr>
<tr>
<td>Sales</td>
<td>20,000</td>
<td>20</td>
</tr>
<tr>
<td>Variable Cost</td>
<td>10,000</td>
<td>10</td>
</tr>
<tr>
<td>Contribution</td>
<td>10,000</td>
<td>10</td>
</tr>
<tr>
<td>Fixed Cost</td>
<td>4,000</td>
<td>4,000</td>
</tr>
<tr>
<td>EBIT</td>
<td>6,000</td>
<td>6,000</td>
</tr>
<tr>
<td>Interest</td>
<td>1,500</td>
<td>500</td>
</tr>
<tr>
<td>EBT</td>
<td>4,500</td>
<td>5,500</td>
</tr>
</tbody>
</table>

1. **Operating Leverage** = \( \frac{\text{Contribution}}{\text{EBIT}} \)

   - **Situation I**
     - Plan A: ₹6,000
     - Plan B: ₹6,000
   - **Situation II**
     - Plan A: ₹5,000
     - Plan B: ₹5,000

   \( \therefore \) 1.67 = 1.67 = 2 = 2

2. **Financial Leverage** = \( \frac{\text{EBIT}}{\text{EBT}} \)
Situation I | Situation II
---|---
Plan A | Plan B | Plan A | Plan B
₹ 6,000 | ₹ 6,000 | ₹ 5,000 | ₹ 5,000
₹ 4,500 | ₹ 5,500 | ₹ 3,500 | ₹ 4,500

= 1.33 = 1.09 = 1.428 = 1.1

3. Combined Leverage = \( \frac{\text{Contribution}}{\text{EBT}} \)

Situation I | Situation II
---|---
Plan A | Plan B | Plan A | Plan B
₹ 10,000 | ₹ 10,000 | ₹ 10,000 | ₹ 10,000
₹ 4,500 | ₹ 5,500 | ₹ 3,500 | ₹ 4,500

= 2.22 = 1.818 = 2.857 = 2.22

Working Note :

1. **Interest**:
   - Plan A: ₹ 15,000 x 10% = ₹ 1,500
   - Plan B: ₹ 5,000 x 20% = ₹ 500

2. The following key information pertains to Ashika Ltd. for the year 2013-14.

<table>
<thead>
<tr>
<th>₹ in lakhs</th>
<th>₹</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>82.50</td>
</tr>
<tr>
<td>Variable Cost</td>
<td>46.20</td>
</tr>
<tr>
<td>Fixed Cost</td>
<td>6.60</td>
</tr>
<tr>
<td>9% Debentures</td>
<td>50.00</td>
</tr>
<tr>
<td>Equity Shares (₹ 100 each)</td>
<td>60</td>
</tr>
<tr>
<td>Corporate Tax</td>
<td>35%</td>
</tr>
</tbody>
</table>

You are required to work out :

1. What is the Company’s ROI?
2. Does it have favourable financial leverage?
3. If the firm belongs to an industry whose asset turnover is 3, does it have high or low asset leverage?
4. What is the operating, financial and combined leverage of the firm?
5. What is the Company’s EPS?
6. What will be the expected EPS if the Sales of Ashika Ltd. increase by 10% in the next year and cost structure as well as Financial structure remains same?

(M.com II – Apr 13)
<table>
<thead>
<tr>
<th>₹ in lakhs</th>
<th>₹ in lakhs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>82.50</td>
</tr>
<tr>
<td>(-) Variable Cost</td>
<td>46.20</td>
</tr>
<tr>
<td>Contribution</td>
<td>36.30</td>
</tr>
<tr>
<td>(-) Fixed Cost</td>
<td>6.60</td>
</tr>
<tr>
<td>Earning Before Interest &amp; Tax (EBIT)</td>
<td>29.70</td>
</tr>
<tr>
<td>(-) Interest (₹50 lakhs x 9%)</td>
<td>4.50</td>
</tr>
<tr>
<td>Earning Before Tax (EBIT)</td>
<td>25.20</td>
</tr>
<tr>
<td>(-) Tax (35%)</td>
<td>8.82</td>
</tr>
<tr>
<td>EAT</td>
<td>16.38</td>
</tr>
</tbody>
</table>

1) Return on Investment (ROI) = \( \frac{\text{EBIT}}{\text{Capital Employed}} \times 100 \)

\[
= \frac{₹29.70}{₹110} \times 100 = 27\%
\]

2) Performance of Financial Leverage: Since the ROI is 27% is higher than cost of debt i.e.9%. The firm has favorable financial leverage.

3) Assets T/O Ratio = \( \frac{\text{Sales}}{\text{Total Assets}} \)

\[
= \frac{₹82.50}{₹110} = 0.75 \text{ times}
\]

** Since 0.75 times is less than the industries average i.e. 3 times, therefore the firm has low asset leverage.

4) Operating Leverage = \( \frac{\text{Contribution}}{\text{EBIT}} \)

\[
\therefore \frac{₹36.30}{₹29.70} = 1.22
\]

\[\therefore \text{Financial Leverage} = \frac{\text{EBIT}}{\text{EBT}} \]

\[
\therefore \frac{₹29.70}{₹25.20} = 1.18
\]

\[\therefore \text{Combined Leverage} = \frac{\text{Contribution}}{\text{EBT}} \]

\[
\therefore \frac{₹36.30}{₹25.20} = 1.44
\]

OR Combined Leverage = OL x FL

\[
\therefore 1.22 \times 1.18 = 1.44
\]

5) Earning Per Share:

\[\therefore \text{EPS} = \frac{\text{Profit to Equity Shareholders}}{\text{No. of Equity Shares}} \]

\[
= \frac{₹16,38,000}{60,000 \text{ shares}} = ₹27.30
\]

e) If the sales increase by 10% what will be the new EPS:

\[\therefore \text{Increase in Combined Leverage} : 1.44 \times 10\% = 0.144 \]
Increase in EPS: ₹ 27.30 + (₹ 27.30 x 0.144) = ₹ 31.2312

OR

<table>
<thead>
<tr>
<th>₹ in lakhs</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales [₹ 82.50 + 10%]</td>
<td>90.75</td>
</tr>
<tr>
<td>(−) Variable Cost [₹ 46.20 + 10%]</td>
<td>50.82</td>
</tr>
<tr>
<td>Contribution</td>
<td>39.93</td>
</tr>
<tr>
<td>(−) Fixed Cost</td>
<td>6.60</td>
</tr>
<tr>
<td>Earning Before Interest &amp; Tax (EBIT)</td>
<td>33.33</td>
</tr>
<tr>
<td>(−) Interest (₹ 50 lakhs x 9%)</td>
<td>4.50</td>
</tr>
<tr>
<td>Earning Before Tax (EBT)</td>
<td>28.83</td>
</tr>
<tr>
<td>(−) Tax (35%)</td>
<td>10.0905</td>
</tr>
<tr>
<td>EAT</td>
<td>18.7395</td>
</tr>
</tbody>
</table>

\[ \therefore \text{EPS} = \frac{\text{Profit to Equity Shareholders}}{\text{No. of Equity Shares}} \]

\[ = \frac{₹ 18,73,950}{60,000 \text{ shares}} = ₹ 31.2325 \]

3. The selected financial data for A, B and C companies for the year ended 31st March, 2014 were as follows:

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable Cost as a Percentage of Sales</td>
<td>66(\frac{2}{3})</td>
<td>75</td>
<td>50</td>
</tr>
<tr>
<td>Interest Expenses (₹)</td>
<td>200</td>
<td>300</td>
<td>1,000</td>
</tr>
<tr>
<td>Degree of Operating Leverage</td>
<td>5</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Degree of Financial Leverage</td>
<td>3</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Income Tax Rate</td>
<td>35%</td>
<td>35%</td>
<td>35%</td>
</tr>
</tbody>
</table>

Prepare an income statement for each of the companies.

(M.com II – Oct 13)

Solution:

<table>
<thead>
<tr>
<th>Particulars</th>
<th>A Amt</th>
<th>B Amt</th>
<th>C Amt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>4,500</td>
<td>9,600</td>
<td>24,000</td>
</tr>
<tr>
<td>(−) Variable Cost</td>
<td>3,000</td>
<td>7,200</td>
<td>12,000</td>
</tr>
<tr>
<td>Contribution</td>
<td>1,500</td>
<td>2,400</td>
<td>12,000</td>
</tr>
<tr>
<td>Fixed Cost</td>
<td>1,200</td>
<td>2,000</td>
<td>10,000</td>
</tr>
<tr>
<td>EBIT</td>
<td>300</td>
<td>400</td>
<td>2,000</td>
</tr>
<tr>
<td>(−) Interest</td>
<td>200</td>
<td>300</td>
<td>1,000</td>
</tr>
<tr>
<td>EBT</td>
<td>100</td>
<td>100</td>
<td>1,000</td>
</tr>
<tr>
<td>(−) Tax</td>
<td>35</td>
<td>35</td>
<td>350</td>
</tr>
<tr>
<td></td>
<td>65</td>
<td>65</td>
<td>650</td>
</tr>
</tbody>
</table>

Working Note:

1. Financial Leverage \[ = \frac{\text{EBIT}}{\text{EBT}} \]

\[ \therefore \frac{\text{EBIT}}{(\text{EBIT} – \text{Int.})} \]

Let the EBIT be \( \chi \)
2. Operating Leverage

\[ \text{Operating Leverage} = \frac{\text{Contribution}}{\text{EBIT}} \]

Let the Contribution be \( \chi \)

\[
\begin{align*}
\therefore \ A & : 3 = \frac{\chi}{(\chi - 200)} & \therefore \ B & : 4 = \frac{\chi}{(\chi - 300)} & \therefore \ C & : 2 = \frac{\chi}{(\chi - 1,000)} \\
\therefore \ & 3(\chi - 200) = \chi & \therefore \ & 4(\chi - 300) = \chi & \therefore \ & 2(\chi - 1,000) = \chi \\
& 3\chi - 600 = \chi & \therefore \ & 4\chi - 1,200 = \chi & \therefore \ & 2\chi - 2,000 = \chi \\
& 3\chi - \chi = 600 & \therefore \ & 4\chi - \chi = 1,200 & \therefore \ & 2\chi - \chi = 2,000 \\
& 2\chi = 600 & \therefore \ & 3\chi = 1,200 & \\
& \chi = \frac{600}{2} & \therefore \ & \chi = \frac{1,200}{3} & \therefore \ & \chi = 2,000 \\
& \chi = 300 & \therefore \ & \chi = 400 & \\
\end{align*}
\]

3. Sales

\[ \text{Sales} = \text{Sales} - \text{Variable Cost} = \text{Contribution} \]

\[
\begin{align*}
\therefore \ & \text{Contribution} = 100 - 66 \frac{2}{3} = 100 - 75 = 100 - 50 \\
& = 33 \frac{1}{3} = 25 = 50 \\
\therefore \ & \text{Sales} = \\
\end{align*}
\]

\[
\begin{align*}
\text{A} & : \text{For } 33 \frac{1}{3} \text{ - 1,500} & \text{B} & : \text{For } 25 \text{ - 2,400} & \text{C} & : \text{For } 50 \text{ - 12,000} \\
\text{For } 100 \text{ - ?} & \text{For } 100 \text{ - ?} & \text{For } 100 \text{ - ?} \\
\text{4,500} & \text{9,600} & \text{24,000} \\
\end{align*}
\]

Comments: The Financial position of ‘Company C’ is better in all the companies due to following reasons.

a) The financial risk for company C is very less as compare to other companies as it has lesser financial leverage.

b) The combined leverage of Company C is also less which indicates lesser amount of business risk.

c) The P/V ratio of the company is 50% which is highest amongst all the three companies due to which the contribution of Company C is more.

d) The ability to cover interest is better in Company C which is shown below.
Interest Coverage Ratio = \[
\frac{\text{EBIT}}{\text{Interest}}
\]

Company A = \[
\frac{\text{₹ 300}}{\text{₹ 200}} = 1.5 \text{ times}
\]

Company B = \[
\frac{\text{₹ 400}}{\text{₹ 300}} = 1.33 \text{ times}
\]

Company C = \[
\frac{\text{₹ 2,000}}{\text{₹ 1,000}} = 2 \text{ times}
\]

4. From the following prepare Income statement of company A and B.

<table>
<thead>
<tr>
<th>Particulars</th>
<th>A Co.</th>
<th>B Co.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial leverage</td>
<td>4 : 1</td>
<td>5 : 1</td>
</tr>
<tr>
<td>Interest</td>
<td>₹ 6,00,000</td>
<td>₹ 7,00,000</td>
</tr>
<tr>
<td>Operating Leverage</td>
<td>3 : 1</td>
<td>4 : 1</td>
</tr>
<tr>
<td>Variable cost to sales</td>
<td>66.66%</td>
<td>50%</td>
</tr>
<tr>
<td>Income tax rate</td>
<td>30%</td>
<td>40%</td>
</tr>
<tr>
<td>No. of Equity Shares</td>
<td>1,00,000</td>
<td>70,000</td>
</tr>
</tbody>
</table>

Also Calculate and comments on EPS of the company.

\[\text{EPS} = \frac{\text{EAT}}{\text{No. of Shares}}\]

\[\text{EPS}_A = \frac{\text{EAT}_A}{\text{No. of Shares}_A} = \frac{\text{₹ 1,40,000}}{1,00,000} = ₹ 1.40\]

\[\text{EPS}_B = \frac{\text{EAT}_B}{\text{No. of Shares}_B} = \frac{\text{₹ 1,05,000}}{70,000} = ₹ 1.50\]

Working Note:

1. Financial Leverage = \[
\frac{\text{EBIT}}{\text{EBT}} \quad \therefore \quad \frac{\text{EBIT}}{(\text{EBIT} - \text{Int.})}
\]

*Let the EBIT be \( \chi \)*

\[\begin{align*}
A & \quad \chi \\
\therefore \quad 4 & = \frac{\chi}{(\chi - 6,00,000)} \quad \therefore \quad 5 & = \frac{\chi}{(\chi - 7,00,000)} \\
\therefore \quad 4 (\chi - 6,00,000) & = \chi \quad \therefore \quad 5 (\chi - 7,00,000) & = \chi
\end{align*}\]
\[
\begin{align*}
\therefore 4\chi - 24,00,000 &= \chi \\
\therefore 4\chi - \chi &= 24,00,000 \\
\therefore 3\chi &= 24,00,000 \\
\therefore \chi &= \frac{24,00,000}{3} \\
\therefore \chi &= 8,00,000
\end{align*}
\]
\[
\begin{align*}
\therefore 5\chi - 35,00,000 &= \chi \\
\therefore 5\chi - \chi &= 35,00,000 \\
\therefore 4\chi &= 35,00,000 \\
\therefore \chi &= \frac{35,00,000}{4} \\
\therefore \chi &= 8,75,000
\end{align*}
\]

2. **Operating Leverage**

\[
\text{Operating Leverage} = \frac{\text{Contribution}}{\text{EBIT}}
\]

*Let the Contribution be \( \chi \)*

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \therefore 3 = \frac{\chi}{8,00,000} )</td>
<td>( \therefore 4 = \frac{\chi}{8,75,000} )</td>
</tr>
</tbody>
</table>

\[
\begin{align*}
\therefore \chi &= 3 \times 8,00,000 \\
\therefore \chi &= 4 \times 8,75,000
\end{align*}
\]

\[
\begin{align*}
\therefore \chi &= 8,00,000 \\
\therefore \chi &= 8,75,000
\end{align*}
\]

3. **Sales**

\[
\therefore \text{Let the Sales be} \ 100
\]

\[
\therefore \text{Sales} - \text{Variable Cost} = \text{Contribution}
\]

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \therefore \text{Contribution} = 100 - \frac{66}{5/3} )</td>
<td>( \text{= 100 - 50} )</td>
</tr>
<tr>
<td>( = 33\frac{1}{3} )</td>
<td>( = 50 )</td>
</tr>
</tbody>
</table>

\[
\therefore \text{Sales} =
\]

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>For ( 33\frac{1}{3} ) - 24,00,000</td>
<td>For 50 - 35,00,000</td>
</tr>
<tr>
<td>For 100 - ?</td>
<td>For 100 - ?</td>
</tr>
<tr>
<td>( 72,00,000 )</td>
<td>( 70,00,000 )</td>
</tr>
</tbody>
</table>

\(*,*)

\[
\therefore \text{Combined Leverage} = \text{Operating Leverage} \times \text{Financial Leverage}
\]

\[
\begin{align*}
\therefore \text{A} &\times 3 & \therefore \text{B} &\times 4 \\
\therefore 12 &\text{ } & \therefore 20 \\
\end{align*}
\]

**Comment:** It is to be noted that both financial & operating leverage is more in company B is more which indicates that the Company B is risky. Inspite of lesser amount of sales in Company B, the profitability of Company B is high as compare to Company A due to greater amount of contribution. This is the only reason due to which the company C has high EPS.