

Appendix-1

A Brief Overview of UniLever Nepal Limited

UniLever Nepal Limited (ULNLtd.) company was formed as subsidiary company of Hindustan Unilever Limited, India .The factory's registered office situated at Basamadi VDC-5, of Makwanpur District which is about six kilometer far from Hetauda Municipality and its corporate office is situated at Heritage plaza II Block C & D, 4th floor, Kamaladi, Kathmandu. Unilever Nepal Limited was established in 1994 as joint venture company between Hindustan Unilever limited, India and Nepali promoters under the company Act 2021.It is the subsidiary company of foreign investment and technology transformation .The main objective of the company is to meet the everyday needs of the people everywhere-to anticipate the aspirations of consumers and customers and to respond creatively and competitively with branded product and services which raise the quality of life.

As a result by the eleventh annual general meeting of the company dated 2061.8.28 (13th Dec, 2004) the office of the registrar of company /HMG has, vide their letter dated 2061.10.28(10th Feb, 2005), approved the change in the name of the company from Nepal Lever Limited into UniLever Nepal Limited.

The main products of the company are soaps, detergents, cosmetic products, toiletries soap noodles, Scourers and other chemical product. They are marketed in and outside the country under the brand name of product Unilever Nepal Limited .The number of employees in employment of the company at the end of Ashad 32,2064 is 133.

The authorized capital of company is Rs30,00,00,000(Thirty crores) divided into 30,00,000 (Thirty Lakhs) on ordinary shares of Rs100 each and paid of capital is 9,20,70,000 divided into 9,20,700 of 100 each. Out of which 80% of shares hold by

subsidiary company Hindustan Unilever Limited, 5% shares hold by Sibkrim Land and Ind.Co (Pvt.) Ltd and remaining 15% shares hold by public shareholders.

The Managing Directors under the supervision and control of the Board of Directors manage the company .The Board of Director appoints the managing directors .The Company's Board of Director at present is comprised of seven members. The present chairman of the Board of Director (BOD) is M.K Sharma and Kamran Bakr is Managing Director.

The company has been awarded with the following during the year.

FNCCI National Excellence Award -2062: Commendations for significant achievement in operational information dissemination and utilization in large-scale category.

Best Presented Account Award -2006: Runner up in the category of manufacturing sector by the institute of chartered accountants of Nepal. This achievement was three years in a row, the first year being adjudged as the best.

Appendix-2
UNILEVER NEPAL LIMITED
KATHMANDU, NEPAL
COMPARATIVE BALANCE SHEET

(RS in Million)

| Particulars/Fiscal Year | 2060/061 | 2061/062 | 2062/063 | 2063/064 | 2064/065 |
|---|---------------|---------------|---------------|---------------|---------------|
| Capital And Liabilities | | | | | |
| 1. Shareholders Funds | | | | | |
| a. Share Capital | 92.07 | 92.07 | 92.07 | 92.07 | 92.07 |
| b. Reserve and Retained Earning | 266.36 | 303.94 | 124.86 | 132.84 | 142.72 |
| Preference Share | --- | --- | --- | --- | --- |
| Total | 358.43 | 396.01 | 216.93 | 224.91 | 234.79 |
| Assets: I Fixed Assets | | | | | |
| a. Gross Block | 314.06 | 317.83 | 319.23 | 347.74 | 336.97 |
| b. Less Dep | (167.90) | (184.35) | (193.71) | (203.56) | (209.08) |
| c. Net Block | 146.16 | 133.48 | 125.52 | 144.18 | 127.89 |
| d. Asset Under Consturction | --- | 2.23 | 2.25 | 1.60 | 21.04 |
| Total | 146.16 | 135.71 | 127.77 | 145.78 | 148.93 |
| 2. Investment | | | | | |
| a. Government Securities | 48.84 | 79.76 | 79.76 | 79.76 | --- |
| b. Fixed Deposit | --- | --- | --- | 183.65 | 213.65 |
| Total | 48.84 | 79.76 | 79.76 | 263.41 | 213.65 |
| 3. Current Assets | | | | | |
| a. Inventories | 126.11 | 184.22 | 229.76 | 256.17 | 304.33 |
| b. Trade & Other Receivables | 64.78 | 97.06 | 157.72 | 138.32 | 136.45 |
| c. Cash and Bank Balance | 317.40 | 391.53 | 443.31 | 59.02 | 101.60 |
| d. Pre Paid, Advance, Loan and Deposits | 81.60 | 51.43 | 60.62 | 104.45 | 80.29 |
| Total (A) | 589.89 | 724.24 | 891.41 | 557.96 | 622.67 |
| Less:- Current Liabilities & Provision | | | | | |
| a. Trade & Other Payables | 247.01 | 325.72 | 370.24 | 353.31 | 368.49 |
| b. Short Term Loans | NIL | NIL | NIL | NIL | NIL |
| c. Provisions | 179.44 | 207.99 | 511.78 | 388.92 | 381.98 |
| Total (B) | 426.45 | 543.71 | 882.02 | 742.23 | 75047 |
| Net Current Assets (A-B) | 163.43 | 180.54 | 9.39 | (184.27) | (127.80) |
| Grand Total | 358.43 | 396.01 | 216.93 | 224.91 | 234.79 |

Source: Annual Reports of Uni-Lever Nepal Limited, Fiscal years 2060/061-2064/065

Appendix-3
UNILEVER NEPAL LIMITED
KATHMANDU, NEPAL
COMPARATIVE PROFIT AND LOSS ACCOUNT

(RS in Million)

| Particulars/Fiscal Year | 2060/061 | 2061/062 | 2062/063 | 2063/064 | 2064/065 |
|---------------------------------|----------|----------|----------|----------|----------|
| 1. Net Sales | 1244.73 | 1524.90 | 1481.56 | 1434.94 | 1818.53 |
| Cost of Goods Sold | 822.89 | 952.25 | 923.15 | 916.46 | 1257.79 |
| 2. Stock Consumed | 718.29 | 839.60 | 807.39 | 801.13 | 1115.55 |
| (i) Opening Stock | 144.45 | 126.11 | 184.22 | 229.76 | 256.17 |
| (ii) Purchase | 699.95 | 897.71 | 852.93 | 827.54 | 1163.71 |
| (iii) Closing Stock | (126.11) | (184.22) | (229.76) | (256.17) | (304.33) |
| 3. Wages and Salaries | 23.96 | 22.85 | 22.67 | 19.27 | 23.97 |
| 4. Direct Mfg. Expenses | 80.64 | 89.80 | 93.09 | 96.06 | 118.27 |
| 5. Gross Profit | 421.84 | 572.65 | 558.41 | 518.48 | 560.74 |
| 6. General Expenses | 278.28 | 384.87 | 326.40 | 269.57 | 282.38 |
| 7. Interest | 2.60 | 1.79 | 1.77 | 1.79 | 1.06 |
| 8. Pre- Dep. Opt Profit | 140.96 | 185.99 | 230.24 | 247.12 | 277.30 |
| 9. Depreciation | 24.04 | 19.76 | 17.43 | 19.58 | 19.52 |
| 10. Operating Profit | 116.92 | 166.23 | 212.81 | 227.54 | 257.78 |
| 11. Income from Other Sources | 7.13 | 27.55 | 42.81 | 77.12 | 87.78 |
| 12. Pre- Tax Profit | 124.05 | 193.78 | 255.62 | 304.66 | 345.56 |
| 13. Provision For Taxation | 30.88 | 53.00 | 66.50 | 66.50 | 82.50 |
| 14. Net Profit | 93.17 | 140.78 | 189.12 | 238.16 | 263.06 |
| 15. Transfer From Previous Year | 256.05 | 266.36 | 303.94 | 124.86 | 132.84 |
| 16. Profit Distribution (%) | | | | | |
| (i) Equity Dividend (%) | 82.86 | 92.07 | 368.28 | 230.18 | 253.19 |
| (ii) Preference Dividend (%) | --- | --- | --- | --- | --- |
| (iii) Other (%) | --- | --- | --- | --- | --- |
| 17. Profit Retained (%) | 76.27% | 76.75% | 25.32% | 36.59% | 36.05% |

Source: Annual Reports of Uni-Lever Nepal Limited, Fiscal years 2060/061-2064/065

Appendix-4

Calculation of C.V of Current assets on Total Assets and Fixed Assets

| X | (X- \bar{X}) | (X- \bar{X}) ² | Y | (Y- \bar{Y}) | (Y- \bar{Y}) ² |
|-----------------|-----------------|------------------------------|------------------|-----------------|------------------------------|
| 75.61 | 4.76 | 22.66 | 403.59 | -83.56 | 6982.27 |
| 77.07 | 6.22 | 38.69 | 533.67 | 46.52 | 2164.11 |
| 81.12 | 10.27 | 105.47 | 697.67 | 210.52 | 44318.67 |
| 57.06 | -13.16 | 173.19 | 382.74 | -104.41 | 10901.45 |
| 63.20 | -7.65 | 58.52 | 418.10 | -69.05 | 4767.90 |
| $\bar{X}=70.85$ | | 398.53 | $\bar{Y}=487.15$ | | 69134.40 |

$$\sigma = \sqrt{\frac{\Sigma(X - \bar{X})^2}{N}}$$

$$= \sqrt{\frac{398.53}{5}} = 8.93\%$$

$$\text{C.V.} = \frac{\sigma}{X} \times 100 = \frac{8.93}{70.85} \times 100 = 12.60\%$$

$$\sigma = \sqrt{\frac{\Sigma(Y - \bar{Y})^2}{N}}$$

$$= \sqrt{\frac{69134.40}{5}} = 117.59\%$$

$$\text{C.V.} = \frac{\sigma}{Y} \times 100 = \frac{117.59}{487.15} \times 100 = 24.14\%$$

Appendix-5

Calculation of C.V of Net working capital on Total Assets and Fixed Assets

| X | (X- \bar{X}) | (X- \bar{X}) ² | Y | (Y- \bar{Y}) | (Y- \bar{Y}) ² |
|----------------|-----------------|------------------------------|-------------|-----------------|------------------------------|
| 20.82 | 19.05 | 362.90 | 111.82 | 103.82 | 10778.59 |
| 19.21 | 17.44 | 304.15 | 133.03 | 125.03 | 15632.50 |
| 0.85 | -0.92 | 0.85 | 7.35 | -0.65 | 0.42 |
| -19.85 | -20.85 | 433.47 | -126.40 | -134.40 | 18063.36 |
| -12.97 | -14.74 | 217.27 | -85.81 | -93.81 | 8800.32 |
| $\bar{X}=1.70$ | | 1318.64 | $\bar{Y}=8$ | | 53275.19 |

$$\sigma = \sqrt{\frac{\Sigma(X - \bar{X})^2}{N}}$$

$$= \sqrt{\frac{1318.64}{5}} = 16.24\%$$

$$\text{C.V.} = \frac{\sigma}{X} \times 100 = \frac{16.24}{1.70} \times 100 = 917.50\%$$

$$\sigma = \sqrt{\frac{\Sigma(Y - \bar{Y})^2}{N}}$$

$$= \sqrt{\frac{53275.19}{5}} = 103.22\%$$

$$\text{C.V.} = \frac{\sigma}{Y} \times 100 = \frac{103.22}{8} \times 100 = 129.03\%$$

Appendix-6

Calculation of C.V of Inventory on Total Assets and Current Assets

| X | (X- \bar{X}) | (X- \bar{X}) ² | Y | (Y- \bar{Y}) | (Y- \bar{Y}) ² |
|-----------------|-----------------|------------------------------|-----------------|-----------------|------------------------------|
| 16.07 | -6.72 | 45.16 | 21.38 | -12.10 | 146.41 |
| 19.60 | -3.19 | 10.18 | 25.44 | -8.04 | 64.64 |
| 20.91 | -1.88 | 3.53 | 25.77 | -7.71 | 59.44 |
| 26.49 | 3.70 | 13.69 | 45.91 | 12.43 | 154.50 |
| 30.89 | 8.10 | 65.61 | 48.88 | 15.40 | 237.16 |
| $\bar{X}=22.79$ | | 138.17 | $\bar{Y}=33.48$ | | 662.15 |

$$\sigma = \sqrt{\frac{\Sigma(X - \bar{X})^2}{N}}$$

$$= \sqrt{\frac{138.17}{5}} = 5.26\%$$

$$\text{C.V.} = \frac{\sigma}{\bar{X}} \times 100 = \frac{5.26}{22.79} \times 100 = 23.08\%$$

$$\sigma = \sqrt{\frac{\Sigma(Y - \bar{Y})^2}{N}}$$

$$= \sqrt{\frac{662.15}{5}} = 11.51\%$$

$$\text{C.V.} = \frac{\sigma}{\bar{Y}} \times 100 = \frac{11.51}{33.48} \times 100 = 34.37\%$$

Appendix-7

Calculation of C.V of Debtors on Total Assets and Current Assets

| X | (X- \bar{X}) | (X- \bar{X}) ² | Y | (Y- \bar{Y}) | (Y- \bar{Y}) ² |
|-----------------|-----------------|------------------------------|-----------------|-----------------|------------------------------|
| 8.25 | -3.97 | 15.76 | 10.98 | -6.77 | 45.83 |
| 10.33 | -1.89 | 3.57 | 13.40 | -4.35 | 18.92 |
| 14.35 | 2.13 | 4.54 | 17.69 | -0.06 | 0.00 |
| 14.30 | 2.08 | 4.33 | 24.79 | 7.04 | 49.56 |
| 13.85 | 1.63 | 2.66 | 21.91 | 4.16 | 17.31 |
| $\bar{X}=12.22$ | | 30.86 | $\bar{Y}=17.75$ | | 131.62 |

$$\sigma = \sqrt{\frac{\Sigma(X - \bar{X})^2}{N}}$$

$$= \sqrt{\frac{30.86}{5}} = 2.48\%$$

$$\text{C.V.} = \frac{\sigma}{\bar{X}} \times 100 = \frac{2.48}{12.22} \times 100 = 20.29\%$$

$$\sigma = \sqrt{\frac{\Sigma(Y - \bar{Y})^2}{N}}$$

$$= \sqrt{\frac{131.62}{5}} = 5.13\%$$

$$\text{C.V.} = \frac{\sigma}{\bar{Y}} \times 100 = \frac{5.13}{17.75} \times 100 = 28.90\%$$

Appendix-8

Calculation of C.V of Cash and Bank Balance on Total Assets and Current Assets

| X | (X- \bar{X}) | (X- \bar{X}) ² | Y | (Y- \bar{Y}) | (Y- \bar{Y}) ² |
|-----------------|-----------------|------------------------------|-----------------|-----------------|------------------------------|
| 40.44 | 12.67 | 160.53 | 53.81 | 16.91 | 285.95 |
| 41.66 | 13.89 | 192.93 | 54.06 | 17.16 | 294.47 |
| 40.34 | 12.57 | 158.00 | 49.73 | 12.83 | 164.61 |
| 6.10 | -21.67 | 469.59 | 10.58 | -26.32 | 692.74 |
| 10.31 | -17.46 | 304.85 | 16.32 | -20.58 | 423.54 |
| $\bar{X}=27.77$ | | 1285.90 | $\bar{Y}=36.90$ | | 1861.31 |

$$\sigma = \sqrt{\frac{\Sigma(X - \bar{X})^2}{N}}$$

$$= \sqrt{\frac{1285.90}{5}} = 16.04\%$$

$$\text{C.V.} = \frac{\sigma}{\bar{X}} \times 100 = \frac{16.04}{27.77} \times 100 = 57.76\%$$

$$\sigma = \sqrt{\frac{\Sigma(Y - \bar{Y})^2}{N}}$$

$$= \sqrt{\frac{1861.31}{5}} = 19.29\%$$

$$\text{C.V.} = \frac{\sigma}{\bar{Y}} \times 100 = \frac{19.29}{36.90} \times 100 = 52.28\%$$

Appendix-9

Calculation of C.V of Loans, Advance and Deposit on Total Assets and Current Assets

| X | (X- \bar{X}) | (X- \bar{X}) ² | Y | (Y- \bar{Y}) | (Y- \bar{Y}) ² |
|----------------|-----------------|------------------------------|-----------------|-----------------|------------------------------|
| 10.40 | 2.33 | 5.43 | 13.83 | 1.96 | 3.84 |
| 5.47 | -2.60 | 6.76 | 7.10 | -4.77 | 22.75 |
| 5.52 | -2.55 | 6.50 | 6.80 | -5.07 | 25.70 |
| 10.80 | 2.73 | 7.45 | 18.72 | 6.85 | 46.92 |
| 8.15 | 0.08 | .01 | 12.89 | 1.02 | 1.04 |
| $\bar{X}=8.07$ | | 26.15 | $\bar{Y}=11.87$ | | 100.25 |

$$\sigma = \sqrt{\frac{\Sigma(X - \bar{X})^2}{N}}$$

$$= \sqrt{\frac{26.15}{5}} = 2.29\%$$

$$\text{C.V.} = \frac{\sigma}{\bar{X}} \times 100 = \frac{2.29}{8.07} \times 100 = 28.38\%$$

$$\sigma = \sqrt{\frac{\Sigma(Y - \bar{Y})^2}{N}}$$

$$= \sqrt{\frac{100.25}{5}} = 4.48\%$$

$$\text{C.V.} = \frac{\sigma}{\bar{Y}} \times 100 = \frac{4.48}{11.87} \times 100 = 37.74\%$$

Appendix-10

Calculation of C.V of Current Assets Turnover Ratio and Inventory Turnover Ratio

| X | (X- \bar{X}) | (X- \bar{X}) ² | Y | (Y- \bar{Y}) | (Y- \bar{Y}) ² |
|----------------|-----------------|------------------------------|----------------|-----------------|------------------------------|
| 2.11 | -0.16 | 0.03 | 9.87 | 2.63 | 6.92 |
| 2.11 | -0.16 | 0.03 | 8.28 | 1.04 | 1.08 |
| 1.66 | -0.61 | 0.37 | 6.45 | -0.79 | 0.62 |
| 2.57 | 0.30 | 0.09 | 5.60 | -1.64 | 2.69 |
| 2.92 | 0.65 | 0.42 | 5.98 | -1.26 | 1.59 |
| $\bar{X}=2.27$ | | 0.94 | $\bar{Y}=7.24$ | | 12.90 |

$$\sigma = \sqrt{\frac{\Sigma(X - \bar{X})^2}{N}}$$

$$= \sqrt{\frac{0.94}{5}} = 0.43\%$$

$$C.V. = \frac{\sigma}{\bar{X}} \times 100 = \frac{0.43}{2.27} \times 100 = 18.94\%$$

$$\sigma = \sqrt{\frac{\Sigma(Y - \bar{Y})^2}{N}}$$

$$= \sqrt{\frac{12.90}{5}} = 1.61\%$$

$$C.V. = \frac{\sigma}{\bar{Y}} \times 100 = \frac{1.61}{7.24} \times 100 = 22.24\%$$

Appendix-11

Calculation of C.V of on Receivables Turnover Ratio and Cash & Bank Balance Turnover Ratio.

| X | (X- \bar{X}) | (X- \bar{X}) ² | Y | (Y- \bar{Y}) | (Y- \bar{Y}) ² |
|-----------------|-----------------|------------------------------|-----------------|-----------------|------------------------------|
| 19.21 | 5.61 | 31.47 | 3.92 | -6.47 | 45.56 |
| 15.71 | 2.11 | 4.45 | 3.89 | -6.78 | 45.97 |
| 9.39 | -4.21 | 17.72 | 3.34 | -7.33 | 53.73 |
| 10.37 | -3.22 | 10.43 | 24.31 | 13.64 | 189.05 |
| 13.33 | -0.27 | 0.07 | 17.90 | 7.23 | 52.27 |
| $\bar{X}=13.60$ | | 64.14 | $\bar{Y}=10.67$ | | 386.58 |

$$\sigma = \sqrt{\frac{\Sigma(X - \bar{X})^2}{N}}$$

$$= \sqrt{\frac{64.14}{5}} = 3.58\%$$

$$C.V. = \frac{\sigma}{\bar{X}} \times 100 = \frac{3.58}{13.60} \times 100 = 26.32\%$$

$$\sigma = \sqrt{\frac{\Sigma(Y - \bar{Y})^2}{N}}$$

$$= \sqrt{\frac{386.58}{5}} = 8.79\%$$

$$C.V. = \frac{\sigma}{\bar{Y}} \times 100 = \frac{8.79}{10.67} \times 100 = 82.38\%$$

Appendix-12

Calculation of C.V of Net Working Capital Turnover Ratio and Loans, Advance and Deposit Turnover Ratio

| X | (X- \bar{X}) | (X- \bar{X}) ² | Y | (Y- \bar{Y}) | (Y- \bar{Y}) ² |
|-----------------|-----------------|------------------------------|-----------------|-----------------|------------------------------|
| 7.62 | -22.75 | 517.56 | 15.25 | -5.90 | 34.81 |
| 8.45 | -21.92 | 480.49 | 29.65 | 8.50 | 72.25 |
| 157.78 | 127.41 | 16233.31 | 24.44 | 3.29 | 10.82 |
| -7.79 | -38.16 | 1456.19 | 13.74 | -7.41 | 54.91 |
| -14.23 | -44.60 | 1989.16 | 22.65 | 1.50 | 2.25 |
| $\bar{X}=30.37$ | | 20676.68 | $\bar{Y}=21.15$ | | 175.04 |

$$\sigma = \sqrt{\frac{\Sigma(X - \bar{X})^2}{N}}$$

$$= \sqrt{\frac{20676.68}{5}} = 64.31\%$$

$$C.V. = \frac{\sigma}{\bar{X}} \times 100 = \frac{64.31}{30.37} \times 100 = 211.76\%$$

$$\sigma = \sqrt{\frac{\Sigma(Y - \bar{Y})^2}{N}}$$

$$= \sqrt{\frac{175.04}{5}} = 5.92\%$$

$$C.V. = \frac{\sigma}{\bar{Y}} \times 100 = \frac{5.92}{21.15} \times 100 = 27.99\%$$

Appendix-13

Calculation of C.V of Current Ratio and Quick Ratio

| X | (X- \bar{X}) | (X- \bar{X}) ² | Y | (Y- \bar{Y}) | (Y- \bar{Y}) ² |
|----------------|-----------------|------------------------------|----------------|-----------------|------------------------------|
| 1.38 | 0.32 | 0.10 | 1.09 | 0.36 | 0.13 |
| 1.33 | 0.27 | 0.07 | 0.99 | 0.26 | 0.07 |
| 1.01 | -0.05 | 0.00 | 0.75 | 0.02 | 0.00 |
| 0.75 | -0.31 | 0.10 | 0.41 | -0.32 | 0.10 |
| 0.83 | 0.23 | 0.05 | 0.42 | -0.31 | 0.10 |
| $\bar{X}=1.06$ | | 0.32 | $\bar{Y}=0.73$ | | 0.40 |

$$\sigma = \sqrt{\frac{\Sigma(X - \bar{X})^2}{N}}$$

$$= \sqrt{\frac{0.32}{5}} = 0.25\%$$

$$C.V. = \frac{\sigma}{\bar{X}} \times 100 = \frac{0.25}{1.06} \times 100 = 23.58\%$$

$$\sigma = \sqrt{\frac{\Sigma(Y - \bar{Y})^2}{N}}$$

$$= \sqrt{\frac{0.40}{5}} = 0.28\%$$

$$C.V. = \frac{\sigma}{\bar{Y}} \times 100 = \frac{0.28}{0.73} \times 100 = 38.36\%$$

Appendix-14

Calculation of C.V of Inventory Conversion Period and Receivables Collection Period

| X | (X- \bar{X}) | (X- \bar{X}) ² | Y | (Y- \bar{Y}) | (Y- \bar{Y}) ² |
|--------------|-----------------|------------------------------|--------------|-----------------|------------------------------|
| 36 | -16 | 256 | 18 | -10 | 100 |
| 44 | -8 | 64 | 23 | -5 | 25 |
| 56 | 2 | 4 | 38 | 10 | 100 |
| 64 | 12 | 144 | 35 | 7 | 49 |
| 60 | 8 | 64 | 27 | -1 | 1 |
| $\bar{X}=52$ | | 532 | $\bar{Y}=28$ | | 275 |

$$\sigma = \sqrt{\frac{\Sigma(X - \bar{X})^2}{N}}$$

$$= \sqrt{\frac{532}{5}} = 10.32\%$$

$$C.V. = \frac{\sigma}{\bar{X}} \times 100 = \frac{10.32}{52} \times 100 = 19.85\%$$

$$\sigma = \sqrt{\frac{\Sigma(Y - \bar{Y})^2}{N}}$$

$$= \sqrt{\frac{275}{5}} = 7.42\%$$

$$C.V. = \frac{\sigma}{\bar{Y}} \times 100 = \frac{7.42}{28} \times 100 = 26.50\%$$

Appendix-15

Calculation of C.V of Payable Deferral Period and Cash Conversion Cycle

| X | (X- \bar{X}) | (X- \bar{X}) ² | Y | (Y- \bar{Y}) | (Y- \bar{Y}) ² |
|---------------|-----------------|------------------------------|---------------|-----------------|------------------------------|
| 108 | -16 | 256 | -54 | -102 | 10404 |
| 123 | -1 | 1 | -77 | -125 | 15625 |
| 144 | 20 | 400 | -50 | -98 | 9604 |
| 139 | 15 | 225 | -40 | -88 | 7744 |
| 105 | -19 | 361 | -18 | -66 | 4356 |
| $\bar{X}=124$ | | 1243 | $\bar{Y}=-48$ | | 47733 |

$$\sigma = \sqrt{\frac{\Sigma(X - \bar{X})^2}{N}}$$

$$= \sqrt{\frac{1243}{5}} = 15.77\%$$

$$C.V. = \frac{\sigma}{\bar{X}} \times 100 = \frac{15.77}{124} \times 100 = 12.72\%$$

$$\sigma = \sqrt{\frac{\Sigma(Y - \bar{Y})^2}{N}}$$

$$= \sqrt{\frac{47733}{5}} = 97.71\%$$

$$C.V. = \frac{\sigma}{\bar{Y}} \times 100 = \frac{97.71}{-48} \times 100 = -203.56\%$$

Appendix-16

Calculation of C.V of Net Profit Margin And Gross Profit Margin

| X | (X- \bar{X}) | (X- \bar{X}) ² | Y | (Y- \bar{Y}) | (Y- \bar{Y}) ² |
|------------------|-----------------|------------------------------|------------------|-----------------|------------------------------|
| 7.49 | -4.62 | 21.34 | 33.89 | 1.33 | 1.77 |
| 9.23 | -2.88 | 8.29 | 37.55 | 2.33 | 5.43 |
| 12.76 | 0.65 | 0.42 | 37.69 | 2.47 | 6.10 |
| 16.60 | 4.49 | 20.16 | 36.13 | 0.91 | 0.83 |
| 14.47 | 2.36 | 5.57 | 30.83 | -4.39 | 19.27 |
| \bar{X} =12.11 | | 55.78 | \bar{Y} =35.22 | | 33.40 |

$$\sigma = \sqrt{\frac{\Sigma(X - \bar{X})^2}{N}}$$

$$= \sqrt{\frac{55.78}{5}} = 3.34\%$$

$$\text{C.V.} = \frac{\sigma}{\bar{X}} \times 100 = \frac{3.34}{12.11} \times 100 = 27.58\%$$

$$\sigma = \sqrt{\frac{\Sigma(Y - \bar{Y})^2}{N}}$$

$$= \sqrt{\frac{33.40}{5}} = 2.58\%$$

$$\text{C.V.} = \frac{\sigma}{\bar{Y}} \times 100 = \frac{2.58}{35.22} \times 100 = 7.33\%$$

Appendix-17

Calculation of C.V of Return on Total Assets and Return on Working Capital

| X | (X- \bar{X}) | (X- \bar{X}) ² | Y | (Y- \bar{Y}) | (Y- \bar{Y}) ² |
|------------------|-----------------|------------------------------|------------------|-----------------|------------------------------|
| 11.88 | -7.20 | 51.84 | 150.79 | -12.49 | 156 |
| 14.98 | -4.10 | 16.81 | 19.44 | -8.84 | 78.15 |
| 17.21 | -1.87 | 3.50 | 21.22 | -7.06 | 49.84 |
| 24.62 | 5.54 | 30.69 | 42.68 | 14.40 | 207.36 |
| 26.70 | 7.62 | 58.06 | 42.25 | 13.97 | 195.16 |
| \bar{X} =19.08 | | 160.90 | \bar{Y} =28.28 | | 686.51 |

$$\sigma = \sqrt{\frac{\Sigma(X - \bar{X})^2}{N}}$$

$$= \sqrt{\frac{160.90}{5}} = 5.67\%$$

$$\text{C.V.} = \frac{\sigma}{\bar{X}} \times 100 = \frac{5.67}{19.08} \times 100 = 29.72\%$$

$$\sigma = \sqrt{\frac{\Sigma(Y - \bar{Y})^2}{N}}$$

$$= \sqrt{\frac{686.51}{5}} = 11.72\%$$

$$\text{C.V.} = \frac{\sigma}{\bar{Y}} \times 100 = \frac{11.72}{28.28} \times 100 = 41.44\%$$

Appendix-18

Calculation of C.V of Operating Expenses Ratio

| X | (X- \bar{X}) | (X- \bar{X}) ² |
|------------------|-----------------|------------------------------|
| 90.61 | 3.55 | 94.16 |
| 89.10 | 2.04 | 4.16 |
| 85.64 | -1.42 | 2.02 |
| 84.14 | -2.92 | 8.53 |
| 85.83 | -1.23 | 1.51 |
| \bar{X} =87.06 | | 28.82 |

$$\sigma = \sqrt{\frac{\Sigma(X - \bar{X})^2}{N}}$$

$$= \sqrt{\frac{28.82}{5}} = 2.40\%$$

$$\text{C.V.} = \frac{\sigma}{\bar{X}} \times 100 = \frac{2.40}{87.06} \times 100 = 2.76\%$$

Appendix-19
Calculation of Correlation Between CA and TA

(RS in Million)

| F/Y | CA(X) | TA(Y) | dx=X- 891.41 | dy=Y- 1098.94 | dx ² | dy ² | dx dy |
|----------|---------|---------|-----------------|------------------|-----------------|-----------------|-----------|
| 2060/061 | 589.89 | 784.88 | -301.52 | -314.06 | 90914.31 | 98633.68 | 94695.37 |
| 2061/062 | 724.24 | 939.71 | -167.17 | -159.23 | 27945.81 | 25354.19 | 26618.48 |
| 2062/063 | 891.41 | 1098.94 | 0 | 0 | 0 | 0 | 0 |
| 2063/064 | 557.96 | 967.15 | -333.45 | -131.79 | 111188.90 | 17368.60 | 43945.38 |
| 2064/065 | 622.67 | 985.25 | -268.74 | -113.69 | 72221.19 | 12925.42 | 30553.05 |
| N=5 | 3386.17 | 4775.93 | -1070.88 | -718.77 | 302270.21 | 154281.89 | 195812.28 |

$$r = \frac{N \sum dx \cdot dy - \sum dx \cdot \sum dy}{\sqrt{N \sum dx^2 - (\sum dx)^2} \sqrt{N \sum dy^2 - (\sum dy)^2}}$$

$$= \frac{5 \times 195812.28 - (-1070.88 \times -718.77)}{\sqrt{5 \times 302270.21 - (-1070.88)^2} \sqrt{5 \times 154281.89 - (-718.77)^2}} = 0.69$$

$$PE = \frac{0.6745 (1-r^2)}{\sqrt{N}} = \frac{0.6745 (1-0.69^2)}{\sqrt{5}} = 0.16 ; 6 P.E = 6 \times 0.16 = 0.96$$

Appendix-20
Calculation of Correlation Between CA and CL

(RS in Million)

| F/Y | CA(X) | CL(Y) | dx=X- 891.41 | dy=Y- 882.02 | dx ² | dy ² | dx dy |
|----------|---------|---------|-----------------|-----------------|-----------------|-----------------|-----------|
| 2060/061 | 589.89 | 426.45 | -301.52 | -455.57 | 90914.31 | 207544.02 | 137363.47 |
| 2061/062 | 724.24 | 543.71 | -167.17 | -338.31 | 27945.81 | 114453.66 | 56555.28 |
| 2062/063 | 891.41 | 882.02 | 0 | 0 | 0 | 0 | 0 |
| 2063/064 | 557.96 | 742.23 | -333.45 | -139.79 | 111188.90 | 19541.24 | 46612.98 |
| 2064/065 | 622.67 | 750.47 | -268.74 | -131.55 | 72221.19 | 17305.40 | 35352.75 |
| N=5 | 3386.17 | 3344.88 | -1070.88 | -1065.22 | 302270.21 | 358844.32 | 275884.48 |

$$r = \frac{N \sum dx \cdot dy - \sum dx \cdot \sum dy}{\sqrt{N \sum dx^2 - (\sum dx)^2} \sqrt{N \sum dy^2 - (\sum dy)^2}}$$

$$= \frac{5 \times 275884.48 - (-1070.88 \times -1065.22)}{\sqrt{5 \times 302270.21 - (-1070.88)^2} \sqrt{5 \times 358844.32 - (-1065.22)^2}} = 0.49$$

$$PE = \frac{0.6745 (1-r^2)}{\sqrt{N}} = \frac{0.6745 (1-0.49^2)}{\sqrt{5}} = 0.23 ; 6 P.E = 6 \times 0.23 = 1.38$$

Appendix-21
Calculation of Correlation Between inventory(I) and CA

(RS in Million)

| F/Y | I(X) | CA(Y) | dx=X- 229.79 | dy=Y- 891.41 | dx ² | dy ² | dxdy |
|----------|---------|---------|-----------------|-----------------|-----------------|-----------------|-----------|
| 2060/061 | 126.11 | 589.89 | -103.65 | -301.52 | 10743.32 | 90914.31 | 31252.55 |
| 2061/062 | 184.22 | 724.24 | -40.54 | -167.17 | 1643.49 | 27945.81 | 6777.07 |
| 2062/063 | 229.76 | 891.41 | 0 | 0 | 0 | 0 | 0 |
| 2063/064 | 256.17 | 557.96 | 26.41 | -333.45 | 697.49 | 111188.90 | -8806.41 |
| 2064/065 | 304.33 | 622.67 | 74.57 | -268.74 | 5560.68 | 72221.19 | -20039.34 |
| N=5 | 1105.59 | 3386.17 | -43.21 | -1070.88 | 18644.98 | 302270.21 | 9183.27 |

$$r = \frac{N \sum dx \cdot dy - \sum dx \cdot \sum dy}{\sqrt{N \sum dx^2 - \sum(dx)^2} \sqrt{N \sum dy^2 - \sum(dy)^2}}$$

$$= \frac{5 \times 9183.27 - (-43.21 \times -1070.88)}{\sqrt{5 \times 18644.98 - (-43.21)^2} \sqrt{5 \times 302270.21 - (-1070.88)^2}} = 0.00$$

$$(PE) = \frac{0.6745 (1-r^2)}{\sqrt{N}} = \frac{0.6745 (1-(-0.00)^2)}{\sqrt{5}} = 0.30 ; 6 P.E = 6 \times 0.3 = 1.8$$

Appendix-22
Calculation of Correlation Between Debtors and CA

(RS in Million)

| F/Y | Debtor(X) | CA(X) | dx=X- 157.72 | dy=Y- 891.41 | dx ² | dy ² | dxdy |
|----------|-----------|---------|-----------------|-----------------|-----------------|-----------------|----------|
| 2060/061 | 64.78 | 589.89 | -92.94 | -301.52 | 8637.84 | 90914.31 | 28023.27 |
| 2061/062 | 97.06 | 724.24 | -60.66 | -167.17 | 3678.64 | 27945.81 | 10140.53 |
| 2062/063 | 157.72 | 891.41 | 0 | 0 | 0 | 0 | 0 |
| 2063/064 | 138.32 | 557.96 | -19.40 | -333.45 | 376.36 | 111188.90 | 6468.93 |
| 2064/065 | 136.45 | 622.67 | -21.27 | -268.74 | 452.41 | 72221.19 | 5716.10 |
| N=5 | 594.33 | 3386.17 | -194.27 | -1070.88 | 13146.25 | 302270.21 | 50348.83 |

$$r = \frac{N \sum dx \cdot dy - \sum dx \cdot \sum dy}{\sqrt{N \sum dx^2 - \sum(dx)^2} \sqrt{N \sum dy^2 - \sum(dy)^2}}$$

$$= \frac{5 \times 50348.83 - (-194.27 \times -1070.88)}{\sqrt{5 \times 13146.25 - (-194.27)^2} \sqrt{5 \times 302270.21 - (-1070.88)^2}} = 0.43$$

$$(PE) = \frac{0.6745 (1-r^2)}{\sqrt{N}} = \frac{0.6745 (1-0.43^2)}{\sqrt{5}} = 0.25 ; 6 P.E = 6 \times 0.25 = 1.50$$

Appendix-23
Calculation of Correlation Between CBB and CA

(RS in Million)

| F/Y | CBB (X) | CA(Y) | dx=X- 443.31 | dy=Y- 891.41 | dx ² | dy ² | dxdy |
|----------|------------|---------|-----------------|-----------------|-----------------|-----------------|-----------|
| 2060/061 | 317.40 | 589.89 | -125.90 | -301.52 | 15850.81 | 90914.31 | 37961.37 |
| 2061/062 | 391.53 | 724.24 | -51.78 | -167.17 | 2681.17 | 27945.81 | 8656.06 |
| 2062/063 | 443.31 | 891.41 | 0 | 0 | 0 | 0 | 0 |
| 2063/064 | 59.02 | 557.96 | -384.29 | -333.45 | 147678.80 | 111188.90 | 128141.50 |
| 2064/065 | 101.60 | 622.67 | -341.71 | -268.74 | 116765.72 | 72221.19 | 91831.15 |
| N=5 | 1312.87 | 3386.17 | -903.68 | -1070.88 | 282976.50 | 302270.21 | 266590.08 |

$$r = \frac{N \sum dx \cdot dy - \sum dx \cdot \sum dy}{\sqrt{N \sum dx^2 - (\sum dx)^2} \sqrt{N \sum dy^2 - (\sum dy)^2}}$$

$$= \frac{5 \times 266590.08 - (-903.68 \times -1070.88)}{\sqrt{5 \times 282976.50 - (-903.68)^2} \sqrt{5 \times 302270.21 - (-1070.88)^2}} = 0.78$$

$$(PE) = \frac{0.6745 (1-r^2)}{\sqrt{N}} = \frac{0.6745 (1-0.78^2)}{\sqrt{5}} = 0.12 ; 6 P.E = 6 \times 0.12 = 0.72$$

Appendix-24

Calculation of Correlation Between LAD and CA

(RS in Million)

| F/Y | LAD (X) | CA(Y) | dx=X- 60.62 | dy=Y- 891.41 | dx ² | dy ² | dxdy |
|----------|------------|---------|----------------|-----------------|-----------------|-----------------|-----------|
| 2060/061 | 81.60 | 589.89 | 20.98 | -301.52 | 440.16 | 90914.31 | -6325.89 |
| 2061/062 | 51.43 | 724.24 | -9.19 | -167.17 | 84.46 | 27945.81 | 1536.29 |
| 2062/063 | 60.62 | 891.41 | 0 | 0 | 0 | 0 | 0 |
| 2063/064 | 104.45 | 557.96 | 43.83 | -333.45 | 1921.07 | 111188.90 | -14615.11 |
| 2064/065 | 80.29 | 622.67 | 19.67 | -268.74 | 386.91 | 72221.19 | -5286.12 |
| N=5 | 378.39 | 3386.17 | 75.29 | -1070.88 | 2832.60 | 302270.21 | -24690.83 |

$$r = \frac{N \sum dx \cdot dy - \sum dx \cdot \sum dy}{\sqrt{N \sum dx^2 - (\sum dx)^2} \sqrt{N \sum dy^2 - (\sum dy)^2}}$$

$$= \frac{(5 \times -24690.83) - (75.29 \times -1070.88)}{\sqrt{5 \times 2832.60 - (75.29)^2} \sqrt{5 \times 302270.21 - (-1070.88)^2}} = -0.77$$

$$(PE) = \frac{0.6745 (1-r^2)}{\sqrt{N}} = \frac{0.6745 (1-(-0.77)^2)}{\sqrt{5}} = 0.12 ; 6 P.E = 6 \times 0.12 = 0.72$$

Appendix-25

Calculation of Correlation Between WC and Sales(S)

(RS in Million)

| F/Y | WC(X) | S(Y) | dx=X- 891.41 | dy=Y- 1481.56 | dx ² | dy ² | dxdy |
|----------|---------|---------|-----------------|------------------|-----------------|-----------------|-----------|
| 2060/061 | 589.89 | 1244.73 | -301.52 | -236.83 | 90914.31 | 56088.45 | 71408.98 |
| 2061/062 | 724.24 | 1524.90 | -167.17 | 43.34 | 27945.81 | 1878.36 | -7245.15 |
| 2062/063 | 891.41 | 1481.56 | 0 | 0 | 0 | 0 | 0 |
| 2063/064 | 557.96 | 1434.94 | -333.45 | -46.62 | 111188.90 | 2173.42 | 15545.44 |
| 2064/065 | 622.67 | 1818.53 | -268.74 | 336.97 | 72221.19 | 113548.78 | -90557.32 |
| N=5 | 3386.17 | 7504.66 | -1070.88 | 96.86 | 302270.21 | 173689.01 | -10848.05 |

$$r = \frac{N \sum dx \cdot dy - \sum dx \cdot \sum dy}{\sqrt{N \sum dx^2 - \sum(dx)^2} \sqrt{N \sum dy^2 - \sum(dy)^2}}$$

$$= \frac{(5 \times -10848.05) - (-1070.88 \times 96.86)}{\sqrt{5 \times 302270.21 - (-1070.88)^2} \sqrt{5 \times 173689.01 - (96.86)^2}} = 0.09$$

$$(PE) = \frac{0.6745 (1-r^2)}{\sqrt{N}} = \frac{0.6745 (1-0.09^2)}{\sqrt{5}} = 0.30 ; 6 P.E = 6 \times 0.30 = 1.80$$

Appendix-26

Calculation of Correlation Between Inventory and Sales

(RS in Million)

| F/Y | I(X) | S(Y) | dx=X- 229.76 | dy=Y- 1481.56 | dx ² | dy ² | dxdy |
|----------|---------|---------|-----------------|------------------|-----------------|-----------------|----------|
| 2060/061 | 126.11 | 1244.73 | -103.65 | -236.83 | 10743.32 | 56088.45 | 24547.43 |
| 2061/062 | 184.22 | 1524.90 | -40.54 | 43.34 | 1643.49 | 1878.36 | -1757.00 |
| 2062/063 | 229.76 | 1481.56 | 0 | 0 | 0 | 0 | 0 |
| 2063/064 | 256.17 | 1434.94 | 26.41 | -46.62 | 697.49 | 2173.42 | -1231.23 |
| 2064/065 | 304.33 | 1818.53 | 74.57 | 336.97 | 5560.68 | 113548.78 | 25127.85 |
| N=5 | 1105.59 | 7504.66 | -43.21 | 96.86 | 18644.98 | 173689.01 | 46687.05 |

$$r = \frac{N \sum dx \cdot dy - \sum dx \cdot \sum dy}{\sqrt{N \sum dx^2 - \sum(dx)^2} \sqrt{N \sum dy^2 - \sum(dy)^2}}$$

$$= \frac{(5 \times 46687.05) - (-43.21 \times 96.86)}{\sqrt{5 \times 18644.98 - (-43.21)^2} \sqrt{5 \times 173689.01 - (96.86)^2}} = 0.85$$

$$(PE) = \frac{0.6745 (1-r^2)}{\sqrt{N}} = \frac{0.6745 (1-0.85^2)}{\sqrt{5}} = 0.08 ; 6 P.E = 6 \times 0.08 = 0.48$$

Appendix-27

Calculation of Correlation Between Debtor and Sales

(RS in Million)

| F/Y | Debtor (X) | Sales (Y) | dx=X- 157.72 | dy=Y- 1481.50 | dx ² | dy ² | dxdy |
|----------|---------------|--------------|-----------------|------------------|-----------------|-----------------|----------|
| 2060/061 | 64.78 | 1244.73 | -92.94 | -236.83 | 8637.84 | 56088.45 | 22010.98 |
| 2061/062 | 97.06 | 1524.90 | -60.66 | 43.34 | 3678.64 | 1878.36 | -2629.00 |
| 2062/063 | 157.72 | 1481.56 | 0 | 0 | 0 | 0 | 0 |
| 2063/064 | 138.32 | 1434.94 | -19.40 | -46.62 | 376.36 | 2173.42 | 904.43 |
| 2064/065 | 136.45 | 1818.53 | -21.27 | 336.97 | 452.41 | 113548.78 | -7167.35 |
| N=5 | 594.33 | 7504.66 | -194.27 | 96.86 | 13146.25 | 173689.01 | 13119.06 |

$$r = \frac{N \sum dx \cdot dy - \sum dx \cdot \sum dy}{\sqrt{N \sum dx^2 - (\sum dx)^2} \sqrt{N \sum dy^2 - (\sum dy)^2}}$$

$$= \frac{(5 \times 13119.06) - (-194.27 \times 96.86)}{\sqrt{5 \times 13146.25 - (-194.27)^2} \sqrt{5 \times 173689.01 - (96.86)^2}} = 0.54$$

$$(PE) = \frac{0.6745 (1-r^2)}{\sqrt{N}} = \frac{0.6745 (1-0.54^2)}{\sqrt{5}} = 0.21 ; 6 P.E = 6 \times 0.21 = 1.26$$

Appendix-28

Calculation of Correlation Between CBB and Sales

(RS in Million)

| F/Y | CBB (X) | Sales (Y) | dx=X- 443.31 | dy=Y- 1481.56 | dx ² | dy ² | dxdy |
|----------|------------|--------------|-----------------|------------------|-----------------|-----------------|------------|
| 2060/061 | 317.40 | 1244.73 | -125.90 | -236.83 | 15850.81 | 56088.45 | 29816.90 |
| 2061/062 | 391.53 | 1524.90 | -51.78 | 43.34 | 2681.17 | 1878.36 | -2244.15 |
| 2062/063 | 443.31 | 1481.56 | 0 | 0 | 0 | 0 | 0 |
| 2063/064 | 59.02 | 1434.94 | -384.29 | -46.62 | 147678.80 | 2173.42 | 17915.60 |
| 2064/065 | 101.60 | 1818.53 | -341.71 | 336.97 | 116765.72 | 113548.78 | -115146.02 |
| N=5 | 1312.87 | 7504.66 | -903.68 | 96.86 | 282976.50 | 173689.01 | -69657.67 |

$$r = \frac{N \sum dx \cdot dy - \sum dx \cdot \sum dy}{\sqrt{N \sum dx^2 - (\sum dx)^2} \sqrt{N \sum dy^2 - (\sum dy)^2}}$$

$$= \frac{(5 \times -69657.67) - (-903.68 \times 96.86)}{\sqrt{5 \times 282976.50 - (-903.68)^2} \sqrt{5 \times 173689.01 - (96.86)^2}} = -0.36$$

$$(PE) = \frac{0.6745 (1-r^2)}{\sqrt{N}} = \frac{0.6745 (1-(-0.36)^2)}{\sqrt{5}} = 0.26 ; 6 P.E = 6 \times 0.26 = 1.56$$

Appendix-29

Calculation of Correlation Between LAD and Sales

(RS in Million)

| F/Y | LAD (X) | Sales (Y) | dx=X-60.62 | dy=Y-1481.50 | dx ² | dy ² | dx dy |
|----------|---------|-----------|------------|--------------|-----------------|-----------------|----------|
| 2060/061 | 81.60 | 1244.73 | 20.98 | -236.83 | 440.16 | 56088.45 | -4947.38 |
| 2061/062 | 51.43 | 1524.90 | -9.19 | 43.34 | 84.46 | 1878.36 | -398.29 |
| 2062/063 | 60.62 | 1481.56 | 0 | 0 | 0 | 0 | 0 |
| 2063/064 | 104.45 | 1434.94 | 43.83 | -46.62 | 1921.07 | 2173.42 | -2043.35 |
| 2064/065 | 80.29 | 1818.53 | 19.67 | 336.97 | 386.91 | 113548.78 | 6628.20 |
| N=5 | 378.39 | 7504.66 | 75.29 | 96.86 | 2832.60 | 173689.01 | -760.82 |

$$r = \frac{N \sum dx \cdot dy - \sum dx \cdot \sum dy}{\sqrt{N \sum dx^2 - \sum(dx)^2} \sqrt{N \sum dy^2 - \sum(dy)^2}}$$

$$= \frac{(5 \times -760.82) - (-75.29 \times 96.86)}{\sqrt{5 \times 2832.60 - (-75.29)^2} \sqrt{5 \times 173689.01 - (96.86)^2}} = -0.13$$

$$(PE) = \frac{0.6745 (1-r^2)}{\sqrt{N}} = \frac{0.6745 (1-(-0.13)^2)}{\sqrt{5}} = 0.30 ; 6 P.E = 6 \times 0.30 = 1.80$$

Appendix-30

Calculation of Correlation Between WC and Production

(RS in Million)

| F/Y | WC(X) | Production (Y) | dx=X-891.41 | dy=Y-956.15 | dx ² | dy ² | dx dy |
|----------|---------|----------------|-------------|-------------|-----------------|-----------------|-----------|
| 2060/061 | 589.89 | 846.80 | -301.52 | -109.35 | 90914.31 | 11957.42 | 32971.21 |
| 2061/062 | 724.24 | 980.16 | -167.17 | 24.01 | 27945.81 | 576.48 | -4013.75 |
| 2062/063 | 891.41 | 956.15 | 0 | 0 | 0 | 0 | 0 |
| 2063/064 | 557.96 | 982.76 | -333.45 | 26.61 | 111188.90 | 708.09 | -8873.10 |
| 2064/065 | 622.67 | 1259.50 | -268.74 | 303.35 | 72221.19 | 92.21.22 | -81522.28 |
| N=5 | 3386.17 | 5025.37 | -1070.88 | 244.62 | 302270.21 | 105263.21 | -61437.92 |

$$r = \frac{N \sum dx \cdot dy - \sum dx \cdot \sum dy}{\sqrt{N \sum dx^2 - \sum(dx)^2} \sqrt{N \sum dy^2 - \sum(dy)^2}}$$

$$= \frac{(5 \times -61437.92) - (-1070.88 \times 244.62)}{\sqrt{5 \times 302270.21 - (-1070.88)^2} \sqrt{5 \times 105263.21 - (244.62)^2}} = -0.11$$

$$(PE) = \frac{0.6745 (1-r^2)}{\sqrt{N}} = \frac{0.6745 (1-(-0.11)^2)}{\sqrt{5}} = 0.30 ; 6 P.E = 6 \times 0.30 = 1.80$$

Appendix-31

Calculation of Correlation Between Inventory and Production

(RS in Million)

| F/Y | I(X) | Production (Y) | dx=X-229.76 | dy=Y-956.15 | dx ² | dy ² | dx dy |
|----------|---------|----------------|-------------|-------------|-----------------|-----------------|----------|
| 2060/061 | 126.11 | 846.80 | -103.65 | -109.35 | 10743.32 | 11957.42 | 11334.13 |
| 2061/062 | 184.22 | 980.16 | -40.54 | 24.01 | 1643.49 | 576.48 | -973.37 |
| 2062/063 | 229.76 | 956.15 | 0 | 0 | 0 | 0 | 0 |
| 2063/064 | 256.17 | 982.76 | 26.41 | 26.61 | 697.49 | 708.09 | 702.77 |
| 2064/065 | 304.33 | 1259.50 | 74.57 | 303.35 | 5560.68 | 92.21.22 | 22620.81 |
| N=5 | 1105.59 | 5025.37 | -43.21 | 244.62 | 18644.98 | 105263.21 | 33684.34 |

$$r = \frac{N \Sigma dx \cdot dy - \Sigma dx \cdot \Sigma dy}{\sqrt{N \Sigma dx^2 - \Sigma(dx)^2} \sqrt{N \Sigma dy^2 - \Sigma(dy)^2}}$$

$$= \frac{(5 \times 33684.34) - (-43.21 \times 244.62)}{\sqrt{5 \times 18644.98 - (-43.21)^2} \sqrt{5 \times 105263.21 - (244.62)^2}} = 0.87$$

$$(PE) = \frac{0.6745 (1-r^2)}{\sqrt{N}} = \frac{0.6745 (1-0.87^2)}{\sqrt{5}} = 0.07 ; 6 P.E = 6 \times 0.16 = 0.42$$

Appendix-32

Calculation of Correlation Between Debtors and Production

(RS in Million)

| F/Y | Debtor (X) | Production (Y) | dx=X-157.72 | dy=Y-956.15 | dx ² | dy ² | dx dy |
|----------|------------|----------------|-------------|-------------|-----------------|-----------------|----------|
| 2060/061 | 64.78 | 846.80 | -92.94 | -109.35 | 8637.84 | 11957.42 | 10162.99 |
| 2061/062 | 97.06 | 980.16 | -60.66 | 24.01 | 3678.64 | 576.48 | -1456.45 |
| 2062/063 | 157.72 | 956.15 | 0 | 0 | 0 | 0 | 0 |
| 2063/064 | 138.32 | 982.76 | -19.40 | 26.61 | 376.36 | 708.09 | -516.23 |
| 2064/065 | 136.45 | 1259.50 | -21.27 | 303.35 | 452.41 | 92.21.22 | -6452.25 |
| N=5 | 594.33 | 5025.37 | -194.27 | 244.62 | 13146.25 | 105263.21 | 1738.06 |

$$r = \frac{N\sum dx.dy - \sum dx. \sum dy}{\sqrt{N\sum dx^2 - \sum(dx)^2} \sqrt{N\sum dy^2 - \sum(dy)^2}}$$

$$= \frac{(5 \times 1738.06) - (-194.27 \times 244.62)}{\sqrt{5 \times 13146.25 - (-194.27)^2} \sqrt{5 \times 105263.21 - (244.62)^2}} = 0.49$$

$$(PE) = \frac{0.6745 (1-r^2)}{\sqrt{N}} = \frac{0.6745 (1-0.49^2)}{\sqrt{5}} = 0.23 ; 6 P.E = 6 \times 0.23 = 1.38$$

Appendix-33

Calculation of Correlation Between CBB and Production

(RS in Million)

| F/Y | CBB (X) | Productio n(Y) | dx=X- 443.31 | dy=Y- 956.15 | dx ² | dy ² | dx dy |
|----------|------------|-------------------|-----------------|-----------------|-----------------|-----------------|------------|
| 2060/061 | 317.40 | 846.80 | -125.90 | -109.35 | 15850.81 | 11957.42 | 13767.17 |
| 2061/062 | 391.53 | 980.16 | -51.78 | 24.01 | 2681.17 | 576.48 | -1243.24 |
| 2062/063 | 443.31 | 956.15 | 0 | 0 | 0 | 0 | 0 |
| 2063/064 | 59.02 | 982.76 | -384.29 | 26.61 | 147678.80 | 708.09 | -10225.96 |
| 2064/065 | 101.60 | 1259.50 | -341.71 | 303.35 | 116765.72 | 92.21.22 | -103657.73 |
| N=5 | 1312.87 | 5025.37 | -903.68 | 244.62 | 282976.50 | 105263.21 | -101359.76 |

$$r = \frac{N\sum dx.dy - \sum dx. \sum dy}{\sqrt{N\sum dx^2 - \sum(dx)^2} \sqrt{N\sum dy^2 - \sum(dy)^2}}$$

$$= \frac{(5 \times -101359.76) - (-903.68 \times 244.62)}{\sqrt{5 \times 282976.50 - (-903.68)^2} \sqrt{5 \times 105263.21 - (244.62)^2}} = -0.54$$

$$(PE) = \frac{0.6745 (1-r^2)}{\sqrt{N}} = \frac{0.6745 (1-(-0.54)^2)}{\sqrt{5}} = 0.21 ; 6 P.E = 6 \times 0.21 = 1.28$$

Appendix-34

Calculation of Correlation Between LAD and Production

(RS in Million)

| F/Y | LAD(X) | Production (Y) | dx=X- 60.62 | dy=Y- 956.15 | dx ² | dy ² | dx dy |
|----------|--------|-------------------|----------------|-----------------|-----------------|-----------------|----------|
| 2060/061 | 81.60 | 846.80 | 20.98 | -109.35 | 440.16 | 11957.42 | -2294.16 |
| 2061/062 | 51.43 | 980.16 | -9.19 | 24.01 | 84.46 | 576.48 | -220.65 |
| 2062/063 | 60.62 | 956.15 | 0 | 0 | 0 | 0 | 0 |
| 2063/064 | 104.45 | 982.76 | 43.83 | 26.61 | 1921.07 | 708.09 | 1166.32 |
| 2064/065 | 80.29 | 1259.50 | 19.67 | 303.35 | 386.91 | 92.21.22 | 5966.89 |
| N=5 | 378.39 | 5025.37 | 75.29 | | 2832.60 | 105263.21 | 4618.40 |

$$r = \frac{N \sum dx \cdot dy - \sum dx \cdot \sum dy}{\sqrt{N \sum dx^2 - \sum(dx)^2} \sqrt{N \sum dy^2 - \sum(dy)^2}}$$

$$= \frac{(5 \times 4618.40) - (75.29 \times 244.62)}{\sqrt{5 \times 2832.60 - (75.29)^2} \sqrt{5 \times 105263.21 - (244.62)^2}} = 0.07$$

$$=(PE) = \frac{0.6745 (1-r^2)}{\sqrt{N}} = \frac{0.6745 (1-0.07^2)}{\sqrt{5}} = 0.30 ; 6 P.E = 6 \times 0.30 = 1.80$$