Problem 1

1. $1,000,000/1000x100=$100,000

2. Opening Inventory for 2006 = 900 units

$400,000 fixed manufacturing overhead in 2005 released in 2006 = sold 400 units

So Inventory(2005) remains in 2006 = 500 units

Absorption Profit > Variable Profit by 1600000

-400 + O/H in ending inventory = 1600000

So O/H in ending inventory = $2000,000

So the ETA produced in 2006 has not been sold, which is 500 units.

3. Opening Inventory for 2007 = 500+500=1000 units

As all of the fixed Man O/H of $2400,000 was deferred, that means the opening inventory has all been sold.

The total amount of man O/H deducted in 2007 = $500,000(2005) + 2000,000(2006) = $2500,000

4. 500 units of ETA (Product cost = $1500x500units+$2000,000=$2750,000)

|  |  |  |
| --- | --- | --- |
|  | $’000 |  |
| Sales (1000x$5000) | 5000 |  |
| Less: Cost of Sales |  |  |
| Opening Inventory (1000x1.5) |  | 1500 |
| Direct materials |  | 160 |
| Direct Labour |  | 200 |
| Variable Man. O/H |  | 40 |
| Variable SG&A |  | 200 |
|  |  |  |
| Ending Inventory (400x1.5) |  | 600 |
|  |  |  |
| Contribution margin | 3500 |  |
| Less:Fixed Expenses |  |  |
| Fixed Man O/H | 2400 |  |
| Fixed SG&A | 100 |  |
| Operating net income | 1000 |  |

5.

6.

|  |  |
| --- | --- |
|  | $’000 |
| Sales (1000x$5000) | 5000 |
| Less: Cost of goods sold |  |
| Opening Inventory (1000x1.5+2500) | 4000 |
| Direct materials | 160 |
| Direct Labour | 200 |
| Variable Man. O/H | 40 |
| Variable SG&A | 200 |
| Fixed Man O/H | 2400 |
| Ending Inventory | 3000 |
|  |  |
| Gross Profit | 1000 |
| Less: Fixed Expenses |  |
| Fixed SG&A | 100 |
| Operating net income | 900 |

Problem 2

1. Predetermined Overhead Rate:

|  |
| --- |
| $119100 |
| 1.2 × 400 + 1.3 × 3000 |

= $27.19 per direct labor hour

Unit Product Cost

|  |  |  |
| --- | --- | --- |
|  | Product C | Product D |
| Direct materials | $4.00 | $22.80 |
| Direct Labor | $12.00 | $13.00 |
| Manufacturing Overhead | $27.19 x 1.2 | $27.19 x 1.3 |
| Unit Product Cost | $48.63 | $71.15 |

2a

|  |  |  |  |
| --- | --- | --- | --- |
| Activity Cost Pool | Cost | Activity | Rate |
| Machine setups | $10440 | 180 | 58 |
| Purchase orders | $78000 | 2000 | 39 |
| General factory | $30660 | 4380 | 7 |

2b

|  |  |  |
| --- | --- | --- |
| Activity Cost Pool | Product C | Product D |
| Machine setups | 3480 | 6960 |
| Purchase orders | 31980 | 46020 |
| General factory | 3360 | 27300 |
| Total | 38820 | 80280 |
| Unit Manufacturing Overheads | 97.05 | 26.76 |
|  |  |  |
| Direct Materials | $4.00 | $22.80 |
| Direct Labour | $12.00 | $13.00 |
| Manufacturing Overheads | $97.05 | $26.76 |
| Unit Product Cost | $113.05 | $62.56 |

Problem 3

Part A

|  |  |
| --- | --- |
| 1. | Actual Price = $7200 / 9000 = $0.8  Materials Price Variance = (AP-SP) x AQ = (0.8- 0.85) x 7880 = $394 (F) |
| 2. | Standard Quantity = 2 x 3800 = 7600 pounds  Material Quantity Variance = (SQ-AQ) x SP = (7600-7880) x 0.85 = $238 (A) |
| 3. | Actual Rate = 53218/4510=$11.8  Labor rate variance = (SR-AR)xAH = (12-11.8)x4510 = $902 (F) |
| 4. | Standard Rate (AH-SH) = 44 x (4510 – 4750) = 10560 (F) |

Part B

(SR - AR)xAH=Spending Variance

(SR - 25500/5800)x5800=600

Standard rate = 4.5

SR x (AH – SH) = 24750

SH = 5250

So the standard hours is 5250.Problem 4

The offer is not financially attractive.

Variable Manufacturing overhead cost per unit: 450000/50000 x (61.2/36) = $15.3

|  |  |  |
| --- | --- | --- |
| Relevant Cost | No integration | Integration with external |
| Direct Materials | 33 | - |
| Direct Labor | 48.2 | - |
| Variable Man. O/H | 15.3 | - |
| Relevant Cost/unit | $96.5 | $107 |

As the relevant cost/unit of producing by Kanon is lower than that by external supplier, so Kanon should turn down the offer from external supplier.

Problem 5

|  |  |  |
| --- | --- | --- |
|  | NT Division | Island Division |
| 1.ROI | 700/3500x100%=20% | 140/1100x100%=12.73% |
| 2.Residual Income | 700000-3500000x12% = $280000 | 140000-1100000x12%=$8000 |

3. New ROI

|  |  |  |
| --- | --- | --- |
|  | NT Division | Island Division |
| New ROI | (700+1500x(1-55%)-375)/(3500+2000)x100%=18.1% | (140+1500x(1-55%)-375)/(1100+2000)x100%=14.19% |

As the Island Division has an increase in ROI from 12.73% to 14.19%, it will accept the new product line.

NT Division will reject it as it has a decline in ROI from 20% to 18.1%.

4. New residual income

|  |  |  |
| --- | --- | --- |
|  | NT Division | Island Division |
| Residual Income | (700000+1500000x(1-55%)-375000)-5500000x12% = $340000 | (140000+1500000x(1-55%)-375000)-3100000x12%=$68000 |

This would encourage managers to accept new product line as the investments are profitable for company.

5. It may not be obvious to managers how to increase sales, decrease costs, and decrease investments in a way that is consistent with the company’s strategy if the company’s performance is measured by ROI or residual income. A well-constructed balanced scorecard can provide managers with a road map that indicates how the company intends to increase ROI.