2007 – 2008

ACY 1112 Suggested Solutions

Problem 1

(a)

Direct Materials	$35
Direct Labor	36
Variable Manufacturing Overheads	3
Unit Product Cost	$74

(b)

PQ Company

Income Statement for the month

Sales		$834,900
Variable expenses:		
Variable cost of good sold:		
Beginning Inventory	$29,600	
Add: Variable Manufacturing Cost	503,200	
Goods Available for Sale	532,800	
Less: Ending Inventory	22,200	
Variable Cost of Good Sold	510,600	
Variable Selling and Administrative	27,600	
Total Variable Expenses		538,200
Contribution Margin		296,700
Fixed Expenses:		
Fixed Manufacturing Overhead	197,200	
Fixed Selling and Administrative	96,600	
Total Fixed Expenses		293,800
Net Operating Income		$2,900

(c)

Reconciliation of the variable and absorption costing net operation income:

Variable Costing Net Operating Income	$2,900
Add: Fixed Manufacturing Overhead deferred in Inventory	8,700
	11,600
Deduct: Fixed Manufacturing Overhead released from Inventory	(11,600)
Absorption Costing Net Operating Income	0

Problem 2

(a)

Predetermined Overhead Rate:

$$\frac{160000}{0.7 \times 400 + 1.2 \times 1200}$$

= $93.02 per direct labor hour

	Product C	Product D
Direct materials	$11	$16.7
Direct Labor	11.2	19.2
Manufacturing Overhead	65.12	111.63
Unit Product Cost	$87.02	$147.53

(b)

(b1)

Manufacturing Overhead under Traditional Costing		$160,000
Less: Manufacturing Overhead under Activity Bases Costing		
Machine Setups	$13,570	
Purchase Orders	91,520	
General factory	25,800	
Shipping Cost	8,400	$139,290
		$20,710

The period cost under activity-based costing is higher than that of traditional costing by $20,710.

(b2)

Activity Rate

Activity Cost Pool	Cost		Activity		Rate
Machine Setups	$13,570	÷	230	=	59
Purchase Orders	$91,520	÷	2,080	=	44
General Factory	$25,800	÷	1,720	=	15

Assignment of Overheads

Activity Cost Pool	Product C	Product D
Machine Setups	5,900	7,670
Purchase Orders	35,640	55,880
General Factory	4,200	21,600
Total	45,740	85,150
Unit Manufacturing Overheads	114.35	70.96

	Product C	Product D
Direct Materials	$10.7	$16.7
Direct Labor	11.2	19.2
Manufacturing Overheads	114.35	70.96
Shipping Cost	6	5
Unit Product Cost	$142.25	$111.86

(c)

From the above calculation, the unit product costs under the two costing systems are different:

Firstly, traditional costing system allocates all manufacturing overhead costs to products, while ABC system does not organization-sustaining and unused capacity costs that are not caused by any particular product.

Secondly, traditional cost system allocates all of the manufacturing overhead costs by volume-based allocation rate, i.e. direct labor hours. In ABC system, manufacturing overheads are allocated by activity-based rate, for examples no. of purchase orders.

Thirdly, traditional system classifies all non-manufacturing costs as period costs and written off in income statement. Under ABC system, non-manufacturing costs that are caused by products are assigned to products on cause-and-effect basis.

Problem 3

Part A

(a)

Calculation of Contribution per unit of constraint:

	Product F	Product G	Product H
Selling Price	50	80	70
Variable Cpsts	(40)	(50)	(55)
Contribution Margin	10	30	15
Grinding Machine Time	4	2	5
Contribution per Minute	2.5	15	3

Since Product G generates the highest contribution per minute of grinding machine time, Product G should be emphasized.

(b)

Maximum amount the company is willing to pay for additional hour:

Contribution per minute × 60 = 15 × 60 = $900/hour

Part B

If store B is closed:

Loss of contribution margin in store B	($180,000)	
Traceable fixed cost saved ($200,000 × 3/4)	150,000	
Loss of Contribution margin in store A ($240,000 × 10%)	(24,000)	
Decrease in operating income	(54,000)	

Part C

(a)

Purchase Cost		($2,072,000)
Cost savings:		
Direct Materials	$552,000	
Direct Labor	724,000	
Variable Manufacturing Overheads	172,000	
Fixed Manufacturing Overheads	304,000	1,752,000
Additional Contribution		268000
Net total dollar disadvantage		($52,000)

Alternative answer:

	Total Relevant Cost	
	Make	Buy
Direct Materials	$52,000	
Direct Labor	724,000	
Variable Manufacturing Overheads	172,000	
Fixed Manufacturing Overheads	984,000	$680,000
Additional Contibution form other product		(268,000)
Purchase Costs		2,072,000
Total Costs	2,432,000	2,484,000
Net total dollar disadvantage		$52,000

(b)

Direct Materials	$552,000
Direct Labor	724,000
Variable Manufacturing Overheads	172,000
Fixed Manufacturing Overheads	304,000
Opportunity Cost - Additional Contribution	268,000
Maximum amount willing to pay	$2,020,000

Maximum amount willing to pay per unit:
$2,020,000 ÷ 40,000 units = $50.5 per unit

Problem 4

Blue Sky Company Limited
Cash Flow Statement
For the year ended December 31, 2007

Operating Activities		
Net Income		$43,925
Adjustment to convert net income to cash basis:		
Gain on sale of investment	($3,750)	
Loss on sale of equipment	800	
Loss on sale of land	1,000	
Increase in accounts receivable	(6,750)	
Increase in inventories	(6,000)	
Decrease in prepaid expense	1,200	
Increase in accounts payables	5,250	
Increase in accrued payables	750	
Depreciation and amortization charges	9,325	1,825
Net cast provided by operating activities		$45,750
Investing Activities		
Proceeds from sale of investment	$23,750	
Additions to investment	(3,750)	
Proceeds from sale of land	4,000	
Proceeds from sale of equipment	2,200	
Additions to equipment	(15,000)	
Net cash provided by investing activities		11,200
Financing Activities		
Dividend paid	($16,000)	
Decrease in mortgage payables	(5,000)	
Net cash used in financing activities		(21,000)
Net increase in cash and cash equivalent		$35,950
Cash and cash equivalent at beginning of year		33,750
Cash and cash equivalent at end of year		$69,700