ACCT2121 Introductory Management Accounting
2018-2019 2nd Term
Suggested Solution

Exam Booklet 1 – Section B

Problem 1

1. Variable cost per unit :

	$
Direct materials	40
Direct labor	10
Variable manufacturing overhead	3
Total variable cost	53

2. Total avoidable fixed cost :
   $50,000 x 2 + $25,000 x 3
   = $175,000

3. Total cost of buying from outside supplier :

	$
Purchase cost ($65 x 15,000)	975,000
Factory vice president compensation	200,000
Factory property taxes, insurance, etc.	80,000
Salaries for production supervisors ($50,000 x 1)	50,000
Salaries for factory maintenance workers ($25,000 x 2)	50,000
Total cost	1,355,000

4. Total cost of manufacturing :
   $53 x 10,000 + $200,000 + $80,000 + $150,000 + $125,000
   = $1,085,000

   Total cost of outsourcing :
   $65 x 10,000 + $200,000 + $80,000 + $50,000 x 1 + $25,000 x 2
   = $1,030,000

   Difference in total cost :
   $1,085,000 – $1,030,000
   = $55,000

5. Total cost of manufacturing :
   $53 x 20,000 + $200,000 + $80,000 + $150,000 + $125,000
   = $1,615,000

   Total cost of outsourcing :
   $65 x 20,000 + $200,000 + $80,000 + $50,000 x 1 + $25,000 x 2
   = $1,680,000

Difference in total cost :
$1,680,000 – $1,615,000
= $65,000

Problem 2

1. In each bundle, there are 2 units of Product A and 1 unit of Product B.

   Contribution margin per unit of Product A = $40 – $24 = $16
   Contribution margin per unit of Product B = $50 – $40 = $10

   Breakeven point in bundles = $840,000 / ($16 x 2 + $10) = 20,000 bundles

   Breakeven point in units for Product A :
   20,000 x 2
   = 40,000 units

   Breakeven point in units for Product B :
   20,000 x 1
   = 20,000 units

2. The breakeven point would be the same. At the breakeven point, there is no pre-tax income. Therefore, the tax rate change is irrelevant in this situation.

3. Pre-tax net income = $73,500 / (1 – 30%) = $105,000

   Bundles to be sold = ($840,000 + $105,000) / ($16 x 2 + $10) = 22,500 bundles

   Number of units of Product A to be sold :
   22,500 x 2
   = 45,000 units

   Number of units of Product B to be sold :
   22,500 x 1
   = 22,500 units

Problem 3

Income Statement	**Actual** Year 1	**Budgeted*** ** Year 2
Sales	$1,000,000	$2,000,000
Cost of Goods Sold	($700,000)	($1,360,000)
Gross Profit	$300,000	$640,000
Depreciation Expense	($15,000)	($35,000)
Other Operating Expenses	($185,000)	($400,000)
Operating Profit	$100,000	$205,000
Interest Expense	($30,000)	($40,000)
Income before Taxes	$70,000	$165,000
Income Taxes	($30,000)	($99,000)
Net Income	$40,000	$66,000

* Format and the actual figures in Year 1 are provided in the question paper.*

*** Workings :

(1) Sales = $1,000,000 x (1 + 100%) = $2,000,000

(2) Gross Profit = $2,000,000 x 32% = $640,000

(3) Cost of Goods Sold = $2,000,000 – $640,000 = $1,360,000 (balancing figure)

(4) Depreciation Expense = $700,000 / 20 = $35,000

(5) Other Operating Expenses = $2,000,000 x 20.0% = $400,000

(6) Interest rate = $30,000 / $300,000 x 100% = 10%
Interest Expense = $400,000 x 10% = $40,000

(7) Income Taxes = $165,000 x 60.0% = $99,000

Exam Booklet 2 – Section B

Problem 4

1. Absorption Costing :

	June	July
Revenues ($18,000 x 800 ; $18,000 x 1,050)	$14,400,000	$18,900,000
Cost of goods sold :		
Beginning inventory	-	$2,240,000
Variable manufacturing cost ($9,000 x 1,000 ; $9,000 x 900)	$9,000,000	$8,100,000
Allocated fixed manufacturing costs ($2,200,000 / 1,000 x 1,000 ; $2,200,000 / 1,000 x 900)	$2,200,000	$1,980,000
Cost of goods available for sale	$11,200,000	$12,320,000
Deduct ending inventory (W1)	($2,240,000)	($560,000)
Variance adjustment (W2)	-	$220,000 U
Cost of goods sold	$8,960,000	$11,980,000
Gross margin	$5,440,000	$6,920,000
Variable marketing costs ($4,000 x 800 ; $4,000 x 1,050)	($3,200,000)	($4,200,000)
Fixed marketing costs	($500,000)	($500,000)
Operating Income	$1,740,000	$2,220,000

(W1) For April 2017 : $11,200,000 / 1,000 x (1,000 – 800) = $2,240,000
For May 2017 : $12,320,000 / (200 + 900) x (200 + 900 – 1,050) = $560,000

(W2) For April 2017 : $2,200,000 – $2,200,000 = $0
For May 2017 : $2,200,000 – $1,980,000 = $220,000

* Format is provided in the question paper.*

2. Variable Costing :

	June	July
Revenues ($18,000 x 800 ; $18,000 x 1,050)	$14,400,000	$18,900,000
Variable cost of goods sold :		
Beginning inventory	-	$1,800,000
Variable manufacturing costs ($9,000 x 1,000 ; $9,000 x 900)	$9,000,000	$8,100,000
Cost of goods available for sale	$9,000,000	$9,900,000
Deduct ending inventory ($9,000 x 200 ; $9,000 x 50)	($1,800,000)	($450,000)
Variable cost of goods sold	$7,200,000	$9,450,000
Variable marketing costs ($4,000 x 800 ; $4,000 x 1,050)	($3,200,000)	($4,200,000)
Contribution margin	$4,000,000	$5,250,000
Fixed manufacturing costs	($2,200,000)	($2,200,000)
Fixed marketing costs	($500,000)	($500,000)
Operating Income	$1,300,000	$2,550,000

* Format is provided in the question paper.*

3. April :
Absorption costing operating income – Variable costing operating income
= $1,740,000 – $1,300,000
= $440,000

Fixed manufacturing costs in ending inventory – Fixed manufacturing costs in beginning inventory
= $2,200,000 / 1,000 x 200 – $0
= $440,000

May :
Absorption costing operating income – Variable costing operating income
= $2,220,000 – $2,550,000
= ($330,000)

Fixed manufacturing costs in ending inventory – Fixed manufacturing costs in beginning inventory
= $2,200,000 / 1,000 x 50 – $2,200,000 / 1,000 x 200
= ($330,000)

The difference between the income in absorption and variable costing is due to moving fixed manufacturing costs into inventories as inventories increase (as in April) and out of inventories as they decrease (as in May).

Problem 5

a) Direct materials :

Actual costs incurred = $9.60 x 10,150 = $97,440
Actual input quantity x Budgeted price = 10,150 x $10 = $101,500
Price variance = $101,500 – $97,440
= $4,060 F

b) Direct materials :

Actual input quantity x Budgeted price = 10,150 x $10 = $101,500
Flexible budget = 100 x 100 x $10 = $100,000
Efficiency variance = $101,500 – $100,000
= $1,500 U

c) Direct labor :

Actual costs incurred = $161,540
Actual input quantity x Budgeted price = 7,880 x $20 = $157,600
Price variance = $161,540 – $157,600
= $3,940 U

d) Direct labor :

Actual input quantity x Budgeted price = 7,880 x $20 = $157,600
Flexible budget = 80 x 100 x $20 = $160,000
Efficiency variance = $160,000 – $157,600
= $2,400 F

e) Variable manufacturing overhead :

Actual costs incurred = $63,040
Actual input x Budgeted rate = 7,880 x $7.50 = $59,100
Spending variance = $63,040 – $59,100
= $3,940 U

f) Variable manufacturing overhead :

Actual input x Budgeted rate = 7,880 x $7.50 = $59,100
Flexible budget = 80 x 100 x $7.50 = $60,000
Efficiency variance = $60,000 – $59,100
= $900 F

g) Fixed manufacturing overhead :

Actual costs incurred = $173,360
Budgeted costs = $168,000
Spending variance = $173,360 – $168,000
= $5,360 U

h) Fixed manufacturing overhead :

Budgeted costs = $168,000
Allocated costs = $168,000 / 105 x 100 = $160,000
Production-volume variance = $168,000 – $160,000
= $8,000 U