ACCT2121 Introductory Management Accounting
2019-2020 Term 2
Suggested Solution

QUESTION 26

A. $0 (W1, W2)

B. $0 (W1, W2)

C. $342,800 (W1)

D. $0 (W2)

E. $514,200 (W2)

(W1) Income statement (Variable Costing)

	$	$
Revenues ($900 x 21,000)		18,900,000
Variable cost of goods sold:		
Direct material ($300 x 21,000)	6,300,000	
Direct labor ($200 x 21,000)	4,200,000	
Variable manufacturing overhead ($25 x 21,000)	525,000	
Variable cost of goods sold		11,025,000
Variable marketing costs ($300 x 21,000)		6,300,000
Contribution margin		1,575,000
Fixed manufacturing costs		100,000
Fixed marketing costs		618,000
Operating income		857,000
Deduct: Income tax expense ($857,000 x 40%)		342,800
Net income		514,200

(W2) Income statement (Absorption Costing)

	$	$
Revenues ($900 x 21,000)		18,900,000
Cost of goods sold:		
Direct material ($300 x 21,000)	6,300,000	
Direct labor ($200 x 21,000)	4,200,000	
Variable manufacturing overhead ($25 x 21,000)	525,000	
Allocated fixed manufacturing costs	100,000	
Adjustment for production-volume variance	0	
Cost of goods sold		11,125,000
Gross margin		7,775,000
Variable marketing costs ($300 x 21,000)		6,300,000
Fixed marketing costs		618,000
Operating income		857,000
Deduct: Income tax expense ($857,000 x 40%)		342,800
Net income		514,200

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QUESTION 27

A. Contribution margin for 2018 under variable costing = $607,500 (W1)

B. Operating income for 2018 under variable costing = $477,500 (W1)

C. Contribution margin for 2019 under variable costing = $658,125 (W1)

D. Operating income for 2019 under variable costing = $528,125 (W1)

E. Cost of goods sold for 2018 under absorption costing = $142,500 (W2)

F. Operating income for 2018 under absorption costing = $497,500 (W2)

G. Ending inventory for 2019 under absorption costing = $11,875 (W2)

H. Operating income for 2019 under absorption costing = $513,125 (W2)

(W1)

Income statement (Variable Costing)

	2018		2019	
	$	$	$	$
Revenues ($500 x 1,500; 1,625)		750,000		812,500
Variable cost of goods sold:				
Beginning inventory ($55 x 500)	0		27,500	
Direct material ($30 x 2,000; 1,250)	60,000		37,500	
Direct manufacturing labor ($15 x 2,000; 1,250)	30,000		18,750	
Variable manufacturing overhead ($10 x 2,000; 1,250)	20,000		12,500	
Deduct: ending inventory ($55 x 500; 125)	(27,500)		(6,875)	
Variable cost of goods sold		82,500		89,375
Variable selling expenses ($40 x 1,500; 1,625)		60,000		65,000
Contribution margin		607,500		658,125
Fixed manufacturing overhead		80,000		80,000
Fixed selling expenses		50,000		50,000
Operating income		477,500		528,125

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(W2)

Income statement (Absorption Costing)

	2018		2019	
	$	$	$	$
Revenues ($500 x 1,500; 1,625)		750,000		812,500
Cost of goods sold:				
Beginning inventory ($95 x 500) (W3)	0		47,500	
Direct material ($30 x 2,000; 1,250)	60,000		37,500	
Direct manufacturing labor ($15 x 2,000; 1,250)	30,000		18,750	
Variable manufacturing overhead ($10 x 2,000; 1,250)	20,000		12,500	
Allocated fixed manufacturing overhead ($40 x 2,000; 1,250)	80,000		50,000	
Deduct: ending inventory ($95 x 500; 125) (W3)	(47,500)		(11,875)	
Adjustment for production-volume variance	0		30,000 U	
Cost of goods sold		142,500		184,375
Gross Margin		607,500		628,125
Variable selling expenses ($40 x 1,500; 1,625)		60,000		65,000
Fixed selling expenses		50,000		50,000
Operating income		497,500		513,125

(W3) Allocation rate of fixed manufacturing overhead = $80,000/2,000 = $40/unit
Inventoriable cost under absorption costing = $30 + $15 + $10 + $40 = $95/unit

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QUESTION 28

A.

	April	May	June	Quarter
	$	$	$	$
Accounts receivable	23,000			23,000
April sales				
80% x 96% x $150,000	115,200			115,200
20% x $150,000		30,000		30,000
May sales				
80% x 96% x $200,000		153,600		153,600
20% x $200,000			40,000	40,000
June sales				
80% x 96% x $300,000			230,400	230,400
Total cash receipts	138,200	183,600	270,400	592,200

Total cash receipts for the quarter = $592,200

B.

	April	May	June	Quarter
	$	$	$	$
April				
Purchases (90% x $100,000)	90,000			90,000
Expenses ($20,000 – $800)*	19,200			19,200
Dividend expense	1,000			1,000
May				
Purchases (90% x $150,000)		135,000		135,000
Expenses ($25,000 – $800)*		24,200		24,200
June				
Purchases (90% x $280,000)			252,000	252,000
Expenses ($30,000 – $800)*			29,200	29,200
Interest on note payable ($40,000 x 14%/4)			1,400	1,400
Total cash payments	110,200	159,200	282,600	552,000

* Depreciation = $80,000 x 12%/12 = $800/month

Total cash payments for the quarter = $552,000

C. Cash balance at the end of the quarter = ($7,000) + $592,200 – $552,000 = $33,200

D. Sales = $150,000 + $200,000 + $300,000 = $650,000
COGS = $24,200 + $100,000 + $150,000 + $280,000 – $24,200 = $530,000
Gross profit = $650,000 – $530,000 = $120,000

E. Other revenues = $530,000 x 10% = $53,000
Expenses = $20,000 + $25,000 + $30,000 + $650,000 x 80% x 4% = $95,800
Net profit = $120,000 + $53,000 – $95,800 = $77,200

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F. Inventory = $24,200
Accounts receivables = $300,000 x 20% = $60,000
Cash = $33,200
Total current assets = $24,200 + $60,000 + $33,200 = $117,400

G. Equipment = $80,000 at cost
Accumulated depreciation = $19,200 + $800 x 3 = $21,600
Total non-current assets = $80,000 – $21,600 = $58,400

H. Total liabilities = $40,000

I. Total shareholders' equity = $117,400 + $58,400 – $40,000 = $135,800

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QUESTION 29

A. Sales volume variance = $7,000 F (W1)

B. Actual revenues = $78,000
Flexible budget of revenues = 1,200 x $70 = $84,000
Selling price variance = $84,000 – $78,000 = $6,000 U

C. Direct materials:
Actual costs incurred = $21,700
Actual input quantity x Budgeted price = 4,500 x $5 = $22,500
Direct materials price variance = $22,500 – $21,700 = $800 F

D. Direct materials:
Actual input quantity x Budgeted price = 4,500 x $5 = $22,500
Flexible budget = 1,400 x 3 x $5 = $21,000
Direct materials efficiency variance = $22,500 – $21,000 = $1,500 U

E. Direct manufacturing labor:
Actual costs incurred = $20,000
Actual input quantity x Budgeted price = 2,850 x $7 = $19,950
Direct manufacturing labor price variance = $20,000 – $19,950 = $50 U

F. Direct manufacturing labor:
Actual input quantity x Budgeted price = 2,850 x $7 = $19,950
Flexible budget = 1,400 x 2 x $7 = $19,600
Direct manufacturing labor efficiency variance = $19,950 – $19,600 = $350 U

G. Variable manufacturing overheads:
Actual costs incurred = $6,800
Actual input quantity x Budgeted price = 2,850 x $3 = $8,550
Variable manufacturing spending variance = $8,550 – $6,800 = $1750 F

H. Variable manufacturing overheads:
Actual input quantity x Budgeted price = 2,850 x $3 = $8,550
Flexible budget = 1,400 x 2 x $3 = $8,400
Variable manufacturing efficiency variance = $8,550 – $8,400 = $150 U

I. Fixed manufacturing overhead:
Actual costs incurred = $13,000
Flexible budget = 1,000 x 2 x $6 = $12,000
Fixed manufacturing spending variance = $13,000 – $12,000 = $1,000 U

J. Fixed manufacturing overhead:
Flexible budget = 1,000 x 2 x $6 = $12,000
Allocated cost = 1,400 x 2 x $6 = $16,800
Production volume variance = $16,800 – $12,000 = $4,800 F

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(W1)	Flexible Budget	Sales-Volume Variances	Static Budget
	$	$	$
Units sold	1,200	200 F	1,000
Revenues	84,000	14,000 F	70,000
Cost of goods sold:			
Direct material	18,000	3,000 U	15,000
Direct labor	16,800	2,800 U	14,000
Variable manufacturing overheads	7,200	1,200 U	6,000
Allocated fixed manufacturing overheads	12,000	0	12,000
Cost of goods sold	54,000	7,000 F	47,000
Gross margin	30,000	7,000 F	23,000
Fixed non-manufacturing overheads	10,000	0	10,000
Operating income	20,000	7,000 F	13,000

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QUESTION 30

A.

	Make $	Buy $
Direct materials ($7 x 100,000; x 80%)	700,000	560,000
Direct labor ($4 x 100,000; x 90%)	400,000	360,000
Variable overheads ($3 x 100,000 – $190,000; x 90%)	110,000	99,000
Purchase price ($2 x 100,000)	-	200,000
Total relevant cost	1,210,000	1,219,000

$1,219,000 – $1,210,000 = $9,000
Therefore, BAF Ltd should make Part X because the relevant cost is $9,000 lower than buying Part X.

B. Maximum purchase price per batch acceptable
= [$1,210,000 – ($1,219,000 – $200,000)] / 100,000 = $1.91

C.

	Make $	Buy $
Direct materials ($7 x 130,000; x 80%)	910,000	728,000
Direct labor ($4 x 130,000; x 90%)	520,000	468,000
Variable overheads ($110,000/100,000 x 130,000; x 90%)	143,000	128,700
Annual rent	16,000	-
Purchase price ($2 x 130,000)	-	260,000
Total relevant cost	1,589,000	1,584,700

$1,589,000 – $1,584,700 = $4,300
Therefore, BAF Ltd should buy Part X because the relevant cost is $4,300 lower than making Part X.

D. (a) Make as many batches of Part X as possible and buy the rest:

	Buy 30,000 batches $
Direct materials ($7 x 30,000 x 80%)	168,000
Direct labor ($4 x 30,000 x 90%)	108,000
Variable overheads ($110,000/100,000 x 30,000 x 90%)	29,700
Purchase price ($2 x 30,000)	60,000
Total relevant cost	365,700

Relevant cost of buying 30,000 batches = $365,700
Relevant cost of making 100,000 batches = $1,210,000
Relevant cost of (a) = $1,210,000 + $365,700 = $1,575,700

(b) Buy all batches of Part X:
Relevant cost of buying 130,000 batches = $1,584,700

$1,584,700 – $1,575,700 = $9,000
Therefore, BAF Ltd should select option (a) to make 100,000 batches and buy 30,000 batches of Part X because the relevant cost is $9,000 lower than option (b).

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