THE HONG KONG POLYTECHNIC UNIVERSITY

HONG KONG COMMUNITY COLLEGE

Subject Title : Cost Accounting **Subject Code** : CCN2111

Session : Semester One, 2018/19

Numerical Answer

Question B1

	Quarter—Year 3				
	First	*Second*	*Third*	*Fourth*	*Year*
Required production units of finished goods	50,000	70,000	120,000	80,000	320,000
Units of raw materials needed per unit (g)	× 2	× 2	× 2	× 2	× 2
Units of raw materials needed	100,000	140,000	240,000	160,000	640,000
Add desired units of ending raw materials	42,000	72,000	48,000	36,000	36,000
Total units of raw materials needed	142,000	212,000	288,000	196,000	676,000
Less units of beginning raw materials (g)	-40,000	-42,000	-72,000	-48,000	-40,000
Units of raw materials to be purchased (g)	102,000	170,000	216,000	148,000	636,000
Unit cost of raw materials	× $2	× $2	× $2	× $2	× $2
Cost of raw materials to purchased	$204,000	$340,000	$432,000	$296,000	$1,272,000

Question B2

(a) 50,000 - 41,000 = 9,000 units

(b) $150,000/50,000 = $3.00

(c)

Net operating income under **variable** costing	$4,700,000
Add: **manufacturing overhead** costs in inventory under absorption costing	+27,000
Net operating income under **absorption** costing	$4,727,000

Question C1

Part I

(a) APPLE break-even:

Segment CM ratio = Segment contribution margin ÷ Segment sales

= $145,200 ÷ $220,000 = 0.660

Dollar sales for a segment to break even = Traceable fixed expenses ÷ Segment CM ratio

= $50,000 ÷ 0.660 = $75,757.58

(b) SAMSUNG break-even:
Segment CM ratio = Segment contribution margin ÷ Segment sales
= $120,000 ÷ $200,000 = 0.600
Dollar sales for a segment to break even = Traceable fixed expenses ÷ Segment CM ratio
= $44,000 ÷ 0.600 = $73,333.33

(c) The company's overall break-even sales:

CM ratio = Contribution margin ÷ Sales
= $265,200 ÷ $420,000 = 0.631 (rounded)

Total fixed expenses = Total traceable fixed expenses + Common fixed expenses
= $94,000 + $38,000 = $132,000
Dollar sales to break even = Total fixed expenses ÷ CM ratio
= $132,000 ÷ 0.631 = $209,191.76

Part II					
(a)					
AQ =	1.8	x 500	=	900	feet
Price variance =	AQ x (AP-SP)				
=	900 x ($1.7 – $1.4)				
=	900	x	$0.3		
=	$270	U			
(b)					
SQ =	2.2	x 500	=	1,100	feet
Quantity variance =	SP x (AQ-SQ)				
=	$1.4 x (900 – 1100)				
=	$1.4	x	-200		
=	-$280				
=	$280	F			
(c)					
AH =	1.7	x 500	=	850	hours
Rate variance =	AH x (AR-SR)				
=	850 x ($6.3 – $5.9)				
=	850	x	$0.4		
=	$340	U			
(d)					
SH =	1.4	x 500	=	700	hours
Efficiency variance =	SR x (AH-SH)				
=	$5.9 x (850 – 700)				
=	$5.9	x	150		
=	$885	U			

(e)					
Rate variance =	AH x (AR-SR)				
=	850 x ($3 – $3.4)				
=	850	x	-$0.4		
=	-$340				
=	$340	F			
(f)					
Efficiency variance =	SR x (AH - SH)				
=	$3.4 x (850 – 700)				
=	$3.4	x	150		
=	$510	U			

Question C2

Part I

(a)	Work in Process	$80,000	
	Raw Materials		$80,000
(b)	Manufacturing Overhead	15,000	
	Accounts Payable/Utility Payable		15,000
(c)	Work in Process	158,000	
	Manufacturing Overhead	74,000	
	Salaries Expense	120,000	
	Salaries and Wages Payable		352,000
(d)	Work in Process	90,000	
	Manufacturing Overhead		90,000
	[(180,000/160,000) × 80,000]		
(e)	Manufacturing Overhead	100,000	
	Cost of Goods Sold		100,000

Part II

(a) Delivery cycle time = Wait time + Throughput time
Throughput time = 25.8 days – 19.4 days = 6.4 days

(b) MCE = Process time ÷ Throughput time
Process time = 0.5 x 6.4 days = 3.2 days

(c) Throughput time
= Process time + Inspection time + Move time + Queue time
Inspection time = 6.4 days - 3.2 days - 0.9 days – 1.9 days
= 0.4 day

Question C3

Part I

(a) Computation of activity rates:

Activity Cost Pools	(a) Estimated Overhead Cost	(b) Total Expected Activity		(a) ÷ (b) Activity Rate	
Labor-related	$68,300	4,920	DLHs	$13.88	per DLH
Machine settings	$8,000	800	settings	$10	per setting
General factory	$44,800	6,400	MHs	$7	per MH

(b) Computation of the overhead cost per unit:

	V1		V2	
Activity Cost Pools and Activity Rates	Expected Activity	Amount	Expected Activity	Amount
Labor-related, at $13.88 per DLH	1,800	$24,984	3,120	$43,305.60
Machine settings, at $10 per setting	350	3,500	450	4,500.00
General factory, $7 per MH	3,400	23,800	3,000	21,000.00
Total overhead costs assigned (a)		$52,284		$68,805.60
Number of units produced (b)		300		780
Overhead cost per unit (c)= (a) ÷ (b)		$174.28		$88.21

(c) Computation of unit product costs:

	V1	V2
Direct materials	$320	$288
Direct labor		
V1: (6 DLHs × $13 per DLH)	78	
V2: (4 DLHs × $13 per DLH)		52
Overhead	174.28	88.21
Unit product cost	$572.28	$428.21

Part II

New CM$ (188-18)x(10,200+420)	$1,805,400
Present CM$188x10,200	(1,917,600)
Change in CM$	(112,200)
Add: Saving in FC	116,000
Increase/Change in NOI	+$3,800

Question C4

Part I

(a)	Make	Buy
10,000* units		
Direct materials (10,000* units × $6.4 per unit)	$64,000	
Direct labor (10,000 units × $6.2 per unit)	62,000	
Variable overhead (10,000 units × $3.5 per unit)	35,000	
Supervisor's salary (10,000 units × $3.9 per unit)	39,000	
Depreciation of special equipment (not relevant)	0	
Allocated general overhead (avoidable only)	3,000	
Outside purchase price (10,000 units × $26.1 per unit).		$261,000
Opportunity cost		(57,000)
Total cost	$203,000	$204,000

Part II

Cost of beginning work in process inventory	$40,000
Costs added to production during the month	+238,000
Total cost	$278,000
Cost of ending work in process inventory	$34,000
Cost of units transferred out	+244,000
Total cost	$278,000