Managerial Accounting Test Paper Questions (WITH ANSWERS) On ACTIVITY-BASED COSTING (ABC)

E-BOOK

QUESTION NO 1

Company XYZ has 2 fixed price contracts for 2 different clients. The company has enough capacity for both contracts but is uncertain whether they will be profitable.

Data as follows:

Customer	AAA	BBB
Component Type	A999	B999
Contract Value($)	$27,000	$100,000
Contract Quantity	1,000 unit	2,000 units
Material cost/unit	$15	$20
Moulding time/batch	5 hours	7.5 hours
Batch Size	100 units	50 units

Annual Budgeted overheads as follows:

Activity	Cost Driver	Cost driver volume/yr	Cost pool
Moulding	Moulding hours	2,000	$150,000
Inspection	Batches	150	$75,000
Production Management	Contracts	20	$125,000

Required:

(a) Calculate the activity based costs and profits for each contract

(b) Calculate the profit for each job using Absorption costing. Absorb overheads using moulding hours.

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E-BOOK

QUESTION NO. 2

Company XYZ has 6 standard products from stainless steel and brass. The company's most popular product is Product XX

The following are Product XX's data for next year budget:

Activity	Cost Driver	Cost driver volume/yr	Cost pool
Purchasing	Purchase orders	1,500	$75,000
Setting	Batches produced	2,800	$112,000
Materials handling	Materials movements	8,000	$96,000
Inspection	Batches produced	2,800	$70,000
Machining costs	Machine hours	50,000	$150,000

Purchase orders	25
Output	15,000 units
Production batch size	100 units
Materials movements per batch	6
Machine hours per unit	0.1

Required:

(a) Calculate the budgeted overhead costs using activity based costing principles

(b) Calculate the budgeted overhead costs using absorption costing (absorb overhead using machine hours)

(c) How can the company reduce the ABC for Product XX

(Page 2)

Managerial Accounting Test Paper Questions (WITH ANSWERS)
On
ACTIVITY-BASED COSTING (ABC)

E-BOOK

QUESTION NO.3

1(a) Refer to below table, please fill up the following values

(i) Overhead per cost driver unit

(ii) Total Overhead per product per activity

(iii) Cost per item

Activity	Total Overheads	Total Cost driver units	Overhead per cost driver unit	Cost driver units per product			Total overhead per product per activity		
	$	Units		X	Y	Z	X	Y	Z
Machinery set-ups	20,000	230		140	80	100	-	-	-
Materials handling	12,000	90		12	14	14	-	-	-
Quality Control	24,000	120		75	55	70	-	-	-
Supervision	6,000	40		10	15	25	-	-	-
Maintenance	6,450	25		4	6	5	-	-	-
							-	-	-
			Number of units produced				1,100	450	450
							$	$	$
			Cost per item						

Question

1(b): What is a cost driver unit, what do you understand by the term "cost driver unit". Give an example for each activity listed in the above table.

Managerial Accounting Test Paper Questions (WITH ANSWERS)
On
ACTIVITY-BASED COSTING (ABC)

E-BOOK

QUESTION NO.4

A company manufactures two products, X and Y, using the same equipment and similar processes. Data for the production of these items in one period is shown below:

Data:			
Quantity produced per period	**X**	**Y**	
Material cost per unit	**20,000**	**10,000**	
Direct labor hours per unit		**$20**	
Machine hours per unit		**½**	
Set-ups per period		**4**	
Orders handled per period		**70**	
Cost per direct labor hour		**160**	
Overhead costs			**$**
Relating to machine activity			**300,00**
Relating to set-ups of production runs			**50,000**
Relating to handling of orders			**70,000**

Question: Using activity-based costing, what is the full production cost per unit X?

Managerial Accounting Test Paper Questions (WITH ANSWERS)
On
ACTIVITY-BASED COSTING (ABC)

E-BOOK

ANSWERS SECTION

Answer to Question No.1

(a) Computation of the activity based costs and profits for each contract.

Step 1: Compute cost per unit of cost driver

= Cost pool / cost driver volume

Activity	Cost pool (a)	Cost driver volume/yr (b)	Cost/unit of cost driver (a)/(b)
Moulding	$150,000	2,000	$75/moulding hour
Inspection	$75,000	150	$500/batch
Production Management	$125,000	20	$6,250/contract

Step 2: Compute the cost drivers consumed by each contract

Cost driver	Customer AAA	Customer BBB
Batches	1,000 unit/100 =10	2,000unts/50=40
Moulding hours	10batches x 5=50	40batchesx7.5=300
Contracts	1	1

Step 3: Finally, compute the Costs And Profit For Each Contract

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Under Activity Based Costing Methodology

Costs And Profits For Each Contract

		Contract AAA		Contract BBB
Selling price		$27,000		$100,000
Materials	1,000 x $15	$15,000	2,000 x $20	$40,000
Moulding	50 hours x $75	$3,750	300 hour x$75	$22,500
Inspection	10 batches x $500	$5,000	40 batches x $500	$20,000
Management		$6,250		$6,250
Total cost		$30,000		$88,750
Profit/(Loss)		($3,000)		$11,250

(b) Computation of profit based on absorption costing using moulding hour

First compute the overhead absorption rate

=Total annual overheads/annual moulding hour

=($150,000+$125,000)/2,000

=$175 per moulding hour.

ANSWERS SECTION

Answer to Question No.1 (continued)

Under Absorption Costing Methodology

Costs And Profits For Each Contract

		Contract AAA		Contract BBB
Selling price		$27,000		$100,000
Materials	1,000 x $15	$15,000	2,000 x $20	$40,000
Overheads	50 hours x $175	$8,750	300 hour x$175	$52,500
Total cost		$23,750		$92,500
Profit/(Loss)		$3,250		$7,500

Notes:

1. **Based on activity based costing, Customer AAA's contract would be unprofitable while Customer BBB's contract is worth accepting. (Refer earlier article on ABC able to give a true cost)**
2. **If we use the traditional costing accounting/method which is the absorption costing basis, the management will think that both contracts were profitable.**
3. **Using activity based costing, the management should only accept only 1 contract which is Customer AAA's contract.**

ANSWER TO QUESTION NO.2

(a) Computation of the activity based overheads

Step 1: Compute cost per unit of cost driver

= Cost pool / cost driver volume

Activity	Cost pool (a)	Cost driver volume/yr (b)	Cost/unit of cost driver (a)/(b)
Purchasing	$75,000	1,500	$50/purchase order
Setting	$112,000	2,800	$40/batch
Materials handling	96,000	8,000	$12/movement
Inspection	$70,000	2,800	$25/batch
Machining	$150,000	50,000	$3/machine hour

Step 2: Compute the volume of cost drivers consumed by Product XX

Purchase orders (given) =25
Batches=15,000/100=150
Materials movement=150 batches x6=900
Machine hours=15,000 units x 0.1=1,500

Step 3: Compute the Activity Based Overheads cost for Product XX

Activity		
Purchasing	25 orders x $50	$1,250

Setting	**150 batches x $40**	**$6,000**
Material handling	**900 movements x $12**	**$10,800**
Inspection	**150 batches x $25**	**$3,750**
Machining	**1,500 hours x $3**	**$4,500**
Total		**$26,300**

(b) Computation of budgeted overheads costs for Product XX using absorption costing

Budgeted overheads

=($75,000+$96,000+$112,000+$70,000+$150,000)

=$503,000

Budgeted absorption cost/machine hour

=$503,000/50,000

=$10.06

Budgeted machining hours for Product XX=1,500

Budgeted absorbed overhead

=1,500 x $10.06

=$15,090

© Ways in which the company can reduce the ABC for product XX:

- **Reduce the number of batches by increasing the batch size which will then reduce the setting overhead, materials handling and inspection costs.**
- **Reduce the number of purchase orders**

- **Innovate ways of speeding up production so that the machining hours are reduced.**

ANSWER TO QUESTION NO.3

Part 1(a) is a simple illustration to identify all of the steps necessary to do the numerical part of an ABC question.

Activity	Total Overheads	Total Cost driver units	(i) Overhead per cost driver unit	Cost driver units per product			(ii) Total overhead per product per activity		
	$	Units		X	Y	Z	X	Y	Z
Machinery set-ups	20,000	230	86.96	140	80	100	12,174	6,957	8,696
Materials handling	12,000	90	133.33	12	14	14	1,600	1,867	1,867
Quality control	24,000	120	200.00	75	55	70	15,000	11,000	14,000
Supervision	6,000	40	150.00	10	15	25	1,500	2,250	3,750
Maintenance	6,450	25	258.00	4	6	5	1,032	1,548	1,290
							31,306	23,621	29,602
			Number of units produced				1,100	450	450
							$	$	$
			(iii) Cost per item				28.46	52.49	65.78

Answer 1(b)

A cost driver is "an activity which generates cost", such as number of quality inspections, or number of deliveries. The cost driver unit, therefore is one inspection, one delivery and so forth. Hours or weight may be cost driver units, depending upon the cost driver in question

Examples for each of the activities in the table are as follows:

Activity	Possible cost driver unit
Machinery set-ups	Number of set-ups

Material handling	**Kilograms of material handled**
Quality control	**Inspection hour**
Supervision	**Number of work teams**
Maintenance	**Maintenance staff hours**

ANSWER TO QUESTION NO.4

		$	$
a	Machine hour driven costs	300,000/80,000 m/c hr	3.75
b	Set-up driven costs	50,000/100 set ups	500 per set up
c	Order driven costs	70,000/200 orders	350 per order

Overhead costs of X	$
Machine driven costs(40,000x$3.75)	150,000
Set-ups(30 x$500)	15,000
Orders handled(40x$350)	14,000
	179,000
Units produced	20,000
Overhead cost per unit	$8.95
Full cost per unit ($5+$4+$8.95)	$17.95

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