



THE INSTITUTE OF COST AND MANAGEMENT ACCOUNTANTS OF BANGLADESH
CMA JUNE, 2016 EXAMINATION
PROFESSIONAL LEVEL-III
SUBJECT : 302. ADVANCED COST ACCOUNTING.

Model Solution

Solution of Q. No. 1.

Req. # i

Calculation of input for Process 1

Input

	Liters	Taka
Opening Stock	4000	10800
Receipts	20000	61000
Less: Closing Stock	(8000)	(24200)
Process Input	16000	47600

Output

Completed Units	8000
Closing WIP	5600
Normal Loss (15% of input)	2400
	16000

Because input is equal to output, there are not abnormal gains and losses.

Calculation of cost per unit (process 1)

It is assumed that the loss occurs at point of inspection. Because WIP has passed the inspection point, the normal loss should be allocated to both completed units and WIP.

Elements of Costs	Taka	Completed Units	Normal loss	Closing WIP	Total equiv. units	Cost per unit	WIP
Materials	47600	8000	2400	5600	16000	2.975	16,660
Conversion Costs	21350	8000	1800	4200	14000	1.525	6405
	68950					4.50	23065

The cost of normal loss

Materials	2400*2.975	7140
Conversion Costs	1800*1.525	2745
Materials		9885

The cost of completed and WIP is as follows

Completed units	8000*4.5	36000
	Share of normal loss(9885/13600*8000)	5815
	Sub Total	41815
WIP	Original Allocation (5600*2.975+4200*1.525)	23065
	Share of normal loss(9885/13600*5600)	4070

	Sub Total	27135
	Grand Total	68950

Process 1 Account- May 2000

	Litres	Taka		Litres	Taka
Materials	16000	47600	Transfer to Process 2	8000	42000
Labour		4880	Normal loss	2400	--
Direct Expenses		4270	Closing stock	5600	26950
Overhead absorbed		12200			
	16000	68950		16000	68950

Process 2 Account- May 2000

	Litres	Taka		Litres	Taka
Transfer from Process 1	8000	42000	Finished goods store	7500	56250
Labour		6000	Normal loss	800	--
Overhead absorbed		6000	Closing stock		
Abnormal Gain	300				
	8300			8300	56250

Req. # ii

If the materials can be replaced then the loss to the company will consist of the replacement cost of materials. If the materials cannot be replaced then the loss will consist of the lost sales revenue less the costs not incurred as a result of not processing and selling 100 litres.

Solution of Q. No. 2(b).

Reconciliation Statement for February

		\$	
Budgeted variable production cost (1,100 units)		148,500	
Planning variance (labour rate)		2,475	adv
Revised budgeted variable production cost		150,975	

	\$ Fav	\$ Adv	
Materials price		11,540	
Materials usage	8,300		
Labour rate		2,065	
Labour idle time		4,347	
Labour efficiency	567		
Variable overhead expenditure		3,000	
Variable overhead efficiency	1,000		
Total variances	9,867	20,952	<u>11,085</u> adv
Actual variable production cost			<u>162,060</u>

Solution of Q. No. 3.

(a) (i)

Budgeted production per annum (units)	80,000	60,000	140,000
Number of batches	800	1,200	2,000
Number of machine set-ups	2,400	3,600	6,000
Total processing time (minutes)	240,000	300,000	540,000

Cost driver rate = $\$108,000 / 540,000 = \0.20
 Total processing costs = $\$0.20 \times 240,000 = \$48,000$
 Processing costs per unit = $\$48,000 / 80,000 = \0.60

(a) (ii)

Cost driver rate = $\$180,000 / 6,000 = \30 per set up
 Total set-up costs = $\$30 \times 3,600 = \$108,000$
 Set up cost per unit = $\$108,000 / 60,000 = \1.80

(b)

The expected value of cost of the warranty claims is:

$\$2,000,000 \times 15\% =$	$\$300,000$
$\$6,000,000 \times 3\% =$	$\$180,000$
$\$10,000,000 \times 2\% =$	$\underline{\$200,000}$
	$\$680,000$

(c)

The minimum profit at a selling price of \$80 is \$50,000
 The minimum profit at a selling price of \$90 is \$60,000
 The minimum profit at a selling price of \$100 is \$70,000
 The minimum profit at a selling price of \$110 is \$75,000

Therefore if the manager wants to maximise the minimum profit a selling price of \$110 would be chosen.

Solution of Q. No. 4.

(a)

The question states that fixed manufacturing costs are absorbed into unit costs by a charge of 200% of variable cost. Therefore, unit variable cost is one third of total unit cost.

	Product A	Product B	Product C
Selling Price	20	31	39
Variable costs	6	8	10
Production Contribution	14	23	29
Contribution per processing hour	14	23	14.50
Raking	3	1	2

Optimal Programme

Product	Output	Hours Used	Contribution
B	8000	8000	184000
C	2000	4000	58000
A	1500	1500	21000
		13500	263000

Product	Output	Hours Used	Contribution
A	6000	6000	84000
B	6000	6000	58000
C	750	1500	21000
		13500	243750

Contribution and profits will increase by 19250 if the optimal production function is implemented. An additional hour of processing would be used to increase product A by one unit, thus increasing contribution by Tk.14. therefore shadow price (or opportunity cost) of one scarce processing hour is Tk.14.

(b)

Req. # i

	Product X	Material B
Sales	50,400	180,000
Apportionment of Joint costs	35,400	106,200
Further processing costs	18,000	--
Profit/(Loss)	(3000)	73800
Profit / Loss per kg	(0.33)	2.46

Req. # ii

The answer should stress that a joint products costs cannot be considered in isolation from those of other joint products. If product X was abandoned, the joint costs apportioned X would still continue and would have to be absorbed by material B. therefore NO action should be taken on product X without also considering implications of material B. Note that process as a whole is profitable. Decision to discontinue Product X should be based on comparison with those costs which would be avoidable if X were discontinued with the lost sales revenue from Product X. Joint costs apportionment are appropriate for stock valuation purposes but not for decision making purposes.

Req.# iii

Al alternative method is to apportion joint costs on the basis of net realizable value at split off point. The calculations are as follows:

	Sales Value	Costs beyond split off point	Net realizable value at split off point	Joint costs apportioned
Product X	50400	18000	32400	21600
Material A	180000	--	180000	120000

Revised Profit Calculation

Sales	50400
Less: Joint Costs	21600
Less: Processing Costs	18000
Profit	10800
Profit per kg	1.20

Apportionment methods based on sales value normally ensure that if the process as a whole is profitable, then each of the joint products will be shown to be making a profit. Consequently it is less likely that incorrect decision will be made.

Solution of Q. No. 5.

(a)

	Tk.	
Variable cost of A1 (Tk13 x 10,000 units)		130,000
Lost contribution from sales of BZ (Tk80 - Tk30 - Tk13) x 10,000 units		370,000
Additional inspection costs		50,000
		550,000

(b)

Expected value of profit with marketing campaign

$$(\$300,000 \times 0.90) + (-\$80,000 \times 0.1) - \$50,000 \\ = \$262,000 - \$50,000 = \$212,000$$

Expected value of profit without marketing campaign

$$(\$300,000 \times 0.75) + (-\$80,000 \times 0.25) = \$205,000$$

It is therefore worthwhile for the company to undertake the marketing campaign as the increase in the expected value of profit is \$7,000

(c)(i)

- Inbound logistics
- Operations
- Outbound logistics
- Marketing and sales
- Service

(ii)

Prevention – operations: preventative maintenance and checking of the calibration of machinery. This would reduce the number of potentially faulty products being produced and therefore reduce guarantee claims.

Appraisal – inbound logistics: reduce costs of incoming inspections by building close links with suppliers and getting them to adopt TQM. If suppliers can guarantee their quality then inbound inspections could be eliminated.

Internal failure - operations: reduce costs of re-works by training employees on a continual basis e.g. quality circles. This would reduce failure costs and also improve quality.

External failure - service: design quality into the product to try to prevent guarantee claims and therefore the cost of servicing/repairing the product.

= THE END =