

THE INSTITUTE OF COST AND MANAGEMENT ACCOUNTANTS OF BANGLADESH
CMA DECEMBER, 2016 EXAMINATION
PROFESSIONAL LEVEL-I
SUBJECT: 102.COST ACCOUNTING

Model Solution

Question to the Solution No. 2 (b)

	Job 410		Job 411	
1				
Direct manufacturing cost				
Direct materials	Tk. 9,700		Tk. 59,900	
Direct manufacturing labor				
Tk.30 x 25; Tk.30 x 375	<u>750</u>	Tk. 10,450	<u>11,250</u>	Tk. 71,150
Manufacturing Overhead				
Tk.115 x 25; Tk.115 x 375		<u>2,875</u>		<u>43,125</u>
Total manufacturing cost		Tk. 13,325		Tk. 114,275
Divided by number of units		<u>÷ 10</u>		<u>÷ 200</u>
Manufacturing cost per unit		<u>Tk. 1,332.50</u>		<u>Tk. 571.375</u>

	Job 410		Job 411	
2				
Direct manufacturing cost				
Direct materials	Tk. 9,700		Tk. 59,900	
Direct manufacturing labor				
Tk.30 x 25; Tk.30 x 375	<u>750</u>	Tk. 10,450	<u>11,250</u>	Tk. 71,150
Indirect Manufacturing Cost (Indirect cost pool):				
Material handling				
Tk.0.40 x 500; Tk.0.40 x 2,000	200		800	
Lathe work				
Tk.0.20 x 20,000; Tk.0.20 x 59,250	4,000		11,850	
Milling				
Tk.20.00 x 150; Tk.20.00 x 1,050	3,000		21,000	
Grinding				
Tk.0.80 x 500; Tk.0.80 x 2,000	400		1,600	
Testing				
Tk.15.00 x 10; Tk.15.00 x 200	150	<u>7,750</u>	3,000	<u>38,250</u>
Total manufacturing cost		Tk. 18,200		Tk. 109,400
Divided by number of units		<u>÷ 10</u>		<u>÷ 200</u>
Manufacturing cost per unit		<u>Tk. 1,800</u>		<u>Tk. 547</u>

	Job 410		Job 411	
3				
Number of units in job		10		200
Cost per unit with prior costing system		Tk. 1,332.50		Tk. 571.375
Cost of unit with activity-based costing		1,820.00		547.00

Job order 410 has an increase in reported unit cost of 36.6% [(Tk.1,820 – Tk.1,332.50) ÷ Tk.1,332.50], while job order 411 has a decrease in reported unit cost of 4.3% [(Tk.547 – Tk.571.375) ÷ Tk.571.375]. A common finding when activity-based costing is implemented is that low-volume products have increases in their reported costs while high-volume products have decreases in their reported cost. This result is also found in requirements 1 and 2 of this problem. Costs such as materials-handling costs vary with the number of parts handled (a function of batches and complexity of products) rather than with direct manufacturing labor-hours, an output-unit level cost driver, which was the only cost driver in the previous job-costing system. The product cost figures computed in requirements 1 and 2 differ because a. the job orders differ in the way they use each of five activity areas, and b. the activity areas differ in their indirect cost allocation bases (specifically, each area does not use the direct manufacturing labor-hours indirect cost allocation base).

The following table documents how the two job orders differ in the way they use each of the five activity areas included in indirect manufacturing costs:

Activity Area	Usage based on Analysis of Activity Area Cost Drivers		Usage Assumed with Direct Manuf. Labor-Hour as Application Base	
	Job Order 410	Job Order 411	Job Order 410	Job Order 411
Material handling	20.0%	80.0%	6.25%	93.75%
Lathe work	25.2	74.8	6.25	93.75
Milling	12.5	87.5	6.25	93.75
Grinding	20.0	80.0	6.25	93.75
Testing	4.8	95.2	6.25	93.75

The differences in product cost figures might be important to Atlas Corporation for product pricing and product emphasis decisions. The activity-based accounting approach indicates that job order 410 is being under-costed while job order 411 is being over-costed. Atlas Corporation may erroneously push job order 410 and deemphasize job order 411. Moreover, by its actions, Atlas Corporation may encourage a competitor to enter the market for job order 411 and take market share away from it.

Question to the Solution No. 3 (b)

(i)

Equivalent Production:

	Total	Equivalent	
		Material	Conversion Cost
WIP-Opening	5,000		
Started during the period	20,000		
	25,000		
Unit Transferred	22,500	22,500	22,500
WIP-Closing (Mat 100%, Con Cost 70%) *	2,500	2,500	1,750
Total cost	25,000	25,000	24,250

*Degree of completion in this department: direct materials, 100% (since they are added at the start of the process);

(ii)

	Total	Equivalent	
		Production	unit Cost
Direct Materials			
Opening	1,250,000		
Costs added during the period	4,500,000		
	5,750,000	25,000	230
Conversion Cost:			
Opening	402,750		
Costs added during the period	2,337,500		
	2,740,250	24,250	113
Total Cost to be accounted for	8,490,250		343

(iii) Costs Accounted For

Transferred to Next Department	22,500	343	7,717,500
WIP- Ending			
Cost from Previous Department			
Direct Material	2,500	230	575,000
Conversion Cost	1,750	113	197,750
Total WIP- Ending			772,750
Total Cost Account For			8,490,250

(iv)			
1	Work in Process—Assembly Department	4,500,000	
	Accounts Payable		4,500,000
	Direct Materials purchased and used in production in October		
2	Work in Process—Assembly Department	2,337,500	
	Various Accounts		2,337,500
	Conversion costs incurred in October		
3	Work in Process—Testing Department	7,717,500	
	Work in Process—Assembly Department		7,717,500
	Cost of goods completed and transferred out in October from the Assembly Department to the Testing Department		

Work in Process—Assembly Department			
Beginning inventory, October 1	1,652,750	3. Transferred out to	7,717,500
1. Direct materials	4,500,000	Work in Process—Testing	
2. Conversion costs	2,337,500		
Ending Inventory, October 31	772,750		

Question to the Solution No. 4 ©

Stores Ledger Control Account

(Tk.)		(Tk.)	
Opening Balance	60,140	Finished Goods Control A/c (1)	95,200
(Cost Ledger Control A/c	93,106	Closing Balance	58,046
	<u>153,246</u>		<u>153,246</u>

Production Wage Control Account

(Tk.)		(Tk.)	
Cost Ledger Control A/c	121,603	Finished Goods A/c	87,480
		Production O'hd Control A/c (2)	34,123
	<u>121,603</u>	indirect wage	<u>121,603</u>

Production Overhead Control Account

(Tk.)		(Tk.)	
Cost Ledger Control A/c	116,202	Finished Goods Control A/c (3)	61,236
Prod. Wages Control A/c (2)	34,123	Profit and Loss A/c – Fixed	
Profit and Loss A/c – over		overhead (3)	90,195
absorbed variable production			
overhead (3)	1,106		
	<u>151,431</u>		<u>151,431</u>

Finished Goods Control Account

(Tk.)		(Tk.)	
Opening Balance	147,890	Variable Prod. Cost of Sales A/c	
Stores Ledger Control A/c	95,200	(balance)	241,619
Production Wages Control A/c	87,480	Closing Balance	150,187
Prod. Overhead Control A/c	61,236		
	<u>391,806</u>		<u>391,806</u>

Workings

(1)	(Kg)	(Tk.)
Opening stock	540	7,663
Purchases	1,100	15,840
	<u>1,640</u>	<u>23,503</u>

Issue price Tk. 23,503/1,640 = Tk. 14.33 per kg

Cost of material issues: Material Y = Tk. 14.33 x 1,164kg = Tk. 16,680

Other materials = Tk. 78,520

Tk. 95,200

(2) Analysis of wages

	Direct labor (Tk.)	Indirect labor (Tk.)
Direct workers productive time (11,664 x Tk. 7.50)	87,480	
Direct workers unproductive time at Tk. 7.50 (12,215 – 11,664)		4,132.50
Overtime premium (1,075 hours x Tk. 2.50)		2,687.50
Indirect workers basic time (4,655 hours x Tk. 5.70)		26,533.50
Indirect worker overtime premium (405 hours x Tk. 1.90)		769.50
	<u>87,480</u>	<u>34,123.00</u>

Total wage for the period Tk. 121,603 (Tk. 87,480 + Tk. 34,123)

(3) Analysis of overhead

Production overhead = Tk. 150,325 (Tk. 116,202 + Tk. 34,123)

Fixed overhead = Tk. 90,195 (60% x Tk. 150,325)

Variable overhead = Tk. 60,130 (40% x Tk. 150,325)

Variable overhead absorbed = Tk. 61,236 (70% of the direct labor cost of Tk. 87,480)

Over-absorbed overheads = Tk. 1,106 (Tk. 61,236 – Tk. 60,130)

Note that with a marginal costing system fixed overhead are charged directly to the profit and loss account and not included in the product costs. Therefore, they are not included in the finished stock.

(b)

Sales	(Tk.)	(Tk.)
		479,462
Less: Variable production cost of sales	241,619	
Variable selling & administration overheads	38,575	
Over-absorbed variable production overheads	<u>(1,106)</u>	<u>279,088</u>
Contribution		200,374
Less: Fixed production overheads	90,195	
Fixed selling and administration overheads	<u>74,360</u>	<u>164,655</u>
Net profits		<u>35,819</u>

Question to the Solution No. 5 (a)

$$EOQ = \sqrt{\frac{2 \times 5,200 \times \text{Tk. } 2,500}{\text{Tk. } 50}}$$

=721 chips (rounded)

$$\text{Number of deliveries} = \frac{5,200}{721}$$

= 8 (rounded)

(b)

1. Journal entries for April are:

Entry (a) Inventory Materials and In-Process Control	88,00,000	
Accounts Payable Control		88,00,000
(direct materials purchased)		
Entry (b) Conversion Costs Control	42,20,000	
Various accounts (such as Wages Payable Control)		42,20,000
(conversion costs incurred)		
Entry (c) Finished Goods Control	1,25,00,000	
Inventory Materials and In-Process Control		85,00,000
Conversion Costs Allocated		40,00,000
(standard cost of finished goods completed)		
Entry (d) Cost of Goods Sold	1,19,00,000	
Finished Goods Control		1,19,00,000
(standard costs of finished goods sold)		

2. Under an ideal JIT production system, if the manufacturing lead time per unit is very short, there could be zero inventories at the end of each day. Entry (c) would be Tk. 1,19,00,000 finished goods production [to match finished goods sold in entry (d)], not Tk. 1,25,00,000. If the Marketing Department could only sell goods costing Tk. 1,19,00,000, the JIT production system would call for direct materials purchases and conversion costs of lower than Tk. 88,00,000 and Tk. 42,20,000, respectively, in entries (a) and (b).

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