THE INSTITUTE OF COST AND MANAGEMENT ACCOUNTANT OF BANGLADESH
CMA JUNE, 2018 EXAMINATION
PROFESSIONAL LEVEL- III
SUBJECT: 302. ADVANCED COST ACCOUNTING

Model Solution

Solution to the question No.01

The Six key principles are:
(a) Price led costing, (b) focus on customer (c) focus on design (d) cross-functional involvement (e) value chain environment (f) a life-cycle orientation.

Target cost of manufacturing:

Sales:	6,000 units @ Tk.90	Tk. 540,000
Required return on investment:	8% x Tk. 3,000,000	Tk. 240,000
Target Cost (Total)		3,00,000
Variable selling cost (per unit)		Tk. 12
Target manufacturing cost per unit	Tk. 50-Tk. 12`	Tk. 38

The significance of this figure is that production cannot begin unless the firm is confident that the cost of manufacturing the product (given its existing design) will be Û38 per unit or less. The technical staff should be asked to revise the design if necessary so that the cost of manufacturing the product can be reduced to Tk.38 or less. If this cannot be achieved then the firm cannot manufacture the product.

Part (b)
ROI in these circumstances:
□□Profit = (Tk.90 – Tk.12 – Tk.55) * 6,000 = Tk138,000.
□□ROI = Tk138,000 / Tk.3,000,000 = 4.6%.

Comments:
- ✓ The company cannot accept this suggestion. The company has determined that a return of 8% is required for investments, and it must achieve this rate if the profits from the new music player are to be adequate to cover the cost of the finance obtained in order to fund the Tk3,000,000 capital investment.
- ✓ Instead of accepting a lower ROI or abandoning the idea of the new music player, a better idea would be to ask the technical staff to modify the design so as to reduce the manufacturing cost per unit. The production director herself has suggested that the design incorporates costly features which add little value to the product, so there should be considerable scope for design change. For example, cassette tapes are now widely considered to be an out-of-date technology, so the cassette-playing feature of the music player could probably be removed without significantly damaging demand for the product.

Part (c):
□□Target costing is most effective while the product is still at the design stage because it is at this stage that there is maximum scope for modifying the design in order to make cost savings. Once production has commenced, the designs of the product and the manufacturing process are much more difficult to change.
It is often said that the vast majority of production costs are effectively 'committed' by the time production begins.
□□Knowledge of cost driver rates is required so that it is possible to accurately estimate the amount of cost which will be saved if the design is changed in order to eliminate an unnecessary activity or feature. For example if the cost driver rate for 'repair' is known then it is possible to estimate the cost savings which will result from decreasing the proportion of defective output. By contrast, if all

overhead is allocated to products on a labour hour basis, then this may give the completely false impression that reducing the labour content of a product can generate significant savings in overhead costs.

Solution to the question No.-02

i) Physical Flow Schedule:

Units to account for:		
Units, BWIP		100,000
Units Started		320,000
Total Units to account for		420,000
Units accounted For:		
Units completed and trandferred out:		
Started and completed	270,000	
From BWIP	100,000	370,000
Units, EWIP		50,000
Total Units accounted for		420,000

Ii)Schedule of equivalent units:

	Direct materials	Conversions costs
Units completed	370,000	370,000
Units, EWIP x Percentage complete		
Direct materials (50,000x100%)	50,000	
Conversions costs (50,000 x60%)		30,000
Equivalents units of output	420,000	400,000

iii) Cost per equivalent units:

DM units cost (20,000 + 211,000)/420,000	= 0.550
CC units cost (40,000+370,000)/400,000	= 1.025
Total cost per equivalent unit	= 1.575

iv) Cost of goods transferred out and cost of ending work in progress:

Cost of goods transferred out = 1.575x370,000=$582,750
Cost of EWIP = (0.55 x 50,000)+(1.025x30,000)=$ 58,250

v) Cost reconciliation

Cost to account for:	
BWIP	60,000
Cost added	581,000
Total cost to account for	641,000
Cost accounted for:	
Goods transferred out	582,750
EWIP	58,250

Total costs accounted for	541,000

F) Equivalent units of output:

Direct material=320,000

Conversion costs=360,000

Cost per equivalent unit

Dm Unit cost=0.659

CC unit cost= 1.028

Total cost per unit= 1.687

Cost goods transferred out and cost of ending work in progress:

Cost goods transferred out = ($ 1.687x270,000)+(1.028x60,000)+60,000=$577,170

Cost of EWIP= ($0.659x50,000)+(1.028x30,000)=63,790

Solution to the question No.03

a)

(i) ERPS are integrated IT systems that include all aspects of the operations of a company and the financial accounting system. ERPS may affect the budget setting process in the following ways:

• They are complex planning systems that will show the financial consequences of operational plans, and thus they can significantly improve efficiency in the budget- setting process;

• It is much easier with ERPS to conduct sensitivity analysis and budgets can be flexed with more precision;

• Some complex budget relationships are expensive to model and change, but this cost is reduced with effective ERPS;

• Some have argued that the budget-setting process almost disappears with an effective ERPS as the budget figures are a natural consequence of the planning process.

(ii) ERPS also has consequences for the budgetary control process, including:

• Actual data can be calculated and compared with budget data within very short time; periods, in fact virtually in real-time with some systems. This can lead to intensification of the budgetary control process;

• Far less resources are needed to operate a budgetary control system, although vast resources may be needed to implement an ERPS;

• Accountants may play a much reduced role as much of the data required for budgetary control is automatically prepared by the ERPS that operational managers are using.

b)

Post separation costs per unit are Tk. 19,600 / 2,800 = Tk. 7 per litre

Notional price at separation point is Tk. 10·50 – Tk. 7 = Tk. 3·50 per litre

Weighted sales value is	P	3,600 x Tk. 4·60 =	Tk. 16,560
	Q	4,100 x Tk. 6·75 =	Tk. 27,675
	R	2,800 x Tk. 3·50 =	Tk. 9,800
			Tk. 54,035

Allocation of common process costs to R is Tk. 42,500 x (Tk. 9,800 / Tk. 54,035) = Tk.7,708

c)

	January	February	March
	units	*units*	*units*
Sales	4,000	5,000	6,000
Closing inventory - 30% next month	1,500	1,800	
less opening inventory	(1,200)	(1,500)	
Production in month	4,300	5,300	

Raw material requirement	January
	units
Monthly production	4,300
Closing inventory: 25% of next month's production	1,325
Less opening inventory	(1,075)
Material purchases	4,550

Payments for purchases for the cash budget in February are the actual purchases delivered in January, that is: 4,550 units at Tk. 8 per unit = Tk. 36,400

Solution to the question No. 04

i) There is an extensive literature in the area of "change management" from which students can draw in order to respond to this question. Based on this literature, the following factors might be mentioned as being critical for an organization's successful quality program:

- Evidence of top-management support, including motivational leadership and resource commitments.
- Training (including ongoing training and re-education) of those affected, including employees and suppliers.
- A cultural change leading to a corporate culture committed to the customer and to continuous, dynamic improvement; related to this is the need to develop an effective reward system (i.e., link performance and compensation).

ii) Analysis of COQ Information

BERGEN, INC.
Cost of Quality Report
Most Recent and Most Distant Quarter

6/30/2016		9/30/2017	
%	%	%	%

COQ Category	Amount (in '000s)	Quality Cost	Production Cost	Amount (in '000s)	Quality Cost	Production Cost
Prevention	$240	25	5.83	$270	46	5.99
Appraisal	$205	21	4.98	$116	20	2.57
Internal Failure	$188	20	4.56	$102	17	2.26
External Failure	$331	34	8.03	$103	17	2.28
Total COQ	$964	100	23.40	$591	100	13.10

From an analysis of the COQ Report (oldest vs. most recent quarterly results) it would appear that Bergen Inc.'s program has been successful because:

- Total COQ as a percentage of total production cost has declined from 23.4% to 13.1%.
- External failure costs, those costs signaling customer dissatisfaction, have declined from 8.03% of total production cost to 2.28%. These declines in warranty repairs and customer returns should translate into increased sales and lower costs (and therefore increased profitability) in the future.
- The total internal failure cost was 4.56% of the total production cost in 2013, and is now only 2.26% of the total production cost.
- Appraisal costs have decreased 48%—from 4.98% to 2.57% of production cost. Higher initial quality (via Prevention expenditures) is likely reducing the demand for testing.
- Quality costs have shifted to the area of prevention where problems are solved before the customer becomes involved. Prevention costs, such as maintenance, training, and design reviews, have increased from 5.83% of total production to 5.99% and from 25%

iii) Current Reaction to the Quality Initiative

Tony Reese's current reaction to the quality-improvement program is more favorable as he is seeing the benefits of having the quality problems investigated and solved before they reach the production floor. Because of improved designs, quality training, and additional preproduction inspections, scrap, and rework costs have declined. Production does not have to spend an inordinate amount of time with customer service since those individuals are now making the product right the first time. It is plausible that throughput has increased and that throughput time has decreased: work is now moving much faster through the department. (Of course, this last assertion can be tested through the collection of relevant

iv) Measurement of Opportunity Cost of Not Investing in Quality Program

To measure the opportunity cost of not implementing the quality program, Bergen, Inc., could assume that:

a. Sales and market share would continue to decline, and then estimate the revenue and income lost.
b. The company would have to compete on price rather than quality and calculate the impact of having to lower product prices to do so.

v) For many organizations, a reduction in overall quality costs can be a key to significantly increasing financial performance (a point substantiated by the empirical evidence referenced early in the chapter). Therefore, if COQ reports are accessible, comprehensible, and viewed as reliable, they can

inform managers and operating personnel alike that quality failures can be exceedingly expensive to the organization.

However, COQ measures are not “diagnostic” in nature. That is, these financial measures do not point to ways to eliminate quality problems; however, it does quantify in financial terms the impact of these failures on profitability. In short, “diagnostic control” of quality is probably better achieved through the application of techniques borrowed from operations management (“cause-and-effect diagrams,” Pareto charts, etc.) applied to nonfinancial measures of quality. This suggests, therefore, that one characteristic of a comprehensive framework for managing and controlling quality is the use of both financial and nonfinancial quality indicators.

Solution to the question No. 05

(1) Finishing is a bottleneck operation. Therefore, producing 1,000 more units will generate additional throughput contribution and operating income.

Increase in throughput contribution (720-320) x 1,000	Tk. 4,00,000
Incremental costs of the Jigs and tools	Tk. 3,00,000
Net benefits of investing in Jigs and tools	Tk. 1,00,000

DT should invest in the modern Jigs and tools because the benefit of higher throughput contribution of Tk. 4, 00,000 exceeds the cost of Tk. 3,00,000.

(2) The Machining department has excess capacity and is not a bottleneck operation. Increasing its capacity further will not increase throughput contribution. There is, therefore, no benefit from spending Tk. 50,000 to increase the machining department capacity by 10,000 units. DT should not implement the change to do setup faster.

(3) Cost of defective units at machining operation which is not a bottleneck operation is the loss in direct materials of Tk. 320 per unit. Producing 2,000 units of defectives does not result in loss of throughput contribution. Despite the defective the defective production, machining can produce and transfer 80,000 units to finishing. Therefore, cost of 2,000 defective units at the machining operation is Tk.320x2,000 = Tk. 6,40,000.

(4) A defective unit produced at the bottleneck finishing operation cost DT material costs plus the opportunity cost of lost throughput contribution. Bottleneck capacity not wasted in producing defective units could be used to generate additional sales and throughput contribution. Cost of 2,000 defective units at the finishing operation is:

Loss of direct materials Tk. 320x 2,000	Tk. 6,40,000
Foregone throughput contribution (720-320) x 2,000	Tk. 8,00,000
Total cost of 2,000 defective units	Tk. 14,40,0000

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