

**CMA JANUARY 2022 EXAMINATION
INTERMEDIATE LEVEL II
CM 231. MANAGEMENT ACCOUNTING**

MODEL SOLUTION

Solution of the Q. No. 1

- i. (c)
- ii. (b)
- iii. (d)
- iv. (b)
- v. (b)
- vi. (a)
- vii. (d)
- viii (c)
- ix. (c)
- x. (a)

Solution of the Q. No. 2

- (a) True
- (b) False. In this case the cost of goods manufactured is greater than the cost of goods sold.
- (c) False. Depreciation on equipment a company uses in its selling and administrative activities would be classified as a period cost.
- (d) True
- (e) false. Only those future costs that differ between the alternatives under consideration are relevant.

Solution of the Q. No. 3

- (1) (b)
- (2) (a)
- (3) (d)
- (4) (h)
- (5) (j)

Solution of the Q. No. 4

a.

Details	Machine A	machine B
Capacity	10,000 units	10,000 units
Selling price	Tk. 10 per unit	Tk. 10 per unit
annual fixed cost	Tk. 30,000	Tk. 16,000
profit at 100% capacity	Tk. 30,000	Tk. 24,000
contribution (fixed cost+ profit)	Tk. 60,000	Tk. 40,000
contribution per unit	Tk. 6.00	Tk. 4.00
C/M ratio	60%	40%

required (a)	Machine A	machine B
break even sales in tk. = $\frac{\text{Fixed cost}}{\frac{C}{M} \text{ ratio}}$	$\frac{30,000}{0.60} = \text{Tk. } 50,000$	$\frac{16,000}{0.40} = \text{Tk. } 40,000$
Break even ales in units =	$50,000 \div 10 = 5,000$ units	$40,000 \div 10 = 4,000$ units

Required(b):

Sales level where both machines are equally profitable is shown below:

$$\text{Sales level of equal profits} = \frac{\text{change in fixed cost}}{\text{change C/M ratio}}$$

$$= \frac{30,000 - 16,000}{0.60 - 0.40} = \frac{14,000}{0.20} = \text{Tk. } 70,000$$

$$= 70,000 \div 10 = 7,000 \text{ units}$$

b.

Mithun supplier company
Statement for Target Selling Price (For 50,000 units)

Particulars	Total Taka	Per unit Taka
Target cost:		
Variable cost:		
Direct Material (50,000 x 40)	20,00,000	40.00
Direct labor (50,000 x 20)	10,00,000	20.00
Variable manufactured overhead (50,000 x 12)	6,00,000	12.00
Variable selling & administrative cost (50,000 x 7)	3,50,000	7.00
Total variable cost (A)	39,50,000	79.00
Fixed cost:		
Manufacturing overhead	50,000	1.00
Selling & Administrative	40,000	.80
Total fixed cost (B)	90,000	1.80
Total target cost (A + B)	4,040,000	80.80
Add : Target profit (Tk. 1,20,000 x 12%)	14,400	.288
Target selling price (mark up value)	4054,400	

Mark up value Tk. 4054,400

And target selling price per unit Tk. 81.088

c.

1. Throughput time = Process time + Inspection time + Move time + Queue time = 28 days + 15 days + 07 days + 04 days = 54 days.

2. Only process time is value added time, therefore the manufacturing cycle efficiency (MCE) is;

$$\text{MCE} = \frac{\text{Value-added time}}{\text{Throughput time}} = \frac{28 \text{ days}}{54 \text{ days}} = 0.51$$

3. If the MCE is 51% then the complement of this figure or 49% of the time was spent in non value added activities.

4. If all queue time in production is eliminated, then the throughput time drops to only 50 days (15+ 28 + 7)

The MCE becomes:

$$\text{MCE} = \frac{\text{Value-added time}}{\text{Throughput time}} = \frac{28 \text{ days}}{50 \text{ days}} = 0.56$$

Thus, the MCE increase to 56%. This exercise shows quite dramatically how the JIT approach can improve operations and reduce throughput time.

Solution of the Q. No. 5

a) **Skimming pricing:** Setting a high initial price for a new product in order to reap short-run profits. Over time, the price is reduced gradually.

Penetration pricing: Setting a low initial price for a new product in order to penetrate a market deeply and gain a large and broad market share.

Target costing: Conducting market research to determine the price at which a new product will sell and then, given the likely sales price, computing the cost for which the product must

be manufactured in order to provide the firm with an acceptable profit margin. Then engineers and cost analysts work together to design a product that can be manufactured for the allowable cost. This process is used widely in the development stages of new products.

- b) i) The order will boost SPAA's net income by Tk.27,900, as the following calculations show.

Sales revenue	Tk.165,000	
Less: Sales commissions (10%).....	<u>16,500</u>	Tk.148,500
Less manufacturing costs:		
Direct material.....	Tk. 29,200	
Direct labor	56,000	
Variable manufacturing overhead*	<u>16,800</u>	
Total manufacturing costs		<u>102,000</u>
Income before taxes.....		Tk. 46,500
Income taxes (40%)		<u>18,600</u>
Net income		<u>Tk. 27,900</u>

*Based on an analysis of the year just ended, variable overhead is 30 percent of direct labor (Tk.2,250 ÷ Tk.7,500). For Apex's Foods' order:

Direct-labor cost x .30 = Tk.56,000 x .30 = Tk.16,800.

- ii) Although this amount is below the Tk.165,000 full-cost price, the order is still profitable. SPAA can afford to pick up some additional business, because the company is operating at 75 percent of practical capacity.

Sales revenue	Tk.127,000	
Less: Sales commissions (10%).....	<u>12,700</u>	Tk.114,300
Less manufacturing costs:		
Direct material.....	Tk. 29,200	
Direct labor	56,000	
Variable manufacturing overhead	<u>16,800</u>	
Total manufacturing costs		<u>102,000</u>
Income before taxes.....		Tk. 12,300
Income taxes (40%)		<u>4,920</u>
Net income		<u>Tk. 7,380</u>

- Note that the fixed manufacturing overhead and fixed corporate administration costs are not relevant in this decision, because these amounts will remain the same regardless of what SPAA's management decides about the order.

- iii) The break-even price is Tk.113,333, computed as follows:

Let P = break-even bid price

$$P - 0.1P - \text{Tk.}102,000 = 0$$

$$0.9P = \text{Tk.}102,000$$

$$P = \text{Tk.}113,333$$

Income taxes can be ignored, because there is no tax at the break-even point.

- iv) Profits will probably decline. SPAA originally used a full-cost pricing formula to derive a Tk.165,000 bid price. A drop in the selling price to Tk.127,000 signifies that the firm is now pricing its orders at less than full cost, which would decrease profitability.

Reduces prices could lead to an increase in income if the company is able to generate additional volume. This situation will occur because the problem states that SPAA has operated and will continue to operate at 75% of capacity.

Solution of the Q. No. 6

- a) If a firm has excess production capacity, there is no opportunity cost to the acceptance of a special order. On the other hand, if the firm is already at capacity and there is no excess production capacity, the opportunity cost associated with accepting a special order involves the contribution margin from the products that would have been manufactured with the resources devoted to the special order.
- b) People often exhibit a behavioral tendency to ignore or downplay the importance of opportunity costs in making a decision. Since an opportunity cost often is not a cash flow, people tend to think it is less important than costs that are represented by cash flows. This behavioral tendency can result in faulty decision making.

c) i)	<u>System A</u>	<u>System B</u>	<u>Headset</u>	<u>Total</u>
	Tk.	Tk.	Tk.	Tk.
Sales	45,000	32,500	8,000	85,500
Less: Variable expenses	<u>20,000</u>	<u>25,500</u>	<u>3,200</u>	<u>48,700</u>
Contribution margin	25,000	7,000	4,800	36,800
Less: Direct fixed costs*	<u>526</u>	<u>11,158</u>	<u>1,016</u>	<u>12,700</u>
Segment margin (loss)	<u>24,474</u>	<u>(4,158)</u>	<u>3,784</u>	24,100
Less: Common fixed costs				<u>18,000</u>
Operating income				<u>6,100</u>

$$*45,000/85,500 \times 18,000 = 9,474; 10,000 - 9,474 = 526$$

$$32,500/85,500 \times 18,000 = 6,842; 18,000 - 6,842 = 11,158$$

$$8,000/85,500 \times 18,000 = 1,684; 2,700 - 1,684 = 1,016$$

ii)	<u>System A</u>	<u>Headset</u>	<u>Total</u>
	Tk.	Tk.	Tk.
Sales	58,500	6,000	64,500
Less: Variable expenses	<u>26,000</u>	<u>2,400</u>	<u>28,400</u>
Contribution margin	32,500	3,600	36,100
Less: Direct fixed costs	<u>526</u>	<u>1,016</u>	<u>1,542</u>
Segment margin	<u>31,974</u>	<u>2,584</u>	34,558
Less: Common fixed costs			<u>18,000</u>
Operating income			<u>16,558</u>

System B should be dropped.

iii)	<u>System A</u>	<u>System C</u>	<u>Headset</u>	<u>Total</u>
	Tk.	Tk.	Tk.	Tk.
Sales	45,000	26,000	7,200	78,200
Less: Variable expenses	<u>20,000</u>	<u>13,000</u>	<u>2,880</u>	<u>35,880</u>
Contribution margin	25,000	13,000	4,320	42,320
Less: Direct fixed costs	<u>526</u>	<u>11,158</u>	<u>1,016</u>	<u>12,700</u>
Segment margin	<u>24,474</u>	<u>1,842</u>	<u>3,304</u>	29,620
Less: Common fixed costs				<u>18,000</u>
Operating income				<u>11,620</u>

Replacing B with C is better than keeping B, but not as good as dropping B without replacement with C.

Solution of the Q. No. 7

a) Quality is concerned with ensuring that products are produced according to specifications, and productivity is concerned with producing the output efficiently. Quality can improve productivity, since improving quality generally means using less inputs and becoming more efficient. Productivity, however, can be improved without quality improvements.

b) i) **Quality Cost Report**
MN Company
For the Year Ended December 31, 2018

	<u>Quality Costs</u>		<u>Percentage of Sales</u>
	Tk.	Tk.	
Prevention costs:			
Design review	150,000		
Quality training	<u>40,000</u>	190,000	3.17%
Appraisal costs:			
Materials inspection	60,000		
Process acceptance	0		
Product inspection	<u>50,000</u>	110,000	1.83
Internal failure costs:			
Reinspection	100,000		
Scrap	<u>145,000</u>	245,000	4.08
External failure costs:			
Recalls	200,000		
Lost sales	300,000		
Complaint adjustment	<u>155,000</u>	<u>655,000</u>	<u>10.92</u>
Total quality costs		<u>1,200,000</u>	<u>20.00%</u>

Quality Cost Report
MN Company
For the Year Ended December 31, 2019

	<u>Quality Costs</u>		<u>Percentage of Sales</u>
	Tk.	Tk.	
Prevention costs:			
Design review	300,000		
Quality training	<u>100,000</u>	400,000	6.67%
Appraisal costs:			
Materials inspection	40,000		
Process acceptance	50,000		
Product inspection	<u>30,000</u>	120,000	2.00
Internal failure costs:			
Reinspection	50,000		
Scrap	<u>35,000</u>	85,000	1.42
External failure costs:			
Recalls	100,000		
Lost sales	200,000		
Complaint adjustment	<u>95,000</u>	<u>395,000</u>	<u>6.58</u>
Total quality costs		<u>1,000,000</u>	<u>16.67%</u>

ii) Additional investment = Increase in control costs

Control costs increase = Tk.520,000 – Tk.300,000 = Tk.220,000

Failure costs reduction = Tk.900,000 – Tk.480,000 = Tk.420,000

A Tk.420,000 benefit for a Tk.220,000 investment is certainly sound.

iii) Tk.1000,000 – (2.5% × 6,000,000)

= Tk.10,00,000 – TK.150,000 = Tk.850,000

If the quality costs drop to 2.5% of sales, another Tk.850,000 of profit improvement is possible.

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