**Cost Accounting for Decision Making**

**Quiz**

Questions

**Time allowed: 40 minutes**

Section A (Short Questions)

1. ‘All types of variable cost are relevant for decision making.’ Do you agree? Discuss. (3 marks)
2. Cinemas usually offer discount in their AM shows. How does the concept of relevant costs in making such decision by their managers? (4 marks)

(Total: 7 marks)

Section B (Long Question)

1. Peter Ltd. is a manufacturing company which intends to produce 3 types of new products A, B and C for sale by using its idle production capacity of 1,000 hours. Relevant information for product A, B and C are given as follows:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  |  | Product |  |  |
|  | A |  | B |  | C |
| Cost per unit | $ |  | $ |  | $ |
| Direct labor | 42 |  | 40 |  | 68 |
| Direct materials | 38 |  | 32 |  | 48 |
| Rent and rates (Allocated) | 28 |  | 45 |  | 56 |
| Depreciation (Allocated) | 40 |  | 39 |  | 82 |
| Other expenses (Note 1) | 25 |  | 120 |  | 135 |
| Total unit cost | 173 |  | 276 |  | 389 |
|  |  |  |  |  |  |
| Number of hours required to complete a unit | 5 hours |  | 2 hours |  | 4 hours |
| Selling price per unit | $150 |  | $160 |  | $200 |
| Sales forecast | 120 units |  | 100 units |  | 200 units |

Note 1: Included 60% of fixed costs.

**Required:**

1. Calculate the contribution margin ratio for each of the product. (6 marks)
2. Ascertain the most desirable combination of products to produce for attaining the highest contribution margin, and state the maximum amount of contribution margin. (7 marks)
3. If the purchase prices per unit for product A, B and C are $120, $130 and $160 respectively, advise whether Peter Ltd. should buy or make the products A, B and C under these two conditions:

(i) the contribution margin of the idle capacity for their production is negligible; and

(ii) fixed costs cannot be avoided.

(6 marks)

1. Comment briefly on two other factors that Peter Ltd. ought to consider in making its decision in (c). (4 marks)

(Total: 23 marks)

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Suggested Solution

Section A

1. Do not agree. *(1)* Only those variable costs that differ in total between the options *(2)* under consideration will be relevant for decision making. *(3 marks)*
2. Most costs of a cinema are either sunk costs *(1)*, or costs that do not depend on the number of audiences watching the movie *(1)*, e.g. depreciation of furniture and fixture, salaries of personnel serve in the cinema, electricity expense, etc. All these costs are the same whether the cinema is full house or almost empty. Therefore, adding more audiences by discount in the AM show when seats would otherwise be empty does little to increase the total costs of showing the movie, but increases the total contribution and total profit. *(2)* *(4 marks)*

*(Total: 7 marks)*

Section B

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 3a. |  | Product | | |  |
|  | Per unit | A | B | C |  |
|  |  | $ | $ | $ |  |
|  | Selling price | 150 | 160 | 200 | *(1)* |
|  | Variable costs |  |  |  |  |
|  | Direct labor | (42) | (40) | (68) | *(1)* |
|  | Direct materials | (38) | (32) | (48) | *(1)* |
|  | Other expenses ($25 x 0.4 / $120 x 0.4 / $135 x 0.4) | (10) | (48) | (54) | *(½) (½) (½)* |
|  | Contribution margin | 60 | 40 | 30 | *(½) (½) (½)* |
|  |  |  |  |  |  |
|  | Contribution margin ratio ($60 ÷ $150 / $40 ÷ $160 / $30 ÷ $200) | 0.4 | 0.25 | 0.15 | *(2) (2) (2)* |

*(6 marks)*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 3b. |  | Product | | |  |
|  |  | A | B | C |  |
|  | Number of hours required to produce one unit | 5 | 2 | 4 |  |
|  | Contribution margin per unit | 60 | 40 | 30 |  |
|  | Contribution margin per hour ($60 ÷ 5 / $40 ÷ 2 / $30 ÷ 4) | 12 | 20 | 7.5 | *(1) (1) (1)* |
|  | **Ranking** | **2** | **1** | **3** |  |

|  |
| --- |
| Product B yields the highest contribution margin per hour, it should be produced first to satisfy the demand. The remaining hours will be used to produce product A and C. |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Product | | |  |
|  | A | B | C |  |
| Demand (units) | 120 | 100 | 200 |  |
| Number of hours required (120 x 5 / 100 x 2 / 200 x 4) | 600 | 200 | 800 | *(1) (1) (1)* |
| Ranking | 2 | 1 | 3 |  |
| Number of units produced | 120 | 100 | 50 | *(2) (2) (2)* |
| Contribution | $7,200 | $4,000 | $1,500 |  |
| Maximum contribution = $12,700 | | | | *(1)* |

(7 marks)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 3c. |  | Product | | |  |
|  |  | A | B | C |  |
|  |  | $ | $ | $ |  |
|  | Purchase price | 120 | 130 | 160 | *(½) (½) (½)* |
|  | Less: Total variable costs (W1) | 90 | 120 | 170 | *(½) (½) (½)* |
|  | Difference | 30 | 10 | (10) | *(½) (½) (½)* |

*W1: V*ariable costs *for A: $(42 + 38 + 10) = $90*

*V*ariable costs *for B: $(40 + 32 + 48) = $120*

*V*ariable costs *for C: $(68 + 48 + 54) = $170*

|  |
| --- |
| The purchase prices for A and B are greater than their variable costs by $30 and $10 respectively, therefore the company should produce A and B. *(4)* On the other hand, the purchase price for C is less than its variable costs by $10, therefore the company should purchase C. *(2)* |
| *(6 marks)* |

3d. Other factors that the company should consider include:

* quality control of the purchased product
* dependability of the new suppliers
* stability of supplies on existing resources
* the trend of future costs of production *(1 mark each, total: 4 marks)*

*(Total: 23 marks)*