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## Subject: Management Accounting

## Topic: Customer Profitability Analysis, Activity Based Budgeting, Decision-Making Models, and Production Analysis

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### (a) Customer Profitability Analysis

**Reasons for Gaining Popularity:**

- **Enhanced Profitability Understanding:** Customer profitability analysis helps businesses understand which customers are contributing most to their bottom line and which are not. By identifying high-profit customers and focusing resources on them, businesses can maximize profitability.

  Supporting Statement: Identifying profitable customers allows businesses to tailor their strategies to enhance overall profitability.

- **Targeted Marketing and Customer Retention:** It enables businesses to undertake targeted marketing strategies and customer retention initiatives aimed at their most profitable segments, ensuring efficient allocation of marketing resources and improved customer satisfaction.

  Supporting Statement: Efficient allocation of marketing resources and customer retention initiatives targeted at profitable segments elevate business growth and customer satisfaction.

- **Cost Management:** This analysis helps in identifying cost drivers associated with serving different customers. Businesses can then manage and reduce costs, improving overall efficiency.

  Supporting Statement: By understanding cost drivers, businesses can implement more effective cost management practices.

- **Resource Optimization:** Businesses can optimize their resources (e.g., materials, manpower) by focusing on customers who generate higher returns, thus improving operational efficiency.

  Supporting Statement: Resource optimization leads to improved operational efficiency when focus is placed on higher-return customers.

### (b) Activity-Based Budgeting (ABB)

**Reasons for Preference:**

- **Accuracy in Budgeting:** ABB provides a clearer picture of costs by associating costs directly with activities that drive them, resulting in more accurate and realistic budgets compared to traditional budgeting methods.

  Supporting Statement: ABB enhances the accuracy and realism of budgets by linking costs to their driving activities.

- **Improved Cost Management:** By understanding the relationship between activities and costs, organizations can better manage and reduce unnecessary expenses, thus enhancing profitability.

  Supporting Statement: ABB aids in enhanced cost management and profitability through detailed activity-cost relationships.

- **Enhanced Decision Making:** ABB supports better managerial decision-making as it offers detailed insights into the cost structure and operational efficiency.

  Supporting Statement: Detailed insights into cost structures and operational efficiency from ABB facilitate improved managerial decision-making.

- **Promotes Efficiency:** Allocating resources based on activity requirements promotes operational efficiency and ensures that resources are used where they are most impactful.

  Supporting Statement: ABB's resource allocation based on activity requirements enhances operational efficiency and impact.

### (c) Decision-Making Models

**Elaboration on Decision-Making Model:**

**Cost-Volume-Profit (CVP) Analysis:**

- **Introduction:** CVP analysis is a crucial decision-making tool used by management accountants to understand the relationship between costs, sales volume, and profit.

  Supporting Statement: CVP analysis helps understand the interdependencies between costs, sales volume, and profit.

- **Break-Even Analysis:** It identifies the break-even point where total revenues equal total costs, helping managers understand how many units need to be sold to avoid loss.

  Supporting Statement: The break-even analysis portion of CVP helps managers determine the minimum sales needed to avoid losses.

- **Contribution Margin:** By calculating the contribution margin (selling price per unit minus variable cost per unit), CVP analysis helps in assessing how revenue covers variable and fixed costs.

  Supporting Statement: Understanding the contribution margin through CVP assists in evaluating revenue coverage of variable and fixed costs.

- **Profit Planning:** It helps in profit planning by enabling the forecasting of how changes in sales volumes, costs, and prices impact overall profitability.

  Supporting Statement: CVP analysis contributes to profit planning by forecasting the effects of varied sales volumes, costs, and prices on profitability.

## (d) Aish Ltd Production Analysis

### Given Data:

- Products: A, B, C, D
- Demand and costs per unit provided.

### Additional Information:

- Material: Shs 10 per kg with 500 kg available.
- Labour: Shs 15 per hour, 360 hours available.

### 1. Calculate Production Mix to Maximize Profit

### Step 1: Calculate Contribution Margin per Kg of Material and per Hour of Labour

$$ \text{Contribution Margin per unit} = \text{Selling Price per unit} - \text{(Material cost per unit + Labour cost per unit + Variable overhead per unit)} $$

$$ \text{Product A:} 3840 - (1200 + 1500 + 240) = 900 $$

$$ \text{Product B:} 2700 - (1200 + 800 + 170) = 530 $$

$$ \text{Product C:} 2000 - (800 + 600 + 100) = 500 $$

$$ \text{Product D:} 4000 - (1200 + 1200 + 200) = 1400 $$

Explanation: Calculation of contribution margin for each product involves subtracting all variable costs from the selling price per unit.

Supporting Statement: Accurate contribution margins assist in understanding the profitability derived from each unit sold.

### 2. Calculate Material Usage and Labour Usage

### Material Usage per Unit:

$$ \text{Product A:} \frac{1200}{10} = 120 \text{ kg} $$

$$ \text{Product B:} \frac{1200}{10} = 120 \text{ kg} $$

$$ \text{Product C:} \frac{800}{10} = 80 \text{ kg} $$

$$ \text{Product D:} \frac{1200}{10} = 120 \text{ kg} $$

### Labour Usage per Unit:

$$ \text{Product A:} \frac{1500}{15} = 100 \text{ hours} $$

$$ \text{Product B:} \frac{800}{15} = \approx 53.33 \text{ hours} $$

$$ \text{Product C:} \frac{600}{15} = 40 \text{ hours} $$

$$ \text{Product D:} \frac{1200}{15} = 80 \text{ hours} $$

Explanation: Calculation of material and labour usage involves dividing the respective costs by the unit cost of each resource.

Supporting Statement: Understanding of resource utilization per unit provides insight into the resource constraints.

### 3. Determine Production Priorities

### Material Constraint Calculation per Product:

$$ \text{Product A:} \frac{900}{120} = 7.50 \text{ sh/kg} $$

$$ \text{Product B:} \frac{530}{120} = 4.42 \text{ sh/kg} $$

$$ \text{Product C:} \frac{500}{80} = 6.25 \text{ sh/kg} $$

$$ \text{Product D:} \frac{1400}{120} = 11.67 \text{ sh/kg} $$

### Labour Constraint Calculation per Product:

$$ \text{Product A:} \frac{900}{100} = 9 \text{ sh/hour} $$

$$ \text{Product B:} \frac{530}{53.33} = \approx 9.94 \text{ sh/hour} $$

$$ \text{Product C:} \frac{500}{40} = 12.5 \text{ sh/hour} $$

$$ \text{Product D:} \frac{1400}{80} = 17.5 \text{ sh/hour} $$

Explanation: Calculations for product priorities are based on contribution margins per unit constraint.

Supporting Statement: Prioritizing products based on constrained profitability metrics enables effective utilization of limited resources.

### Final Calculation for Optimal Production Mix

### Step 4: Allocation of Resources:

### Resource Constraints:

- 500 kg of material
- 360 labour hours

### Step 5: Maximize Contribution Margin within Constraints

- **Product D:**
- Highest profitability per resource.
- Labour: 360 hours / 80 hours/unit = 4.5 units (round down to 4 units)
- 4 units * 120 kg/unit = 480 kg (480 kg within 500 kg limit)
- Contribution: 4 units * 1400 = Shs 5,600

### Remaining Material and Labour:

- Material: 500 kg - 480 kg = 20 kg
- Labour: 360 hours - 320 hours = 40 hours

Explanation: Allocation prioritizes products with the highest contribution per constrained resource.

Supporting Statement: Allocation within constraints focused on maximizing profit by prioritizing higher return products.

### Increase in Profit with Extra 80 Labour Hours

### Step 6: Assess Additional Production:

- **Product C (next highest labour profitability):**
- Labour: 40 hours + 80 hours = 120 hours
- 120 hours / 40 hours/unit = 3 units
- 3 units * 6.25 kg/unit = 18.75 kg (within remaining material)
- Contribution: 3 units * 500 = Shs 1,500

Explanation: Use of additional labour to increase production focusing on profitability and resource constraints.

Supporting Statement: Additional production capacity utilized to maximize profitability given remaining resources.

### Final Solution Summary

### Production Mix Maximizing Profit:

- 4 units of Product D
- 3 units of Product C with additional labour

### Increase in Profit with 80 Additional Labour Hours:

- Additional Contribution: Shs 1,500

Explanation: Optimal and accurate production planning enhances profitability efficiently using constrained resources.

Supporting Statement: Final solution provides optimal profitability while adhering to given resource constraints and maximizing additional capacity usage.

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