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| **C:\Users\ADMIN\Desktop\j.png** | **JAIPURIA INSTITUE OF MANAGEMENT, INDORE**  Post Graduate Diploma in Management (Batch 2023-25) |
| **Course Title: Management Accounting and Control, (Course Code: 40204)**  **End Term Examination, Term - III (April, 2024)** | |
| **Time Duration: 2 Hours Total Marks: 40** | |

***General Instructions*:**

1. *This is a closed-book examination. Therefore, access to Computers and textbooks/course materials is not permitted in the examination hall.*
2. *Use of a calculator, including scientific or financial, is allowed.*
3. *Do not use pencils to answer the questions*
4. *Answers without proper analysis will be treated as incomplete.*
5. *Any academic dishonesty will fetch Zero marks in the examination.*
6. *All the questions below will be answered using the data in the question paper only.*
7. *Present your answers in legible handwriting.*
8. ***The exam office will distribute a sheet of the relevant formula.***

**Case Study-A: BrightTech Electronics**

**Background:**

BrightTech Electronics, a prominent manufacturer of smart home devices, faced a critical challenge in controlling its manufacturing costs. The company's management implemented a flexible budget in response to fluctuating production activities. This strategic move aimed to enable more effective cost control and management based on varying production levels.

**Budgeting Strategy**

At the onset of the financial year, BrightTech Electronics prepared its budget based on the estimated production of 100,000 units of smart home devices. This proactive approach was intended to establish a financial roadmap that could accommodate and adapt to operational dynamics over the year. The budget was meticulously detailed, covering various cost categories essential for the production process:

Direct Materials: $500,000

Direct Labor: $250,000

Variable Manufacturing Overhead: $150,000

Fixed Manufacturing Overhead: $200,000

Total Budgeted Costs: $1,100,000

This budget was crafted to reflect an optimal resource allocation, ensuring that the company could achieve its production goals efficiently and cost-effectively.

**Actual Performance**

The actual operational results of BrightTech Electronics for the year revealed a deviation from the initially estimated production volume. The company produced and sold 120,000 units, surpassing the anticipated 100,000 units. This increase in production and sales volume had a corresponding impact on the costs:

Actual Direct Materials Cost: $550,000

Actual Direct Labor Cost: $260,000

Actual Variable Manufacturing Overhead: $180,000

Actual Fixed Manufacturing Overhead: $200,000

Total Actual Costs: $1,190,000

Despite the fixed manufacturing overhead remaining constant at $200,000, as expected in a flexible budgeting approach, the other cost categories experienced increases in line with the higher production output.

**Question 1:** Prepare a flexible budget for 120,000 units and calculate the total flexible budgeted cost. **(5 marks)**

**Question 2:** Perform a variance analysis for BrightTech Electronics. Calculate the following variances: **(5 marks)**

* Direct Materials Variance
* Direct Labor Variance
* Variable Manufacturing Overhead Variance
* Fixed Manufacturing Overhead Variance

**Question 3:** Analyze the variances calculated. What could be the potential reasons for each of the variances? Could you provide suggestions for management on how to improve cost control?

**(5 Marks)**

**Case Study-B: AquaPure Water Filtration Systems**

**Background:**

AquaPure has been in the business of manufacturing high-quality water filtration systems for over a decade. With increasing competition and fluctuating market demand, the management is keen to reassess its pricing and production strategy to boost profitability and market share. To this end, the company has gathered the following financial information for the upcoming fiscal year:

Selling Price per Unit: $250

Variable Cost per Unit: $150

Fixed Costs (Annual): $2,000,000

Expected Sales Volume: 20,000 units

**Management Objectives:**

Achieve a target profit of $1,000,000 for the fiscal year.

Explore the impact of a proposed marketing campaign that would increase the selling price by 5% and fixed costs by $250,000.

**Question 4:** Calculate AquaPure’s break-even point in units and dollar sales under the current financial setup. **(2 marks)**

**Question 5:** Determine the number of units AquaPure needs to sell to meet its target profit of $1,000,000 for the fiscal year. **(3 marks)**

**Question 6:** Assess the impact of the proposed marketing campaign **(5 marks)**

a. Calculate the new break-even point in units and dollar sales.

b. Determine the new sales volume required to achieve the target profit of $1,000,000.

**Question 7:** Provide a critical analysis of whether AquaPure should proceed with the marketing campaign, considering the CVP analysis outcomes. **(5 marks)**

**Case Study-C: EcoFurnishings**

**Background:**

EcoFurnishings specializes in producing high-quality, sustainable furniture using eco-friendly materials. The company has traditionally used a single overhead absorption rate to allocate manufacturing overheads to its products. However, due to increasing costs and the diverse nature of its product line, management is considering adopting an activity-based costing system to understand product costs and profitability better.

**Financial Information (Annual):**

Total Manufacturing Overheads: $600,000

Total Machine Hours: 50,000 hours

Total Labor Hours: 25,000 hours

Product Lines:

**EcoChair:**

Units Produced: 5,000

Machine Hours per Unit: 2

Labor Hours per Unit: 4

**EcoTable:**

Units Produced: 3,000

Machine Hours per Unit: 6

Labor Hours per Unit: 2

Under the traditional costing system, overheads are allocated based on machine hours.

**Activity-Based Costing Information:**

EcoFurnishings identifies four main activities:

Material Handling: $150,000 (driven by number of setups; 300 setups)

Machine Operations: $300,000 (driven by machine hours; 50,000 hours)

Assembly: $100,000 (driven by labor hours; 25,000 hours)

Quality Control: $50,000 (driven by number of inspections; 500 inspections)

Product-Specific Activity Data:

EcoChair: 150 setups, 10,000 machine hours, 20,000 labor hours, 250 inspections

EcoTable: 150 setups, 18,000 machine hours, 6,000 labor hours, 250 inspections

**Question 8:** Calculate the overhead cost per unit for both EcoChair and EcoTable using the traditional costing method. **(2 marks)**

**Question 9:** Calculate the overhead cost per unit for both EcoChair and EcoTable using activity-based costing. **(2 marks)**

**Question 10:** Discuss the implications of the findings from Questions 1 and 2 on EcoFurnishings’ pricing and product strategy. **(2 marks)**

**Case Study-D: VerdeTech's Transfer Pricing Challenge**

**Background:**

VerdeTech is a multinational corporation that operates in three distinct divisions:

Renewable Energy Division: Develops and sells innovative solar panel systems.

Manufacturing Division: Produces a range of components used in renewable energy solutions, including the solar panels developed by the Renewable Energy Division.

Consulting Division: Offers consulting services on energy efficiency and implementing renewable energy technologies.

The corporation is structured so that each division operates as a profit center, with managers responsible for their profit and loss (P&L). The Manufacturing Division produces a critical component used by the Renewable Energy Division, the "SolarFlex" converter.

**Scenario:**

The Renewable Energy Division has received a lucrative contract to supply solar panel systems for a large commercial project. The project requires a significant number of SolarFlex converters, which the Manufacturing Division produces and sells to external customers.

The market price for converters is similar to SolarFlex's $500 per unit. However, the Manufacturing Division's cost per unit is $300, which includes a $250 full absorption cost and a $50 profit margin.

**Transfer Pricing Policy:**

VerdeTech's corporate policy is that internal transfers should be negotiated between divisions to encourage market efficiency and divisional autonomy. However, there are no strict guidelines on the transfer price, which has led to disputes in the past.

**Question 11:** As the manager of the Renewable Energy Division, you are tasked with negotiating the transfer price for the SolarFlex converters with the Manufacturing Division. You aim to complete the commercial project under budget while maintaining a healthy internal relationship. What transfer pricing strategy would you propose, considering the implications for your division and VerdeTech? **(4 marks)**