

**NOVEMBER 2020 PROFESSIONAL EXAMINATIONS
MANAGEMENT ACCOUNTING (PAPER 2.2)
CHIEF EXAMINER'S REPORT, QUESTIONS AND MARKING SCHEME**

STANDARD OF THE PAPER

Candidates were examined in the areas of projected financial analysis statements, costing techniques and budgeting, standard costing and variance analysis, investment appraisal and break – even analysis. All these subjects are within the approved syllabus of the Institute. No errors were noted in the questions and the contents were considered appropriate (Not loaded).

The weighting of the written and calculated questions was considered imbalance. This is because written questions accounted for 24% of the total marks whilst calculations accounted for 76%. A weighing of at least 35/65 will be appropriate.

PERFORMANCE

The general performance of the candidates was not satisfactory. The pass rate for this paper was 12%. Majority of candidates scored below 35% with the lowest score being 3%.

NOTABLE WEAKNESSES OF CANDIDATES

Lack of knowledge and understanding of some of the concepts and techniques they were examined on such as Kaizen Costing, the use of High – Low methods of cost estimation and Balanced Score Card.

Inability to present operating financial statements using the marginal costing approach. They could not come out clearly with the revenue, cost of sales, contribution, fixed costs and profits correctly.

QUESTION ONE

A motor car manufacturer has been specializing in the production and sale of Bedford model of cars. The model is somewhat outmoded and the current sales forecast indicates that the current (2018) sales level of 150,000 will be the same as 2019 but will decline to 130,000 cars in 2020, and 110,000 cars in 2021. The company supplies according to orders received and no stocks are held. Carbon monoxide emission regulations will prevent the model from being manufactured and sold after December 2021.

The company's current estimates of the selling price and costs in 2019 are as follows:

| | Per car GH¢ |
|---|----------------|
| Selling Price | 11,200 |
| Production costs: | |
| Material and Labour (vary with production volume) | 3,600 |
| Assembly | 4,000 |
| Delivery | 2,500 |

75% and 40% of the assembly and delivery costs respectively are fixed and the remainder vary with production volume.

In addition, the company estimates that it will incur the following non-production costs:

- Marketing costs of GH¢60 million would be amortised on straight line basis over three years.
- The Administration costs of GH¢10 million are fixed per annum.
- The selling price, variable costs per car and total fixed costs are expected to remain constant throughout the period from 2019 to 2021.

The company's Managing Director is unhappy with the current annual profit forecasts for 2019–2021 based on the information above and believes that the company has the potential to increase the profit to a desired level of GH¢245 million in each of the years 2019 to 2021. The Managing Director has undertaken a strategic review and developed the following strategies in order to eliminate the gap:

Strategy 1

A marketing proposal will enable the company to enter a new overseas market with the result that the total (including the overseas market) sales level will be stabilised at 160,000 cars per annum from 2019 to 2021. The market entry costs will be GH¢30 million for each of the three years.

Strategy 2

A re-design of the car will enhance its sales appeal and will permit the company to increase its selling price to GH¢12,000. The re-design costs are GH¢30 million and are to be amortised over three years on a straight line basis.

Strategy 3

A radical cost reduction programme will improve efficiency and lower all variable costs by 20%. This will add GH¢70 million to the annual fixed overheads each year from 2019 to 2021.

Required:

- a) Prepare a financial analysis statement showing the current annual forecast of costs, revenues and profits for each of the years 2019 to 2021 and briefly comment on the figures. (Ignore time value of money) **(9 marks)**
- b) Calculate the profit gap for 2019, 2020 and 2021 **(3 marks)**
- c) Estimate the profit in 2019 if:
- i) Strategy 1 was implemented; **(2 marks)**
 - ii) Strategy 2 was implemented; **(2 marks)**
 - iii) Strategy 3 was implemented. **(2 marks)**
- d) Evaluate which strategy to implement. **(2 marks)**

(Total: 20marks)

QUESTION TWO

- a) In cost management, **Target costing and Kaizen costing** play key roles. Distinguish between these two cost techniques. **(5 marks)**
- b) Mercury Company's management wants to prepare budgets for one of its products, TomaCan, for October 2019.

The firm sells the product for GH¢75 per unit and has the following expected sales (in units) for these months in 2019:

| July | August | September | October | November | December |
|-------------|---------------|------------------|----------------|-----------------|-----------------|
| 6,000 | 7,000 | 8,000 | 9,000 | 10,000 | 11,000 |

The production process requires 5 kilos of Atadwe and 3 kilos of Ginger. The firm's policy is to maintain an ending finished goods. Inventory each month equal to 15% of the following month's budgeted sales, but in no case less than 1,300 units. All materials inventories are to be maintained at 10 % of the production needs for the next month, but not to exceed 3,000 kilos. The firm expects all inventories at the end of September to be within the guidelines. The purchase department expects the materials to cost GH¢1.75 per kilo and GH¢5.00 per kilo for Ginger and Atadwe respectively.

The production process requires direct labour at two Skill Levels (SL). The rate for labour at SL1 is GH¢45 per hour and for SL2 is GH¢25 per hour. SL1 can process one batch of TomaCan per hour while SL2 uses double the time of SL1 for the same output. Each batch consists of 10 units.

Variable manufacturing overhead is GH¢100 per batch plus GH¢75 per direct labour-hour. Fixed production overhead is GH¢51,240. It is the plan of Mercury Company to spend a third of variable and fixed production overhead costs on selling and administration expenses. The company is in the 25% tax bracket but enjoys a rebate of 50% because of its location. The company uses an actual cost system. The unit cost of production in October is the same as that of September.

Required:

On the basis of the preceding data and projections, prepare the following budgets:

- i) Production budget for October (in units). (2 marks)
- ii) Direct materials purchases budget for October (in kilos). (2 marks)
- iii) Direct materials purchases budget for October (in Cedis). (1 marks)
- iv) Direct manufacturing labour budget for October (in Cedis). (2 marks)
- v) Income statement for the month of October 2019. (8 marks)

(Total: 20 marks)

QUESTION THREE

- a) The aim of a balanced scorecard is to provide a comprehensive framework for translating a company's strategic objectives into a coherent set of performance measures. It allows managers to look at the business from four different perspectives.

Required:

Identify and explain these **FOUR (4)** perspectives. (10 marks)

- b) Zip Ltd, a premium food manufacturer, is reviewing its operations for a three-month period for 2019. The company operates a standard marginal costing system and manufactures one product, ZP, for which the following standard revenue and cost data per unit of product is available:

| | |
|---|--------------------------------|
| Selling price | GH¢12.00 |
| Direct material A | 2.5 kg at GH¢1.70 per kg |
| Direct material B | 1.5 kg at GH¢1.20 per kg |
| Direct labour | 0.45 hours at GH¢6.00 per hour |
| Fixed production overheads for the three-month period | were expected to be GH¢62,500. |

Actual data for the three-month period was as follows:

| | |
|----------------------------|---|
| Sales and production | 48,000 units of ZP were produced and sold for GH¢580,800 |
| Direct material A | 121,951kg were used at a cost of GH¢200,000 |
| Direct material B | 67,200 kg were used at a cost of GH¢84,000 |
| Direct labour | Employees worked for 18,900 hours, but 19,200 hours were paid at a cost of GH¢117,120 |
| Fixed production overheads | GH¢64,000 |

Budgeted sales for the three-month period were 50,000 units of Product ZP.

Required:

Calculate the following variances.

- i) Sales volume contribution and sales price variances
- ii) Price, mix and yield variances for each material
- iii) Labour rate, labour efficiency and idle time variance (10 marks)

(Total: 20 marks)

QUESTION FOUR

- a) Jayjay & Co is a medium sized company that is engaged in delivery services. As a result of the recent increase in the demand for his services the Managing Director (MD) is planning to acquire a delivery van at the cost of GH¢85,000. The expected net cash flow per year are as follows:

| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
|-----------|-----------|-----------|-----------|-----------|
| GH¢25,000 | GH¢28,000 | GH¢39,000 | GH¢34,000 | GH¢24,000 |

The Sales Manager has indicated to the MD that the company will recoup its investment in less than four years and for that reason, it's a good investment.

The Management Accountant has however drawn the MD's attention to the fact that the Sales Manager has not factored in time value of money and the cost of capital into his analysis. The Management Accountant could not however suggest the cost of capital since financial institutions are charging different interest rates.

Required:

- i) Calculate the cost of capital that when used will make the investment break-even when the useful life of the van is five years with residual value of GH¢8,500. **(11 marks)**
- ii) Explain **TWO (2)** advantages and **TWO (2)** disadvantages of the payback method of investment appraisal and show how it compares to the discounted cash flow method. **(4 marks)**
- b) Explain **THREE (3)** advantages and **TWO (2)** disadvantages of standard cost. **(5 marks)**

(Total: 20 marks)

QUESTION FIVE

Quickspray Ltd offers professional car spraying services at Suame Magazine. The company is planning its activities for the month of June 2018 for its saloon car spraying section. The company charges service fee of GH¢1,000 and incurs fixed cost (excluding fixed maintenance cost) and variable cost per unit (excluding variable maintenance cost) of GH¢35,000 and GH¢644.39 respectively for spraying of a saloon car.

The following data also relates to Quickspray Ltd on the maintenance hours of its key machine, revenue and profit for the six months ended April 2018.

| Month | Maintenance Hours | Revenue (GH¢) | Profit(GH¢) |
|----------------|-------------------|---------------|-------------|
| November, 2017 | 1,200 | 19,000 | 700 |
| December, 2017 | 1,425 | 24,000 | 1,425 |
| January, 2018 | 1,410 | 20,100 | 650 |
| February, 2018 | 1,400 | 20,000 | 1,000 |
| March, 2018 | 1,175 | 18,000 | (125) |
| April, 2018 | 1,275 | 19,000 | 175 |

Total fixed cost increases by GH¢1,120 when maintenance hours go beyond 1,400.

Required:

- a) Determine the total maintenance cost of production, using high-low method if;
- i) Maintenance hours of May was budgeted to be 1,520.
 - ii) Maintenance hours of June is budgeted to be 1,075. **(10 marks)**
- b) Calculate for the month of May the;
- i) Break-even point in units and value **(4 marks)**
 - ii) Sales level in order to make an after-tax profit of GH¢21,150, assuming Quickspray Ltd is in the 25% tax bracket. **(4 marks)**
 - iii) Margin of safety if the target after-tax profit of GH¢21,150 is achieved. **(2 marks)**

(Total: 20 marks)

SOLUTION TO QUESTIONS

QUESTION ONE

a)

| | 2019 | 2020 | 2021 |
|----------------------|--------------------|--------------------|--------------------|
| Sales Units | 150,000 | 130,000 | 110,000 |
| | GH¢'million | GH¢'million | GH¢'million |
| Revenue | 1680 | 1456 | 1232 |
| Materials& Labour | 540 | 468 | 396 |
| Assembly 1,000 | 150 | 130 | 110 |
| Delivery 1,500 | <u>225</u> | <u>195</u> | <u>165</u> |
| Total Variable Cost | 915 | 793 | 671 |
| Contribution | 765 | 663 | 561 |
| Less: Fixed Cost | | | |
| Assembly | 450 | 450 | 450 |
| Delivery | 150 | 150 | 150 |
| Marketing | 20 | 20 | 20 |
| Administrating Costs | <u>10</u> | <u>10</u> | <u>10</u> |
| Total Fixed Costs | 630 | 630 | 630 |
| Profit | <u>135</u> | <u>33</u> | <u>(69)</u> |

(9 marks evenly spread)

b) **Profit Gap** (110) (212) (314)
(3 marks)

c)

| | Original | Strategy 1 | Strategy 2 | Strategy 3 |
|------------------------|--------------------|--------------------|--------------------|--------------------|
| Sales Units | 150,000 | 160,000 | 150,000 | 150,000 |
| | GH¢'million | GH¢'million | GH¢'million | GH¢'million |
| Revenue | 1680 | 1792 | 1800 | 1680 |
| Materials& Labour | 540 | 576 | 540 | 432 |
| Assembly 1,000 | 150 | 160 | 150 | 120 |
| Delivery 1,500 | <u>225</u> | <u>240</u> | <u>225</u> | <u>180</u> |
| Total Variable Cost | 95 | 976 | 915 | 732 |
| Contribution | 765 | 816 | 885 | 948 |
| Less: Fixed Cost | | | | |
| Assembly | 450 | 450 | 450 | 450 |
| Delivery | 150 | 150 | 150 | 150 |
| Marketing | 20 | 20 | 20 | 20 |
| Administrating Costs | <u>10</u> | <u>10</u> | <u>10</u> | <u>10</u> |
| Strategy I entity cost | - | 30 | 10 | 70 |
| Total Fixed Costs | 630 | 660 | 640 | 700 |
| Profit | <u>135</u> | <u>156</u> | <u>245</u> | <u>248</u> |

(6 marks evenly spread using ticks)

d) Strategy 3 should be selected as it is not only higher than the original profit, but also closes the profit gap. (2 marks)

(Total: 20 marks)

EXAMINER'S COMMENTS

Performance in this question is not satisfactory. Most of the candidates could not present the suggested solution in a well layout marginal costing format to bring out clearly the revenue, VC, Contribution, FC and the profit. The candidates did not also understand what a "Profit Gap" is which is simply the difference between the desired profit and the actual profit.

The major problem faced by the candidates in this question is their inability to interpret and analyse the effects of the various strategies on the entry costs, redesign costs and annual fixed costs of GH¢30 million, GH¢30 million and GH¢70 million respectively for the three strategies.

QUESTION TWO

a) Target costing Vs Kaizen costing

- **Kaizen costing** is a Japanese concept focused on obtaining small incremental cost reductions during the production stage of the Product Life Cycle using principles such as Value Analysis and Functional Analysis. Kaizen Costing is typically based on the following principles: Employees are the source of solutions; Cost reductions are achieved by continuous improvement; Cost reduction targets are set every month.
- **Target costing** is estimated selling price -target cost=desired level of profit. It is an integral part of a strategic profit management system. The determination of the target cost starts by determining an estimate of the selling price for a new product that will help achieve the required share of the market (revenue/market size *100). This selling price is then reduced to obtain the desired level of profit, having regard for the firm's required rate of return on new capital investments and working capital requirements. The difference b/n the SP and the desired profit produces the target cost. This target cost is then compared with the estimated current cost level. Where a gap exists it is bridged by using value analysis, value engineering, functional analysis, continuous improvement etc.
- While target costing is a critical means of managing the costs in a new product design and development stage, Kaizen costing supports continuous improvement activities in the manufacturing phase. It is an alternative to ABC and combined with target costing, Kaizen costing helps Japanese manufacturers accomplish their

objective of cost reduction in the full cycle of design-development-production cycle.

(2 points well explained @2.5 marks each=5 marks)

b) **Sales Budget for October 2019**

| | |
|---------------|--------------------------|
| Units to sell | 9,000 |
| Selling price | GH¢75 |
| | GH¢<u>675,000</u> |

i) **Production Budget for October 2019**

| | |
|---|--------------|
| Desired ending inventory (15% x 10,000 or 1,300 if less) | 1,500 |
| Budgeted units to sell | <u>9,000</u> |
| Total units required | 10,500 |
| Less expected opening inventory (15% 9000 or 1,000 if less) | <u>1,350</u> |
| Units to produce | <u>9,150</u> |

Production Budget for November 2019

| | |
|---|---------------|
| Desired ending inventory (15% x 11,000 or 1,300 if less) | 1,650 |
| Budgeted units to sell | <u>10,000</u> |
| Total units required | 11,650 |
| Less expected opening inventory (15% 10,000 or 1,300 if less) | <u>1,500</u> |
| Units to produce | <u>10,150</u> |

(2 marks)

ii) **Direct Materials Purchases Budget (in kilos) For October 2019**

Direct Materials

| | Atadwe (5 kilos each) | Ginger (3 kilos each) |
|---|----------------------------------|----------------------------------|
| Materials required for budgeted Production (9,150 units of TomCan) | 45,750 | 27,450 |
| Add: Target inventories (lower of 3,000 or 10 percent of November production needs) | <u>3,000*</u> | <u>3,000*</u> |
| Total materials requirements | 48,750 | 30,910 |
| Less: Expected beginning inventories (lower of 3,000 or 10 percent of October needs) | <u>3,000</u> | <u>2,745</u> |
| Direct materials to be purchased | <u>45,750</u> | <u>27,705</u> |

(2 marks)

iii) **Direct Materials Purchases Budget (in Cedis) For October 2019**

| Budgeted Purchases | Kilos | Expected Purchase Price per Unit | Total |
|---------------------------|--------------|---|----------------------|
| Atadwe-100 | 45,750 | GH¢5.00 | GH¢228,750.00 |
| Ginger-50 | 27,705 | GH¢1.75 | GH¢ <u>48,483.75</u> |

| | |
|--------------------|--|
| Budgeted purchases | <u>GH¢277,238.75</u> (1 marks) |
|--------------------|--|

iv) **Direct Manufacturing Labor Budget For October 2019**

Direct Labour-Hours

| Direct Labour Class | per Batch | Number of Batches | Total Hours | Rate per Hour | Total |
|---------------------|-----------|-------------------|---------------------|---------------|--------------------------------------|
| SL1 | 1 | 915* | 915 | GH¢45 | GH¢41,175 |
| SL2 | 2 | 915* | <u>1,830</u> | GH¢25 | GH¢45,750 |
| Total | | | <u>2,745</u> | | <u>GH¢86,925</u> (2 marks) |

v) **Budgeted Income Statement For October 2019**

| | GH¢ | GH¢ |
|--|-----|------------------|
| Sales | | 675,000 |
| Less Cost of goods sold, FIFO basis* $\text{GH¢}77.85 \times 9,000$ | | <u>(700,650)</u> |
| Gross margin | | (25,650) |
| Less Selling and administrative expenses: | | |
| Variable $(1/3 \times (915 \times \text{GH¢}100) + (\text{GH¢}75 \times 2,745))$ | | (99,125) |
| Fixed $(1/3 \times \text{GH¢}51,240)$ | | (17,080) |
| Operating income (Loss) before tax | | (141,855) |

* Actual manufacturing cost per unit; October 2019:

| | | | |
|--|---------------------------------------|---------------|---------------------|
| Direct materials: | | | |
| Atadwe | 5 kilos x GH¢5.00 | = 25.00 | |
| Ginger | 3 kilos x GH¢1.75 | = <u>5.25</u> | 30.25 |
| Direct labor: | | | |
| SL1 labor | 0.1 hour x GH¢45 | = 4.50 | |
| SL2 labor | 0.2 hour x GH¢25 | = <u>5.00</u> | 9.50 |
| Factory overhead: | | | |
| Batch-related | $(915 \times \text{GH¢}100) / 9,150$ | = 10.00 | |
| DLH-related | $(\text{GH¢}75 \times 2,745) / 9,150$ | = 22.50 | |
| Fixed | $(\text{GH¢}51,240 / 9,150)$ | = <u>5.60</u> | |
| | | | <u>38.10</u> |
| Cost per unit, units produced in October | | | <u>77.35</u> |

(8 marks evenly spread using ticks)

(Total: 20 marks)

EXAMINER'S COMMENTS

Performance in this question was very poor. Most of the candidates did not understand or appears not to have heard of the Kaizen Costing techniques before. This technique is a Japanese concept based on the principles of cost reductions through continuous improvement. Employees are the source of the solutions and cost reduction targets are set every month.

Few of the candidates could not determine the direct materials to be purchased. Moreover, 90% of the candidates could not determine the actual manufacturing cost

per unit that should be used to determine the cost of goods sold in order to prepare the Budgeted Income Statement.

QUESTION THREE

- a) The **balanced scorecard** approach emphasizes the need to provide management with a set of information which covers all relevant areas of performance in an objective and unbiased fashion. The information provided may be both financial and non-financial and cover areas such as profitability, customer satisfaction, internal efficiency and innovation.

Perspectives

The balanced scorecard focuses on **four different perspectives**, as follows.

Customer

In the customer perspective of the Balanced Scorecard, managers identify the customer and market segments in which the business unit will compete and the measures of the business unit's performance in these targeted segments. This perspective typically includes several core or generic measures of the successful outcomes from a well-formulated and implemented strategy.

The core outcome measures include *customer satisfaction, customer retention, new customer acquisition, customer profitability, and market share* in targeted segments. But the customer perspective should also include specific measures of the value propositions that the company will deliver to customers in targeted market segments.

The segment-specific drivers of core customer outcomes represent those factors that are critical for customers to switch to or remain loyal to their suppliers. For example, customers could value short lead times and on-time delivery. Or a constant stream of innovative products and services.

- What do existing and new customers value from us?
- Gives rise to targets that matter to customers: cost, quality, delivery, inspection, handling and so on.

(2.5 marks for points well explained)

Internal

In the internal-business-process perspective, managers identify the critical internal processes in which the organization must excel. These processes enable the business organizations to:

- Deliver the value propositions that will attract and retain customers in targeted market segments, and**
- Satisfy shareholder expectations of excellent financial returns.**

The key to excellence in any organization is control of its processes to produce reliable and consistent products and services. Performing the right processes in the right manner leads to consistent levels of product and service quality. The

difficulty lies in finding the right process variables to measure and setting the standards appropriate to performance levels of each of the process measures. Process and operational measures are leading-edge measures that are more short-term-focused.

- What processes must we excel at to achieve our financial and customer objectives?
- Aims to improve internal processes and decision making.
(2.5 marks for points well explained)

Innovation and learning

For incentive purposes, the learning and innovation perspective focuses on the capabilities of people. Managers would be responsible for developing employee capabilities. Key measures for evaluating managers’ performance would be employee satisfaction, employee retention, and employee productivity.

- Can we continue to improve and create future value?
- Considers the business's capacity to maintain its competitive position through the acquisition of new skills and the development of new products.
(2.5 marks for points well explained)

Financial

The balanced scorecard uses financial performance measures, such as net income and return on investment, because all for-profit organisations use them. Financial performance measures provide a common language for analysing and comparing companies. People who provide funds to companies, such as financial institutions and shareholders, rely heavily on financial performance measures in deciding whether to lend or invest funds. Properly designed financial measures can provide an aggregate view of an organisation’s success.

Financial measures by themselves do not provide incentives for success. Financial measures tell a story about the past, but not the future; they have importance, but will not guide performance in creating value.

- How do we create value for our shareholders?
- Covers traditional measures such as growth, profitability and shareholder value but set through talking to the shareholder or shareholders direct.
(2.5 marks for points well explained)

b)

| | | |
|----|------------------------|-------|
| i) | | GH¢ |
| | Standard sales price | 12.00 |
| | Material A GH¢1.70*2.5 | 4.25 |
| | Material B GH¢1.20*1.5 | 1.80 |
| | Labour GH¢6.00*0.45 | 2.70 |
| | Standard contribution | 3.25 |

| | |
|---|----------------------------|
| Sales Volume contribution variance | |
| Budgeted sales volume | 50,000 units |
| Actual sales volume | 48,000 units |
| Sales volume variance in units | 2,000 units (A) |
| *standard contribution per unit (GH¢3.25) | * GH¢3.25 |
| Sales volume variance | <u>GH¢6,500 (A)</u> |

| | |
|--|-------------------------|
| Sales price variance | GH¢ |
| Sales revenue for 48,000 units should have been (*GH¢12) | 576,000 |
| But was | <u>580,800</u> |
| Selling price variance | <u>4,800 (F)</u> |

| | |
|--|-------------------------|
| ii) Direct material price variance | GH¢ |
| 121,951 kgs of A should have cost (*GH¢1.70) | 207,317 |
| But did cost | <u>200,000</u> |
| Material A price variance | <u>7,317 (F)</u> |

| | |
|--|-------------------------|
| 67,200kg of B should have costs (*GH¢1.20) | 80,640 |
| But did cost | <u>84,000</u> |
| Material B price variance | <u>3,360 (A)</u> |

Material mix variances

| | |
|---|---------|
| Total quantity used (121,951 + 67200) kgs | 189,151 |
| Standard mix for actual use 2.5/4 A | 118,219 |
| 1.5/4 B | 70,932 |

| Material | Actual Quantity Standard Mix | Actual Quantity Actual Mix | Variance kgs | Standard Cost Per Kg GH¢ | Variance GH¢ |
|----------|---------------------------------|-------------------------------|------------------|--------------------------------|-------------------------|
| A | 118,219 | 121,951 | 3,732 (A) | 1.70 | 6,344 (A) |
| B | <u>70,932</u> | <u>67,200</u> | <u>3,732 (F)</u> | 1.20 | <u>4,478 (F)</u> |
| | <u>189,151</u> | <u>189,151</u> | | | <u>1,866 (A)</u> |

Material yield variances in total

| | | |
|--|----------------------------|---------------------|
| Each unit of product ZP requires | 2.5kg of A, costing | GH¢ |
| | <u>1.5kg of B, costing</u> | <u>1.80</u> |
| | <u>4.0kg</u> | <u>6.05</u> |
| 189,151 kg should have yielded (÷ 4kg) | | 47,288 units |
| But did yield | | <u>48,000 units</u> |
| Yield variance in units | | 712 units (F) |
| *standard cost per unit of output | | * <u>GH¢6.05</u> |

Yield variance **GH¢4,308 (F)**

For Individual Materials

| Material | Actual Quantity Standard Mix | Actual Quantity Actual Mix | Variance | Standard Cost Per Kg | Variance |
|----------|---------------------------------|-------------------------------|------------------|-------------------------|------------------|
| | kgs | Kgs | kgs | GH¢ | GH¢ |
| A | 120,000 | 118,219 | 1,781 (F) | 1.70 | 3,028 (F) |
| B | <u>72,000</u> | <u>70,932</u> | <u>1,068 (F)</u> | 1.20 | <u>1,282 (F)</u> |
| | <u>192,000</u> | <u>189,151</u> | <u>2,849 (F)</u> | | <u>4,310 (F)</u> |

iii) Labour rate variance

| | |
|--|-------------------------|
| | GH¢ |
| 19,200 hours of works should have cost (*GH¢6 per hr.) | 115,200 |
| But did cost | <u>117,120</u> |
| Labour rate variance | <u>1,920 (A)</u> |

Labour Efficiency Variance

| | |
|---|----------------------|
| 48,000 units of ZP should have taken (* 0.45 hrs) | 21,600 hrs |
| But did take | 18,900 hrs |
| Efficiency variance in hours | <u>2,700 hrs (F)</u> |

*standard rate per hour

| | |
|---------------------|-----------------------------|
| Efficiency variance | <u>GH¢16,200 (F)</u> |
|---------------------|-----------------------------|

Idle time variance

18,900 hours were worked but 19,200 hours were paid for.

Idle time variance= 300 hours (A) * GH¢6= GH¢1,800 (A)

(10 marks evenly spread using ticks)

(Total: 20 marks)

EXAMINER' COMMENTS

Performance in this question was satisfactory. Most of the candidates had the computations of the variances right.

Few of the candidates had problem with the concept of the Balanced Score Card. They were able to identify all the four different perspectives. However, they could not explain the concepts well that made them lose some marks especially the Internal Perspectives, which relates the company's processes and procedures. That is, the processes necessary to achieve financial and customer objectives, to improve internal processes and decision-making.

QUESTION FOUR

a)

i) Cost of capital that can make the Investment break even

| Year | Cash Flow GH¢ | 30% | DCF GH¢ | 20% | DCF GH¢ |
|------|------------------|-------|-------------------|-------|--------------|
| 0 | (85,000) | 1 | (85,000) | 1 | (85,000) |
| 1 | 25,000 | 0.769 | 19,225 | 0.833 | 20,825 |
| 2 | 28,000 | 0.592 | 16,576 | 0.694 | 19,432 |
| 3 | 39,000 | 0.455 | 17,745 | 0.579 | 22,581 |
| 4 | 34,000 | 0.350 | 11,900 | 0.482 | 16,388 |
| 5 | 24,000 | 0.269 | 6456 | 0.402 | 9,648 |
| | 8,500 | 0.269 | 2286.5 | 0.402 | 3417 |
| NPV | | | (10,811.5) | | 7,291 |

$$\text{IRR} = 20\% + \frac{7,291}{(7,291 - 10,811.5)} \times 10\%$$

$$= 24.028\%$$

(11 marks evenly spread using ticks)

ii) **Advantages of Payback Method and how it compares with Discounted Cash flow**

- **It is Simple**

Payback is easy to calculate. Payback method looks at the number of years which make it simple and easy to understand.

- **Offers Quick Evaluation**

Determining which projects can generate fast returns is important to companies especially those with limited resources. Managers of such companies use this method to make a quick evaluation regarding projects with the small investment and short payback period.

- It shows the importance of considering liquidity when making investment decisions.

- It offers the shortest approach to calculating capital expenditure.

(Any 2 points well explained for 2 marks)

Disadvantages of the Payback Method and how it compares with Discounted Cash flow

- **Ignores the time value of money:** The most serious disadvantage of the payback method is that it does not consider the time value of money. Cash flows received during the early years of a project get a higher weight than cash flows received in later years. Two projects could have the same payback period, but one project generates more cash flow in the early years, whereas the other project has higher cash flows in the later years. In this instance, the payback method does not provide a clear determination as to which project to select.
- **Neglects cash flows received after payback period:** For some projects, the largest cash flows may not occur until after the payback period has ended. These projects could have higher returns on investment and may be preferable to projects that have shorter payback times.
- **Ignores a project's profitability:** Just because a project has a short payback period does not mean that it is profitable. If the cash flows end at the payback period or are drastically reduced, a project might never return a profit and therefore, it would be an unwise investment.
- **Does not consider a project's return on investment:** Some companies require capital investments to exceed a certain hurdle of rate of return; otherwise the project is declined. The payback method does not consider a project's rate of return.

(Any 2 points well explained for 2 marks)

b) Advantages that result from a business using a standard cost system are:

- **Improved cost control:** Companies can gain greater cost control by setting standards for each type of cost incurred and then highlighting exceptions or variances—instances where things did not go as planned. Variances provide a starting point for judging the effectiveness of managers in controlling the costs for which they are held responsible.
Assume, for example, that in a production center, actual direct materials costs of GH¢52,015 exceeded standard costs by GH¢6,015. Knowing that actual direct materials costs exceeded standard costs by GH¢ 6,015 is more useful than merely knowing the actual direct materials costs amounted to GH¢52,015. Now the firm can investigate the cause of the excess of actual costs over standard costs and take action.
- **More useful information for managerial planning and decision making:** When management develops appropriate cost standards and succeeds in controlling production costs, future actual costs should be close to the standard. As a result, management can use standard costs in preparing more accurate budgets and in estimating costs for bidding on jobs. A standard cost system can be valuable for top management in planning and decision making.
- **More reasonable and easier inventory measurements:** A standard cost system provides easier inventory valuation than an actual cost system. Under an actual cost system, unit costs for batches of identical products may differ widely. For example, this variation can occur because of a machine malfunction during the production of a given batch that increases the labor and overhead charged to that

batch. Under a standard cost system, the company would not include such unusual costs in inventory. Rather, it would charge these excess costs to variance accounts after comparing actual costs to standard costs.

Thus, in a standard cost system, a company assumes that all units of a given product produced during a particular time period have the same unit cost. Logically, identical physical units produced in a given time period should be recorded at the same cost.

- **Cost savings in record-keeping:** Although a standard cost system may seem to require more detailed record-keeping during the accounting period than an actual cost system, the reverse is true. For example, a system that accumulates only actual costs shows cost flows between inventory accounts and eventually into cost of goods sold. It records these varying amounts of actual unit costs that must be calculated during the period. In a standard cost system, a company shows the cost flows between inventory accounts and into cost of goods sold at consistent standard amounts during the period. It needs no special calculations to determine actual unit costs during the period. Instead, companies may print standard cost sheets in advance showing standard quantities and standard unit costs for the materials, labour, and overhead needed to produce a certain product.
- **Possible reductions in production costs:** A standard cost system may lead to cost savings. The use of standard costs may cause employees to become more cost conscious and to seek improved methods of completing their tasks. Only when employees become active in reducing costs can companies really become successful in cost control.

(Any 3 points for 3 marks)

Disadvantages that result from a business using standard costs are:

- **Controversial materiality limits for variances:** Determining the materiality limits of the variances may be controversial. The management of each business has the responsibility for determining what constitutes a material or unusual variance. Because materiality involves individual judgment, many problems or conflicts may arise in setting materiality limits.
- **No reporting of certain variances:** Workers do not always report all exceptions or variances. If management only investigates unusual variances, workers may not report negative exceptions to the budget or may try to minimize these exceptions to conceal inefficiency. Workers who succeed in hiding variances diminish the effectiveness of budgeting.
- **Low morale for some workers:** The management by exception approach focuses on the unusual variances. Management often focuses on unfavorable variances while ignoring favorable variances. Workers might believe that poor performance gets attention while good performance is ignored. As a result, the morale of these workers may suffer.

(Any 2 points for 2 marks)

(Total: 20 marks)

EXAMINER'S COMMENTS

Performance was below expectation. Apart from the written questions relating to the merits and demerits of Payback Method of investment appraisal and the use of a standard cost system, about 50% of the candidates had difficulties in determining the IRR at which the investment break-even.

The simplest way is to use two discount factors to evaluate the cashflows and make sure that, one of the rates given results in a negative NPV and the other positive, and then interpolate to arrive at the rate. However, the discount table given had a maximum rate of 20% which is below the rate required. Candidates therefore spent a lot of time deriving the discount factors.

This is the major challenge faced by the candidates on this question.

QUESTION FIVE

a)

| Month | Maintenance Hours | Sales | Profit | Cost |
|-------------|-------------------|--------|--------|--------|
| Nov, 2017 | 1,200 | 19,000 | 700 | 18,300 |
| Dec, 2017 | 1,425 | 24,000 | 1,425 | 22,575 |
| Jan, 2018 | 1,410 | 20,100 | 650 | 19,450 |
| Feb, 2018 | 1,400 | 20,000 | 1,000 | 19,000 |
| Mar, 2018 | 1,175 | 18,000 | -125 | 18,125 |
| April, 2018 | 1,275 | 19,000 | 175 | 18,825 |

Using High- Low Method

Variable Cost per unit = $\frac{\text{Highest Cost} - \text{Lowest Cost}}{\text{Highest Activity Level} - \text{Lowest Activity Level}}$

Highest Activity Level - Lowest Activity Level

$$= \frac{\text{GH}\text{c}22,575 - \text{GH}\text{c}18,125}{1,425 \text{ machine hours} - 1,175 \text{ machine hours}}$$

$$= \text{GH}\text{c}3,330 / 250 \text{ machine hours} = \text{GH}\text{c}13.32 \text{ per machine hour} \quad (3 \text{ marks})$$

Total Fixed Cost if Activity exceeds 1,400 machine hours:

Total Fixed Cost = Total Cost (Maximum Activity level) - Total Variable Cost at Maximum Activity Level

$$= \text{GH}\text{c}22,575 - (\text{GH}\text{c}13.32 \times 1,425 \text{ machine hours})$$

$$= \text{GH}\text{c}22,575 - \text{GH}\text{c}18,981 = \text{GH}\text{c}3,594 \quad (2 \text{ marks})$$

Fixed Cost if Activity is below 1,400 will be:

$$\text{GH}\text{c}3,594 - \text{GH}\text{c}1,120 = \text{GH}\text{c}2,474.00 \quad (1 \text{ mark})$$

Expected Maintenance Cost in May 2018 based on 1,520 maintenance hours:

Maintenance Cost = $\text{GH}\text{c}3,594 + (\text{GH}\text{c}13.32 \times 1,520 \text{ maintenance hrs})$

$$= \text{GH}\text{c}3,594 + \text{GH}\text{c}20,246.40 = \text{GH}\text{c}23,840.40 \quad (2 \text{ marks})$$

Expected Maintenance Cost in June 2018 based on 1,075 maintenance hours:

$$\begin{aligned} \text{Maintenance Cost} &= \text{GH}\text{c}2,474 + (\text{GH}\text{c}13.32 \times 1075 \text{ maintenance hrs}) \\ &= \text{GH}\text{c}2,474 + \text{GH}\text{c}14,319 = \underline{\text{GH}\text{c}16,793} \end{aligned} \quad (2 \text{ marks})$$

b)

$$\begin{aligned} \text{i) BEP (May)} &= \frac{\text{Total Fixed Cost}}{\text{Contribution per unit}} = \frac{\text{GH}\text{c}35,000 + \text{GH}\text{c}3,594}{\text{GH}\text{c}1,000 - (\text{GH}\text{c}644.39 + \text{GH}\text{c}13.32)} = 113 \text{ cars} \\ \text{In sales Value} &= 113 \text{ cars} \times \text{GH}\text{c}1,000 = \underline{\text{GH}\text{c}113,000} \end{aligned} \quad (4 \text{ marks})$$

ii) Sales level to make an after-tax profit of GHc21,150.00 =

$$\begin{aligned} &= \frac{\text{Total Fixed Cost} + \text{Profit}/0.75}{\text{Contribution Margin Ratio}} \\ &= \frac{\text{GH}\text{c}38,594 + \text{GH}\text{c}21,150/(1-0.25)}{342.29/1,000} = \frac{\text{GH}\text{c}38,765 + \text{GH}\text{c}28,200}{0.34229} \\ &= \underline{\text{GH}\text{c}195,138.63} \end{aligned} \quad (4 \text{ marks})$$

iii) Margin of Safety = $\frac{\text{Budgeted Sales Level} - \text{Break-even Sales}}{\text{Budgeted Sales}} \times 100$

$$\begin{aligned} &= \frac{\text{GH}\text{c}195,138.63 - \text{GH}\text{c}113,000}{\text{GH}\text{c}113,000} \times 100 \\ &= \underline{72.69\%} \end{aligned} \quad (2 \text{ marks})$$

(Total: 20 marks)

EXAMINER'S COMMENTS

Performance in this question was very poor.

The main difficulty was how the candidates, with the table given, will determine the effect of Total Fixed Cost increasing by GHc1,120 when maintenance hours go beyond 1,400.

Candidates were not able to determine the VC/Unit using the High-Low method.

CONCLUSION

The general performance was unsatisfactory. The examination questions were within the approved syllabus and the questions requirements were acceptable.

The Institute should be considering compulsory tuition for all candidates and the exemption policy of the Institute should be looked at again.