

**AUGUST 2022 PROFESSIONAL EXAMINATION  
MANAGEMENT ACCOUNTING (PAPER 2.2)  
CHIEF EXAMINER'S REPORT, QUESTIONS & MARKING SCHEME**

**EXAMINER'S GENERAL COMMENTS**

This report is focused on the evaluation of the management accounting paper written in the August 2022 professional examinations. The questions were fairly balanced in terms of spread over the syllabus and with respect to theory and calculations. The overall performance was expected to be good since the questions were within reach of an average candidate. On the whole, question one was well attempted but most of the candidates performed poorly in the remaining four questions.

**STANDARD OF THE PAPER**

The standard was not different from previously administered papers. Almost all the areas in the syllabus were covered and marks were fairly allocated based on the weightings. It appeared however that marks allocated for question four did not commensurate with the tasks involved.

Generally, the questions were within the capability and competence of an average candidate.

**PERFORMANCE OF CANDIDATES**

Performance of candidates was below expectation. Apart from question one, all the other questions were poorly attempted. The poor performance was widespread. Only few candidates performed extremely well.

**NOTABLE STRENGTHS AND WEAKNESSES.**

Most candidates performed well in the theory questions where they understood the topic. Balance scorecard as a means of performance measure was well answered by most candidates probably because it has been examined in previous diets.

The question on conformance and non-conformance costs under Total Quality Management was not well answered. Candidates demonstrated some weakness in answering fixed overhead variance and service costing. Fixed overhead variance has been examined before yet the overall performance was poor. Service costing in question 5 was poorly attempted.

It was observed that candidates did not prepare adequately for the paper. This is because a candidate can for instance score about 18 marks or 20 marks in one question and ends up scoring less than 40 marks in total. Such a candidate may not have covered all the areas during his or her preparation.

## QUESTION ONE

Ancient Ltd is a company engaged in the assembling and selling of computers, mobile phones and their accessories. This company has been the market leader for the last 5 years in this field but now incurring losses due to decreasing demand and escalating production costs. Currently, the company evaluates its performance using financial measures. The managing director of Ancient Ltd has learned at a recently attended workshop that the concepts of Balanced Scorecard and Benchmarking could be used to improve the performance of organisations. It was also noted that the Balanced Scorecard should be considered at the strategic planning stage in order to set smart objectives.

### Required:

- Explain the concept of Balanced Scorecard approach to performance measurement. **(2 marks)**
- State **TWO (2)** differences between the Balanced Scorecard and the Traditional Performance measures. **(3 marks)**
- Explain the role of each perspective of the Balanced Scorecard approach at strategic planning stage. (You are required to give an example of performance measures for each perspective. **(8 marks)**
- How can the concept of benchmarking be used to improve the performance of Ancient Ltd. **(3 marks)**
- Explain with an example, how benchmarking could be used to improve performance measures in relation to customer perspective of Ancient Ltd's Balanced scorecard. **(4 marks)**

**(Total: 20 marks)**

## QUESTION TWO

- The details of a unit cost of products X, Y, and Z have been provided below:

| Product            | X          | Y          | Z          |
|--------------------|------------|------------|------------|
| Demand (units)     | 1,200      | 2,800      | 3,000      |
|                    | <b>GH¢</b> | <b>GH¢</b> | <b>GH¢</b> |
| Direct Material    | 70         | 55         | 40         |
| Direct Labour      | 65         | 60         | 38         |
| Variable Overheads | 11         | 8          | 7          |
| Fixed Overhead     | 32         | 24         | 20         |

### Additional information:

- The fixed overheads were absorbed at the rate of GH¢8 per machine hour.
- The budgeted fixed overheads of GH¢165,600 can be analysed into the following cost pools with their respective percentages agreed for apportionment:

| Cost Pool        | Percentages (%) |
|------------------|-----------------|
| Batch            | 20              |
| Machinery        | 45              |
| Customer service | 25              |
| Deliveries       | 10              |

- The following also relates to the activities of the company:

|                         | <b>X</b> | <b>Y</b> | <b>Z</b> |
|-------------------------|----------|----------|----------|
| Units in a batch        | 120      | 140      | 200      |
| Quantities per delivery | 100      | 280      | 250      |
| Number of customers     | 50       | 180      | 220      |

**Required:**

- Calculate the activity rates per; batch, machine hour, customer service and delivery. **(12 marks)**
  - Calculate the total cost of a unit of product X. **(3 marks)**
- b) Budgets and standards are very similar and interrelated but there are notable differences between them.

**Required:**

Explain **TWO (2)** similarities and **TWO (2)** differences between a *budget* and a *standard*. **(5 marks)**

**(Total: 20 marks)**

### QUESTION THREE

- The data below relates to Odeneho Plc and they are in respect of the production of its product, Milcho, for the first quarter ended 31 March, 2022.

|   |             |
|---|-------------|
| Budgeted output                           | 5,000 units |
| Standard hours to produce one unit        | 2           |
| Budgeted fixed production overhead        | GH¢25,000   |
| Actual fixed production overhead incurred | GH¢25,840   |
| Actual hours worked                       | 10,500      |
| Actual units produced                     | 4,980       |

**Required:**

Determine the following:

- Fixed overhead expenditure variance. **(2 marks)**
  - Fixed overhead capacity variance. **(2 marks)**
  - Fixed overhead efficiency variance. **(2 marks)**
  - Fixed overhead volume variance. **(2 marks)**
  - Fixed production overhead variance. **(2 marks)**
- b) The Finance Manager of Baya Ltd has been criticised for using an incremental budget method in preparing the company's budget. She however needs to respond to the issues raised at a board meeting and as a result, she is considering using different budgeting methods for the year-end 31 December 2022. She has asked you, the Management Accountant, to do some preliminary work to help her decide on which of the methods to use. She believes a rolling budget would be ideal for the fast-growing Baya Ltd in a relatively high rate inflationary country.

Baya Ltd's incremental budget for the year-end 31 December 2022 is given below:

|                         | Quarter 1           | Quarter 2           | Quarter 3           | Quarter 4           | Total               |
|-------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
|                         | GH¢'000             | GH¢'000             | GH¢'000             | GH¢'000             | GH¢'000             |
| Revenue                 | 17,520              | 17,958              | 18,407              | 18,867              | 72,752              |
| Cost of sales           | <u>9,636</u>        | <u>9,877</u>        | <u>10,124</u>       | <u>10,377</u>       | <u>40,014</u>       |
| Gross profit            | 7,884               | 8,081               | 8,283               | 8,490               | 32,738              |
| Distribution costs      | (1,577)             | (1,616)             | (1,657)             | (1,698)             | (6,548)             |
| Administration costs    | <u>(4,214)</u>      | <u>(4,214)</u>      | <u>(4,214)</u>      | <u>(4,214)</u>      | <u>(16,856)</u>     |
| <b>Operating profit</b> | <b><u>2,093</u></b> | <b><u>2,251</u></b> | <b><u>2,412</u></b> | <b><u>2,578</u></b> | <b><u>9,334</u></b> |

Cost of sales and Distribution costs are variable while Administrative costs are fixed.

The actual figures for quarter 1 (which has just been completed) are:

|                         | GH¢'000             |
|-------------------------|---------------------|
| Revenue                 | 17,932              |
| Cost of sales           | <u>9,863</u>        |
| Gross profit            | 8,069               |
| Distribution costs      | (1,614)             |
| Administration costs    | <u>(4,214)</u>      |
| <b>Operating profit</b> | <b><u>2,241</u></b> |

On the basis of the Quarter 1 results, sales volume growth of 3% per quarter is now expected.

**Required:**

- i) Explain how Baya Ltd will operate a rolling budget. **(2 marks)**
- ii) Re-calculate quarterly rolling budget for Baya Ltd for the last three quarters of the year 2022 and first quarter of 2023. **(8 marks)**

**(Total: 20 marks)**

**QUESTION FOUR**

- a) Tanko Ltd (TL) is engaged in the manufacturing and sale of a single product GG. The existing manufacturing plant is being operated at full capacity of 6,000 units per annum but the production is not sufficient to meet the growing demand of GG. TL is considering replacing its existing plant with a new Japanese plant. The production capacity of the new plant would be 50% more than the existing capacity. The board of TL considers this expansion as high-risk investment and requires a minimum expected rate of return of 15% on its investment.

To assess the viability of this decision, the following information has been gathered:

- i) The purchase cost and installation cost of a new plant will amount to GH¢3.14 million and GH¢0.45 million respectively.
- ii) The supplier would send a team of engineers to Ghana for final inspection of the plant before commissioning at a cost of GH¢120,000. 50% of this cost would be borne by TL.

- iii) As a result of installation of the new plant, fixed costs other than depreciation would increase by GH¢0.3 million per annum.
- iv) The existing plant has an estimated life of 10 years and it has been in use for the last 6 years. The machine supplier has offered to purchase the existing plant immediately at GH¢1.6 million.
- v) During the latest year, 6,000 units were sold at an average selling price of GH¢550 per unit. Variable manufacturing cost was GH¢450 per unit. TL expects to increase sales volume by 25% in the first year after the plant's installation. Thereafter, the sales volume would increase by 4% per annum. Selling price and variable manufacturing cost will increase by 5% per annum.
- vi) The new plant would be depreciated using straight-line method. The residual value of the plant at the end of its useful life of 4 years is estimated at GH¢350,000.
- vii) TL's cost of capital is 12%.

**Required:**

Using break-even rate (internal rate of return), advise whether TL should acquire the new plant. **(15 marks)**

- b) Mante Ltd is reviewing its progress towards meeting its objective of having a reputation for producing high quality products. Extracts from the company's records for each of the years ended 31 October 2020 and 2021 are shown below.

|                                     | <b>2021</b> | <b>2020</b> |
|-------------------------------------|-------------|-------------|
| % of units rejected by customers    | 15%         | 21%         |
| % of units rejected before delivery | 15%         | 5%          |

**Cost as % of revenue:**

|                                |     |     |
|--------------------------------|-----|-----|
| Raw material inspection        | 10% | 3%  |
| Training                       | 7%  | 4%  |
| Preventive machine maintenance | 8%  | 2%  |
| Machine breakdown maintenance  | 4%  | 11% |
| Finished goods inspection      | 8%  | 2%  |

**Required:**

Discuss, using the above data, the relationship between *conformance costs* and *non-conformance cost* and its importance to Mante Ltd. **(5 marks)**

**(Total: 20 marks)**

## QUESTION FIVE

a) Carriers Private Ltd (CPL) was recently formed with the objective of providing sand transport services. It purchased 10 Sand Trucks with a capacity of 5 cubic metres each at a cost of GH¢150,000 per Truck. The monthly running costs and other information have been forecasted as follows:

- 1) CPL expects each truck to run 5,000 kilometres a month during its lifetime of 4 years, which starts from the date of purchase. Out of the kilometres run each month, 50% is assumed to be by the empty truck that does not generate any revenue. At the end of the year 4, each truck could be sold at an estimated consideration equivalent to 30% of the purchase cost.
- 2) The following salaries will be paid to workers in CPL:
  - A driver would be paid GH¢700 per month. 11 drivers will be recruited including a stand-by driver to replace a driver taking a leave.
  - A cleaner would be paid GH¢500 per month and 11 cleaners will be recruited.
  - Three office staff would be paid GH¢3,000 per month.
  - A garage worker would be paid GH¢500 per month.
  - Licensing and insurance per annum would be GH¢2,400.
  - Servicing, repairs and maintenance would be GH¢2 per running kilometre.
  - The current fuel price per litre is GH¢7.30 and the management expects to keep a leeway of 10% for inflationary adjustments. The empty truck could run 5 kilometres per litre and when loaded could only run 3.25 kilometres per litre of fuel.

CPL expects to keep a profit mark-up of 30% on full cost.

### Required:

- i) Calculate the total hiring charge. (6 marks)
- ii) Determine the running cost for a month per kilometer. (1.5 marks)
- iii) Assess the effective transport charge for a month:
  - Per kilometer. (1.5 marks)
  - Per cubic metre kilometer. (2 marks)
- iv) Explain the importance of each cost unit per iii) above, when applying them in different transport jobs. (3 marks)

b) Aunty Dede Caterers runs a canteen service at a University and the following estimated information is available for the sale of lunch packs:

| Monthly demand<br>(Number of packs) | Probability | Variable cost per pack<br>(GH¢) | Probability |
|-------------------------------------|-------------|---------------------------------|-------------|
| 2,000                               | 0.3         | 30                              | 0.5         |
| 2,500                               | 0.5         | 15                              | 0.4         |
| 3,000                               | 0.2         | 20                              | 0.1         |

The probabilities of demand and the probabilities of variable cost are mutually exclusive. The selling price of a lunch pack is GH¢50 and the University charges monthly fee of GH¢1,200 for the usage of the cafeteria.

### Required:

Calculate the monthly-expected profit of running the canteen. (6 marks)

**(Total: 20 marks)**

## SUGGESTED SOLUTION

### QUESTION ONE

a) **Balanced Scorecard (BSC)**

**Traditional method** performance was measured focus only on **financial measures** i.e. profit, ROI etc. which is extracted from historical data without any future incorporation.

Balance Scorecard concept breaks through this traditional concepts and proposes, in addition to the financial measures, three non-financial performance measurement areas for the organisations namely Customer perspective, internal business perspective, innovation and learning perspective. **(2 marks)**

b) **Differences between Balance Score Card and Traditional Approach**

- **The Scope:** BSC covers financial and non-financial performance measures.
  - BSC leads to optimal decision-making because it considers all performance measurements unlike the traditional approach which only concentrates on profit.
- (2 points @ 1.5 marks = 3 marks)**

c) BSC helps to set Strategic objectives in all four perspectives as follows;

**Customer perspective**

The customer perspective considers how the organisation appears to customer. The organisation should ask itself: 'to achieve our vision, how should we appear to our customers?' The customer perspective should identify the customer and market segments in which the business units will compete. The company can set objectives in the following measures;

- *New customer acquisitions - 40% increase in customer base*
- *Price - Company price against competitors*
- *Customer retentions - 95% customer retention ratio*
- *Customer complaints - 1% customer complaints against sales invoices.*
- *Delivery time % of on-time delivery*
- *Customer reject rates - Customer rejection to reduce to 1%*

**Internal perspective**

The internal perspective requires the organisation to ask itself the question - 'what must we excel at to achieve our financial and customer objectives?'. It must identify the internal business processes that are critical to the implementation of the organization's strategy.

The following can be used at the planning stage;

- *New product introduction compared to the competitors - e.g. to introduce 4 new products for the next year.*
- *Percentage of sales from new products - e.g. 20% of total sales to be from new products.*
- *Time consumed for developing new products*
- *Reduction in production losses- e.g. 2% reduction in loss*
- *Improvement in productivity - 1% increase in productivity*

- *Reducing process cost*
- *Response time to customer complaints*
- *Cost of staff for customer complaint handling*

### **Learning and growth perspective**

The learning and growth perspective requires the organisation to ask itself whether it can continue to improve and create value. If an organisation is to continue having loyal, satisfied customers and make good use of its resources, it must keep learning and developing. It is critical that an organisation continues to invest in its infrastructure – i.e. people, systems and organisational procedures – in order to provide the capabilities that will help the other three perspectives to be accomplished

The following are some of measures in this category

- Employee skill level
- Training availability - % of staff members trained, training hours
- Employee satisfaction - Job retention - bring the employee turnover to 0.5%

### **Financial perspective**

This addresses the question of how the company should create value for its shareholder value. This The Company can set objectives in the following measures;

- Sales growth - eg. 40% sales increase
- Gross profit ratio - eg. 30% gross profit
- Return on Investment - 25% return on investment
- Return on capital employed- Return on equity
- Unit cost - 20% reduction in unit cost

**(2 marks for 4 perspective = 8 marks)**

### **d) Benchmarking**

Benchmarking is the continuous search for and adaptation of significant better practices that leads to superior performance by investigating the performance and the practices of other organizations such as market leading competitor, company in a different similar industry.

These best practices of the benchmarked companies can be adopted in Ancient Ltd and thereby it can bring the performance level to industry standard level.

**(3 marks)**

- e) The performance in customers' perspective measures can be improved by adopting the best customer oriented practices of benchmarked organisations.

#### **For Example**

\* The market leader's customer complaints handling procedure can be used for the company.

\* Aftersales procedure of the company could be made according to the best system in the industry.

\* Invoicing and product delivery systems can be designed according to the best system in the industry.

By doing so, it can be able to improve the performance in customers' perspective measures.

**(4 marks)**

**(Total: 20 marks)**

#### **EXAMINER'S COMMENTS**

This question was well attempted by most of the candidates;

- a) The concept of balance scorecard was well explained.
- b) The differences between the concept and the traditional approach did not come out clearly
- c) The different perspectives (customer, internal, learning and innovation and financial) were well explained by most candidates who attempted it except that some candidates did not provide examples of the key performance indicators.
- d) The application of benchmarking for performance improvement in the company was fairly dealt with.
- e) The application of benchmarking specifically to improve customer perspective was answered generally instead of focusing on specific benchmarking areas that will impact on customer satisfaction.

## QUESTION TWO

a)

a) **Workings;**

Apportionment of overheads; GH¢. 165,600

Machine related (45%) = 74,520 (0.5)

Batch related (20%) = 33,120 (0.5)

Delivery related (10%) = 16,560 (0.5)

Customer service (25%) = 41,400 (0.5)

Machine hrs. x 1,200×4 = 4,800

Y 2,800×3 = 8,400

Z 3,000×2.5 = 7,500

**Total** **20,700 (1.5)**

Number of batches

X 1,200÷120 = 10

Y 2,800÷140 = 20

Z 3,000÷200 = 15

**Total** **45 (1)**

Number of deliveries

X 1,200÷100 = 12

Y 2,800÷280 = 10

Z 3,000÷250 = 12

**Total** **34 (1)**

Number of customer = 450 (0.5)

### Statement showing calculation of activity rates.

| Activity base    | overhead<br>GH¢ | no of activities | rate.<br>GH¢           |
|------------------|-----------------|------------------|------------------------|
| Machine related  | 74,520          | 20,700           | 3.6 per hr. (1.5)      |
| Batch related    | 33,120          | 45               | 736 per batch (1.5)    |
| Delivery related | 16,560          | 34               | 487 per delivery (1.5) |
| Customer service | 41,400          | 450              | 92 per customer (1.5)  |

ii) **Cost per unit of X (1200 units)**

**GH¢**

Prime cost GH¢146×1200 175,200 (0.5)

Overheads;

Machine related (4,800×3.6) 17,280 (0.5)

Batch " (10×736) 7,360 (0.5)

Delivery " (12×487) 5,844 (0.5)

Customer ser. (50×92) 4,600 (0.5)

**Total** **210,284**

**Cost per unit**  $\text{GH¢ } 210,284 \div 1200 = \text{GH¢ } 175.24$  (0.5)

**(15 marks)**

b) Similarities between a budget and a standard

- They both involve looking to the future and forecasting what is likely to happen given a certain set of circumstances.
- They are both used for control purposes. A budget aids control by setting financial targets or limits for a forthcoming period. Actual achievements or expenditures are then compared with the budgets and action is taken to correct any variances where necessary. A standard also achieves control by comparison of actual results against a predetermined target.
- Budgets and standards are interrelated. A standard unit product cost can act as the basis for a production cost budget.

**(Any 2 points @ 1 marks = 2 marks)**

Differences between a budget and a standard

| <b>Budget</b>  | <b>Standard</b>   |
|--|---|
| Gives planned total costs for a function or cost centre                  | Shows the unit resource usage for a single task, for example the standard labour hours for a single unit of production  |
| Can be prepared for all functions, even where output cannot be measured. | Limited to situations where repetitive actions are performed and output can be measured                                 |
| Expressed in money terms   | Need not be expressed in money terms. For example, a standard rate of output does not need a financial value put on it. |

**(Any 2 points @ 1.5 marks = 3 marks)**

**(Total: 20 marks)**

### **EXAMINER'S COMMENTS**

- a) Candidates performed poorly in this question even though it is a popular area. The average (modal) score was between 03.5 marks and 07.5 marks.
- i) Candidates were able to apportion the total overheads to the cost pools. However, most candidates could not determine the total cost drivers within each cost pool. Apart from the customer service which the total cost driver was equal to the number of customers, the calculation of the cost drivers for the other cost pools was the main challenge for candidates.
- ii) Candidates' inability to calculate the correct rate affected the calculation of the cost per unit of product X.
- b) The similarities and differences between standards and budgets were fairly attempted.

### QUESTION THREE

- a) Note that two (2) hours are required to produce one unit of 4,980 units were produced requiring 9,960 hours, being the standards hours (4,980 x 2 hours).

Budgeted Fixed Overhead Absorption Rate (FOAR) = GH¢25,000/5,000 units =

GH¢5.00/unit

or GH¢25,000/10,000 hours = GH¢2.50 hours

- i) **Fixed overhead expenditure variance**

|   |                  |
|---|------------------|
| Budgeted fixed production overhead        | GH¢25,000        |
| Actual fixed production overhead incurred | <u>GH¢25,840</u> |
|   | <u>840A</u>      |

- ii) **Fixed overhead capacity variance**

|                                    |                          |                  |
|------------------------------------|--------------------------|------------------|
| (Actual hours worked x FOAR)       | 10,500 hours x GH¢2.50 = | GH¢26,250        |
| Budgeted fixed production overhead |                          | <u>GH¢25,000</u> |
|                                    |                          | <u>GH¢1,250F</u> |

- iii) **Fixed overhead efficiency variance**

|   |                    |
|---|--------------------|
| (Standard hrs. x FOAR) 4,980 units x GH¢5 or 9,960 hrs. x GH¢2.50 | = GH¢24,900        |
| (Actual hrs. worked x FOAR) 10,500 hours x GH¢2.50                | = <u>GH¢26,250</u> |
|   | <u>GH¢1,350A</u>   |

- iv) **Fixed overhead volume variance** = Capacity variance + Efficiency variance  
 = GH¢1,250F + GH¢1,350A = GH¢100A

- v) **Fixed production overhead variance** = Fixed overhead expenditure variance +  
 Fixed overhead volume variance

= GH¢840A + GH¢100A = GH¢940A

**(10 Marks)**

- b)

- i) The rolling budget outlined for Baya Ltd would be a budget covering a 12-month period and would be updated quarterly. However, instead of the 12-month period remaining static, it would always roll forward by quarter. This means that, as soon as one quarter has elapsed, a budget is prepared for the corresponding quarter. For example, it would begin by preparing a budget for the 12 months from 1 January 2020 to 31 December 2020, to correspond with its year end. Then, at the end of first quarter 2020, a budget would be prepared for the first quarter of 2021, so that the unexpired period covered by the budget is always 12 months.

When the budget is initially prepared for the year ending 31 December 2020, the first quarter is prepared in detail, with much less detail being given to last three quarters, where there is a greater uncertainty about the future.

Rolling budgets are suitable when the business environment is changing rapidly or when the business unit needs to be tightly controlled.

**(2 marks)**

i) The new budget at Baya Ltd would be:

|                         | <b>Current Year (Actual)</b> |                |                |                |                | <b>Next Year</b> |
|-------------------------|------------------------------|----------------|----------------|----------------|----------------|------------------|
|                         | <b>Q1</b>                    | <b>Q2</b>      | <b>Q3</b>      | <b>Q4</b>      | <b>TOTAL</b>   | <b>Q1</b>        |
|                         | <b>GH¢'000</b>               | <b>GH¢'000</b> | <b>GH¢'000</b> | <b>GH¢'000</b> | <b>GH¢'000</b> | <b>GH¢'000</b>   |
| Revenue                 | 17,932                       | 18,470         | 19,024         | 19,595         | 75,021         | 20,183           |
| Cost of sales           | 9,863                        | 10,159         | 10,464         | 10,778         | 41,264         | 11,101           |
| Gross profit            | 8,069                        | 8,311          | 8,560          | 8,817          | 33,757         | 9,082            |
| Distribution costs      | 1,614                        | 1,662          | 1,712          | 1,764          | 6,752          | 1,817            |
| Administration costs    | 4,214                        | 4,214          | 4,214          | 4,214          | 16,856         | 4,214            |
| <b>Operating profit</b> | <b>2,241</b>                 | <b>2,435</b>   | <b>2,634</b>   | <b>2,839</b>   | <b>10,149</b>  | <b>3,051</b>     |

Based on the assumptions that cost of sales and distribution costs increase in line with sales and that administration costs are fixed as in the original budget.

The budget now reflects the rapid growth of Using rolling budgets like this will avoid the problem of managers trying to control costs using too small a budget and as a result, choking off the growth of the business. The rolling budgets will require additional resources as they now have to be done each quarter rather than annually but the benefits of giving management a clearer picture and more realistic targets more than outweigh this.

**Adjustment Basis**

Revenue = 3%

Cost of Sales =  $9,636/17,520 = 0.55$

Distribution cost =  $1,577/17,520 = 0.09$

Administration cost = 4,214

**(8 marks)**

**(Total: 20 marks)**

**EXAMINER'S COMMENTS**

- a) This question was poorly attempted. The modal score was between 02 marks and 04 marks. Apart from requirement i) for expenditure and v) fixed production overhead variances, most candidates got the other variances wrong. They simply could not state the formulae and the data needed for the calculation of those variances.
- b) Some candidates understood and were able to apply the technique of rolling budget. Others however demonstrated inadequate understanding of the technique. Worse of all, that simple adjustment of the first quarter figures to recalculate the other quarters could not be done and that resulted in the generally poor performance of candidates.

## QUESTION FOUR

| Years                   | 0           | 1              | 2              | 3              | 4              |
|-------------------------|-------------|----------------|----------------|----------------|----------------|
|                         | <b>GH¢</b>  | <b>GH¢</b>     | <b>GH¢</b>     | <b>GH¢</b>     | <b>GH¢</b>     |
| Contribution/unit (W1)  |             | 105            | 110.25         | 115.77         | 121.54         |
| Sales (W2)              |             | 7500           | 7800           | 8112           | 8436.5         |
| Contribution            |             | 787,500        | 859,950        | 939,126.24     | 1,025,372.21   |
| Less Fixed Cost         |             | <u>300,000</u> | <u>300,000</u> | <u>300,000</u> | <u>300,000</u> |
|                         |             | 487,500        | 559,950        | 639,126.24     | 725,372.21     |
| Initial Investment (w3) | (3,650,000) |                |                |                |                |
| Trade-in                | 1,600,000   |                |                |                |                |
| Salvage                 |             |                |                |                | 350,000        |
| Free cash flow          | (2,050,000) | 487,500        | 559,950        | 639,126.24     | 1,075,372.21   |
| Discount factor (12%)   | 1.000       | 0.893          | 0.797          | 0.712          | 0.636          |
| Present Value           | (2,050,000) | 435,337.5      | 446,280.15     | 455,057.88     | 683,936.73     |

**Net Present value = (GH¢ 29,387.74)**

| Years                | 0           | 1          | 2          | 3          | 4            |
|----------------------|-------------|------------|------------|------------|--------------|
|                      | <b>GH¢</b>  | <b>GH¢</b> | <b>GH¢</b> | <b>GH¢</b> | <b>GH¢</b>   |
| Free cash flow       | (2,050,000) | 487,500    | 559,950    | 639,126.24 | 1,075,372.21 |
| Discount factor (1%) | 1.000       | 0.990      | 0.980      | 0.971      | 0.961        |
| Present Value        | (2,050,000) | 482,625    | 548,751    | 620,591.58 | 1,033,432.70 |

**Net Present Value = 635,400.29**

$$IRR = a\% + \left( \frac{NPVa}{NPV a - NPVb} \right) (b-a) \%$$

$$IRR = 1\% + \left( \frac{635,400.29}{635,400.29 + 29,387.74} \right) (0.12 - 0.01)$$

$$IRR = 1\% + 10.5137\%$$

$$IRR = 11.51\%$$

**The project should be rejected since the IRR of 11.51% is lower than company target of 15%.**

| (W1)         | <i>Latest</i> | <i>year 1</i> | <i>year 2</i> | <i>year 3</i> | <i>year 4</i> |
|--------------|---------------|---------------|---------------|---------------|---------------|
| Selling      | 550           | 577.5         | 606.38        | 636.70        | 668.52        |
| Vehicles     | <u>440</u>    | <u>472.5</u>  | <u>496.13</u> | <u>520.93</u> | <u>546.98</u> |
| Contribution |               | <u>105</u>    | <u>110.25</u> | <u>115.77</u> | <u>121.54</u> |

| (W2)          | <i>latest</i> | <i>year 1</i> | <i>year2</i> | <i>year3</i> | <i>year4</i> |
|---------------|---------------|---------------|--------------|--------------|--------------|
| Sales (units) | 6,000 x 1.25  | 7500 x 1.04   | 7800x1.04    | 8112         | 8436.48      |

| (W 3)              | <b>GH¢</b>    |
|--------------------|---------------|
| Cost of Machinery  | 3,140,000     |
| Installation       | 450,000       |
| Testing            | <u>60,000</u> |
| Initial Investment | 3,650,000     |

(Marks are evenly spread = 15 marks)

- b) **Conformance costs** are prevention and appraisal costs. **Non-conformance costs** are internal and external failure costs. The relationship is that higher conformance costs should in the long run lead to lower non-conformance costs.

In the data provided it can be seen that costs incurred on prevention and appraisal costs were a greater percentage of turnover in 2012 compared to 2011 and as a result the level of external failures reduced. This would improve the perception of the company in the market.

It can also be seen that the level of failures identified before despatch increased. This could be because of the greater expenditure on appraisal costs. However, it would appear that there are far too many 'rejects' being manufactured and that the company needs to work towards improving the quality of its manufacturing processes rather than relying on quality inspections to identify sub-standard production. The company should work towards 'designing quality in' as opposed to 'inspecting poor quality out'.

(5 marks)

(Total: 20 marks)

### EXAMINER'S COMMENTS

- a) The average score for this question was around 04. Most candidates who attempted it aimed at calculating the IRR. The main problem was the tasks involved in arriving at the free cash flow. Some candidates also ended at NPV for a single rate without calculating a second rate for the interpolation. Very few who probably could not interpret the requirement as implied used the breakeven analysis. In those cases, the data was not adequate to support the analysis. Some got the contribution margin and fixed cost for the first year but since data was for four years it was difficult to make reasonable analysis.
- b) The conformance and nonconformance costs under Total Quality Management could not be explained by most candidates. The inverse relationship was obvious in the data provided yet even those who explained the concept could not well establish the relationship.

## QUESTION FIVE

| a)   | Cost is accumulated for a period of one month               |                 |
|------|---|-----------------|
|      |   | GHGH¢           |
|      | Depreciation of trucks (w1)                                 | 21,875          |
|      | Salaries of drivers (700*11)                                | 7,700           |
|      | Salaries of cleaners (500*11)                               | 5,500           |
|      | Salaries of office staff                                    | 3,000           |
|      | Salaries of garage worker                                   | 500             |
|      | Licensing and insurance (2,400/12)                          | 200             |
|      | Servicing, repairs and maintenance (2*5,000*10 )            | 100,000         |
|      | Fuel expenses :   |                 |
|      | Empty lorry (2,500km * 7.3*110%/5)*10                       | 40,150          |
|      | Laden lorry (2,500km * 7.3*110%/3.25)*10                    | <u>61,769</u>   |
|      | Total operating cost per month                              | 240,694         |
|      | Profit mark-up (30%)  | 72,208.2        |
| i)   | Total hiring charge   | 312,902.2       |
|      |   |                 |
| ii)  | Running cost for a month per km (240,694/50,000)            | <b>GHc 4.81</b> |
| iii) |   |                 |
| •    | Effective distance (5,000km*10*50%)                         | 25,000km        |
|      | <b>Effective transport charge per km (312,902.2/25,000)</b> | <b>GH¢12.52</b> |
|      |   |                 |
| •    | Weight carried by a laden lorry (cubic metres)              | 5.00            |
|      | Effective transport charge per km (GH¢) ( as above)         | 12.52           |
|      | <b>Per cubic metre per km (12.52/5)</b>                     | <b>GH¢ 2.50</b> |
|      |   |                 |
|      | (w1) 150,000 x10*70%/4/12 months                            | 21,875          |

iv) When trucks are fully loaded, per cubic metre per kilometre would be a useful cost unit to monitor and control transport charges than using transport charge per kilometre as the cost unit.

However, when trucks are not fully loaded, it would be more appropriate to use, transport charge per kilometre based on the distance travelled instead of using the composite cost unit.

**(3 marks)**

**b) Workings:**

$$\begin{aligned} \text{Monthly expected demand} &= (2000 \times 0.3) + (2500 \times 0.5) + (3000 \times 0.2) &&= 2450 \\ \text{Expected variable cost per pack} &= (30 \times 0.5) + (15 \times 0.4) + (20 \times 0.1) &&= \text{GH}\text{\textasciicircum}23 \end{aligned}$$

|  |                           |
|--|---------------------------|
|  | GH\text{\textasciicircum} |
| Sale revenue 2450 x GH\text{\textasciicircum}50  | 122,500                   |
| Variable cost 2450 x GH\text{\textasciicircum}23 | <u>56,350</u>             |
|  | 66,150                    |
| Less fixed cost                                  | <u>1,200</u>              |
| <b>Profit</b>                                    | <b><u>64,950</u></b>      |

**(6 marks)**

**(Total: 20 marks)**

**EXAMINER'S COMMENTS**

- a) The standard of this question was not below level 2. Candidates who attempted it were able to calculate the monthly cost for most of the cost elements i.e. drivers, cleaners, office staff, garage and licensing and insurance. Some candidates could not get the servicing and fuel cost correctly. Since the total running cost was wrong, the running cost per kilometer could not be calculated as well. Again the cost per kilometer and cubic meter kilometer, and the importance of these cost units to the transport sector were not well explained by the few candidates who attempted the question.
- b) Candidates who attempted the sub-question did well. Most candidates scored the full marks while a few scored 3 marks because of their inability to get the variable cost right.

**CONCLUSION:**

Most of the candidates who attempted question one did fairly well but the general performance in the other questions was so bad that the final scores were adversely affected. This may be attributed to lack of adequate preparation. A candidate who can score 15 marks or more in one question cannot be said to be below average candidate. So if such a candidate scores marks that are below 05 in the other questions then the candidate may not have covered the other areas adequately. The major challenges observed have been the calculation of cash flow under investment appraisal which is applicable in either NPV or IRR and fixed overhead variance.

Candidates writing this paper should note that questions are set to cover all the areas specified in the syllabus and so should be guided accordingly.