

**NOVEMBER 2017 PROFESSIONAL EXAMINATIONS  
MANAGEMENT ACCOUNTING (PAPER 2.2)  
CHIEF EXAMINER'S REPORT, QUESTIONS AND MARKING SCHEME**

**STANDARD OF THE PAPER**

The November 2017 examinations examined candidates in such areas as Investment Appraisal using discounted cash flow techniques, Budget Preparations, Product Costing using Absorption and Activity Based costing methods, Break Even Analysis and preparation of profit statements and Standard costing using variance analysis. The questions were well spread to cover the entire syllabus based on the recommended weightings except that the theory questions formed just about 26% of the total marks. The questions were not beyond the capability of an average candidate at this level of the professional examination.

Generally there were no errors in the questions that were set; however in question 1(a) under capital budgeting, the cost per unit was given under the absorption costing technique but the question did not provide the normal production level that should be used to determine the fixed cost per year. As a result most candidates treated the fixed cost as if it were a variable cost.

Again the timing of the bad debt in question 2 (b) was not clear. While some think it should be spread over the collection period others think it should be treated when the third installment is due.

Also in question 3 (a), the requirement was not clear as to whether it is cost per unit or total cost, (calculate the prime cost for each product). Some students calculated the total cost for each product.

In question 4, under cost volume profit analysis with multiproduct, it was assumed that the fixed cost could be apportioned. Once that is done, then each product could stand alone and analysis could be on single product basis.

These shortfalls were not expected to adversely affect candidates' performance.

**PERFORMANCE OF CANDIDATES**

Performance was almost equally spread. For instance almost all the candidates failed to answer question 4 satisfactorily. Attempts at other questions were generally at the same level of understanding. There were however a few exceptional students who did very well in all the questions. The overall performance by candidates was poor. Candidates failed to demonstrate adequate knowledge in the various topics that would enable them to solve the problems. The questions were not difficult relative to the level of the professional examination. Lack of preparation may have accounted for the bad performance.

## **STRENGTHS AND WEAKNESSES OF CANDIDATES**

### **Strengths**

Candidates could fairly calculate the cash flows for capital budgeting as well as the purchases figure in the cash budget. The concept under ABC was fairly understood. Apart from a few deviations the theory questions were well attempted.

### **Weaknesses**

A major weakness was candidates' inability to apply the basic concepts to solve problems. This was clearly evident in question 4 where some sensitivity analysis was required. Besides, some students had challenges dealing with cash flows where tax payments are involved.

## QUESTION ONE

- a) Agyasco Ltd, a software company has developed a new game “Lando” which it plans to launch in the near future. Sales volumes, production volumes and selling prices for “Lando” over its four-year life are expected to be as follows:

Year	1	2	3	4
Sales and production (units)	150,000	70,000	60,000	60,000
Selling price (GH¢ per game)	25	24	23	22

Financial information on “Lando” for the first year of production is as follows:

Direct material cost GH¢5.4 per game

Other variable production cost GH¢6.00 per game

Fixed costs GH¢4.00 per game.

Advertising costs to simulate demand are expected to be GH¢650,000 in the first year of production and GH¢100,000 in the second year of production. No advertising costs are expected in the third and fourth years of production. Fixed costs represent incremental cash fixed production overheads. “Lando” will be produced on a new production machine costing GH¢800,000. Although this production machine is expected to have a useful life of up to 10 years, Government legislation allows Agyasco Ltd to claim the capital cost of the machine against the manufacture of a single product. Capital allowances will therefore be claimed on a straight-line basis over four years.

Agyasco Ltd pays tax on profit at a rate of 30% per annum and tax liabilities are settled in the year in which they arise. Agyasco Ltd uses an after-tax discount rate of 10% when appraising new capital investments. Ignore inflation.

### Required:

Calculate the *net present value* of the proposed investment and comment on your findings.

(10 marks)

- b) The traditional methods of measuring performance of sub-units to achieve goal congruence include divisional profit, Return on Investment, Residual Income and Transfer pricing. These profit based measures do not reveal all about the long term survival of corporate institutions.

### Required:

Identify and explain **FIVE areas of relevance** that should engage the attention of management to ensure both short and long term *profitability and survival*. (10 marks)

- c) Explain the importance of the following terms under Performance Management Information System.
- Transaction Processing System.
  - Enterprise Resource Planning System.

(5 marks)

(Total: 25 marks)

## QUESTION TWO

- a) An efficient and effective coding system, whether manual or computerized should incorporate certain features.

**Required:**

Identify and explain **FIVE** features of a good coding system.

**(5 marks)**

- b) Abigail Acheampong is in the process of preparing budgets for the period October to December 2017. The following information has been provided to assist in the budgeting process:

- Budgeted monthly sales revenue is as follows:

	<b>GH¢</b>
October	40,000
November	70,000
December	50,000
January 2018	45,000

- Sales are 20% cash and 80% credit. Credit sales are collected over a three month period, 15% in the month of sale, 70% in the month following sale and 15% in the second month following sale. Bad debts of 5% are anticipated on all credit sales.
- Total sales revenue in August amounts to GH¢30,000 and September's total sales revenue amounts to GH¢36,000.
- Cost of sales is expected to amount to 60% of sales revenue each month.
- The business maintains its closing inventory levels at 75% of the following month's cost of sales. Inventory at the beginning of October is expected to amount to GH¢18,000.
- 50% of inventory purchased is paid in the month of purchase. The remaining 50% is paid for in the month following purchase. As at 30 September 2017, amount owed for purchases are GH¢11,700.
- A grant of GH¢20,000 is expected to be received in mid-October.
- A second hand van which cost GH¢8,000 three years ago is expected to be sold in December 2017 for GH¢3,000. At this time the expected net book value of the van is GH¢1,800.
- Equipment costing GH¢4,500 will be purchased and paid for in November 2017. The equipment will be depreciated on a straight line basis over three years.
- Operating expenses are paid as incurred. These have been estimated as follows:

	<b>GH¢</b>
October	12,800
November	18,900
December	14,600

The above figures include depreciation on existing assets of GH¢2,000 per month.

- The cash balance on 1 October is expected to amount to GH¢8,000

**Required:**

- i) Calculate the *purchases* figure for each month from October 2017 to December 2017.

**(3 marks)**

- ii) Prepare a *cash budget on a monthly basis* and in total for the period October 2017 to December 2017.

**(12 marks)**

**(Total: 20 marks)**

### QUESTION THREE

Bonti Ltd produces three different products using two production departments. The company currently uses Absorption Costing to establish product costs and profitability. The Directors have recently attended a conference on Activity Based Costing (ABC) and are examining whether ABC might provide a better system for Bonti Ltd.

The following budgeted information for period ended 31 December 2017 has been collated for each of the three products:

	<b>Taya</b>	<b>Maya</b>	<b>Paya</b>
Production and Sales	8,750 units	4,000 units	6,000 units
Unit sales price	GH¢56	GH¢106	GH¢84
Direct materials	1.5kg	6kg	7kg
Direct labour:			
Machine Department	1 hour	8 hours	6 hours
Assembly Department	4 hours	3 hours	1 hour
Direct expenses	GH¢2	GH¢6	GH¢3
Machine Dept.(machine hours per unit)	2 hours	5 hours	4 hours

Raw material costs GH¢4 per kilo and the hourly rate for all labour is GH¢5. The direct expenses relate entirely to specialized packaging which is uniquely designed for each of the products and is therefore directly attributable to that product alone.

The current costing system absorbs overheads to the Machine and Assembly Departments on the basis of a recovery rate of GH¢3.50 per machine hour and GH¢1 per labour hour respectively.

The following is an analysis of the overheads by department:

<b>Department</b>	<b>Overheads</b>
Purchasing Department	22,400
Production set-up & Design Department	34,500
Customer Service Department	32,600
Machine	123,000
Assembly Department	26,500

The Departmental Managers have provided the following additional information about operations in their departments:

	<b>Taya</b>	<b>Maya</b>	<b>Paya</b>	<b>Total</b>
Number of set-ups	10	10	30	50
Number of customer orders	80	86	160	326
Number of purchase orders	30	32	50	112

The Machine Department is capital intensive and the Assembly Department is labour intensive.

**Required:**

- a) Calculate the *prime cost* for each product. (3 marks)
- b) Calculate the *profit per unit* for each product if overheads are absorbed on the *Current Costing basis*. (5 marks)
- c) Calculate the *profit per unit* for each product if overheads are absorbed using an *Activity Based Costing* approach. Clearly identify any cost drivers you assign. (11 marks)
- d) Comment on why there is a difference between the profit/loss shown on an *Absorption Costing* basis and that shown using *Activity Based Costing*. (3 marks)
- e) Identify **THREE** limitations of Activity Based Costing. (3 marks)

(Total: 25 marks)

**QUESTION FOUR**

Zumah Ltd manufactures and sells two complimentary products: Hyline and Glycerin in the ratio 3:2. The result for the just ended period showed the following:

<b>Product</b>	<b>Hyline</b>	<b>Glycerin</b>
Selling price (GH¢)	20	15
Contribution/sales ratio	60	40
Profit/ (loss) (GH¢)	97,200	(3,600)

Joint fixed cost of GH¢180,000 are apportioned in proportion to the number of units of each product sold.

The company is in the process of preparing the budget for the coming year, and is desirous of improving the performance of Glycerin. Therefore the following proposals are being considered for implementation:

- i) Increase the price of Glycerin by 25% in expectation that the quantity demanded will reduce by 10%; or
- ii) Retool the production process which will result in a reduction of joint fixed costs by 15% and an increase in variable costs of each product by 10%; or
- iii) Introduce proposals 1 and 2.

**Required:**

- a) Determine the units of each product sold, and hence, prepare the profit statement for the just ended period; and (7 marks)
- b) Advise the management of Zumah Ltd as to which proposal to implement with the view of optimizing profits. (8 marks)

(Total: 15 marks)

## QUESTION FIVE

Zealow Ltd has just introduced a new standard marginal costing system to assist in the planning and control of the production activities for the single product which the company manufactures. “The Stand”, the system became operational on 1 March 2017.

The Management Accountant has consulted with the Senior Engineer and they have agreed the following standard specifications to manufacture one unit of the product known as “The Stand”.

Direct materials 4kg @ GH¢1.75 per kg  
Direct labour 2 hours @ GH¢10 per hour  
Variable overhead 2 hours @ GH¢8.25 per hour

The Marketing Director has advised that in Zealow Ltd’s industry, the budgeted selling price is normally calculated to achieve a mark up to 30% on cost.

The budgeted level of production and sales activity has been agreed with both production managers and sales staff at 24,000 units per month.

The actual results for the month of March 2017 are as follows:

Sales	22,000 units yielding a total revenue of GH¢1,276,000
Production	23,000 units
Direct Materials	90,000 kgs at a cost of GH¢162,000
Direct labour	48,000 hours at a cost of GH¢576,000
Variable overhead	GH¢350,000

### Required:

- Calculate the *standard selling price* of one unit of “The Stand” and prepare a summary budgeted profit statement for Zealow Ltd for the month of March 2017. **(2 marks)**
- Calculate the *relevant variances* for March 2017 under the headings of sales, materials, labour and overheads. **(10 marks)**
- Zealow Ltd uses a standard marginal costing system and therefore fixed costs have been ignored in the calculations shown above. Assuming that the fixed costs for the company are estimated to be GH¢1,879,200 per annum, calculate the monthly sales in both units and value which will be required to *break-even and estimate the margin of safety*, based on the current budget levels. **(3 marks)**

**(Total: 15 marks)**

## SOLUTION TO QUESTIONS

### QUESTION ONE

#### a) Calculation of NPV of 'Lando' investment project

Year	1	2	3	4
	GHC 000	GHC 000	GHC 000	GHC 000
Sales revenue	<u>3,750</u>	<u>1,680</u>	<u>1,380</u>	<u>1,320</u>
Direct materials	(810)	(378)	(324)	(324)
Variable Production	(900)	(420)	(360)	(360)
Advertising	(650)	(100)		
Fixed cost	(600)	(600)	(600)	(600)
Taxable cash flow	790	182	96	36
Taxation	<u>(237)</u>	<u>(55)</u>	<u>(29)</u>	<u>(11)</u>
	533	127	67	25
CA tax benefits	60	60	60	60
Net cash flow	613	187	127	85
Discount at 10%	0.909	0.826	0.751	0.683
Present values	557.2	154.5	95.4	58.1

GHC

Present value for future benefits	865.2
Initial investment	<u>800.0</u>
Net present value	<u>65.2</u>

#### Workings

Fixed costs in year 1 =  $\text{GHC}150,000 \times 4 = \text{GHC} 600,000$  and since these represent a one-off increase in fixed production overheads, these are the fixed costs in subsequent years as well.

Annual capital allowance (CA) tax benefits =  $(800,000/4) \times 0.3 = \text{GHC}60,000$  per year.

**(8 marks evenly spread using ticks)**

#### Comment

The net present value of  $\text{GHC}65,200$  is positive and the investment can therefore be recommended on financial grounds. However, it should be noted that the positive net present value depends heavily on sales in the first year. In fact, sensitivity analysis shows that a decrease of 5% in the first year sales will result in a zero net present value. (Note: you are not expected to conduct a sensitivity analysis)

**(2 marks)**



**Alternative solution.**

**Calculation of cash flow.**

Year	1	2	3	4
	GHC '000	GHC'000	GHC'000	GHC'000
Sales rev.	3750	1680	1380	1320
D mat.	(810)	(375)	(324)	(324)
Pdn.o/h	(900)	(420)	(360)	(360)
Advertising	(650)	(100)	-	-
Fixed cost	(600)	(600)	(600)	(600)
Cash flow before depn.	790	182	96	36
Less depreciation	(200)	(200)	(200)	(200)
<b>CF before dep.</b>	<b>590</b>	<b>(18)</b>	<b>(104)</b>	<b>(164)</b>
<b>Less tax (30%)</b>	<b>(177)</b>	<b>5.4</b>	<b>31.2</b>	<b>49.2</b>
CF after tax.	<b>413</b>	<b>(12.6)</b>	<b>(72.8)</b>	<b>(114.8)</b>
Add back depn.	200	200	200	200
<b>CF for discounting</b>	<b>613</b>	<b>187.4</b>	<b>127.2</b>	<b>85.2</b>

**b) Factors that will ensure both short and long term profitability and survival**

- **Customer satisfaction;** meeting the short and long term needs of the customer will create loyalty that will translate into increased sales.
- **Product improvement and innovation;** as the products go through their life cycle there is the need to add new features to bring them at par with changing needs of customers.
- **Constant improvement in the internal processes** to achieve efficient and cost effective production.
- **Loyal workforce;** this will reduce labour turnover rate, leading to the building of experienced workforce that will produce quality goods at less cost
- **Use of ICT ;** the use of ICT will not only help in product design but will also help in solving complex decision models that will improve decision making at all levels of management.
- **Partnership and collaboration;** the new concept in competition is not to see the competitor as an enemy but a partner to look for areas of collaboration.

**(5 points @ 2 marks = 10 marks)**

c)

- i) **A Transaction Processing System (TPS)** is a type of information system that collects, stores, modifies and retrieves the data transactions of an enterprise. Transaction processing systems offer enterprises the means to **rapidly process transactions** to ensure the smooth flow of data and the progression of processes throughout the enterprise. **(2.5 marks)**

- ii) **Enterprise Resource Planning (ERP)** is an industry term for the broad set of activities that help an organization manage its business. An important goal of ERP software is to **integrate back office business processes and facilitate the flow of information** within an organization so business decisions can be data-driven.  
(2.5 marks)

(Total: 25 marks)

### EXAMINER'S COMMENTS

(a) Though the question did not give the average production to be used to derive the fixed cost it was wrong to treat the fixed cost as variable. The fixed cost based on year one production or the average could have been used.

Most candidates could not treat the tax payment well by either charging the tax on net profit before depreciation and add the tax shield or deduct the depreciation, charge the tax and add back depreciation.

Candidates gave the appropriate comments based on the outcome of their calculations.

(b) Apart from few candidates who deviated those who attempted scored some good marks. Those who used the balanced scorecard made relevant points.

(c) The (i) part, TPS was well answered but candidates presented general description of ERP that earned them some marks.

## QUESTION TWO

### a) The requirements for an efficient coding system

- Every number used in the code should be unique and certain, i.e. it should be easily identified from the structure of the code.
- Elasticity and comprehensiveness is an absolute must for a well-designed coding system. It should be possible to identify a code for every item and the coding system should be capable of expanding to accommodate new items.
- The code should be brief, meaningful and significant.
- The maintenance of the coding system should be centrally controlled. It should not be possible for individuals to independently add new codes to the existing coding system.
- Codification systems should be of the same length. This makes errors easier to spot and it assists computerized data processing.
- The coding system must allow for expansion.
- The likelihood of errors going undetected should be minimized.
- If the code consists of alphabetic characters, it should be derived from the item's description or name (ie mnemonics should be used).
- There should be readily available index or reference book of codes.
- Existing codes should be reviewed regularly and out-of-date codes removed.

(Any 5 points for 5 marks)

### b)

#### i) Purchases figure for each month

	October	November	December
	GH¢	GH¢	GH¢
Sales	40,000	70,000	50,000
Cost of Sales	<u>24,000</u>	<u>42,000</u>	<u>30,000</u>
Opening Inventory	18,000	31,500	22,500
<b>Purchases</b>	<b>37,500</b>	<b>33,000</b>	<b>27,700</b>
Closing Inventory	<u>31,500</u>	<u>22,500</u>	<u>20,250</u>
	<b>24,000</b>	<b>42,000</b>	<b>30,000</b>

Marks  
Allocated

1 mark  
2 marks

#### Alternate calculation of purchases figure.

	OCT.	NOV.	DEC.
Sales	40,000	70,000	50,000
Cost of sales	24,000	42,000	30,000
Add closing stock	<u>31,500</u>	<u>22,500</u>	<u>20,250</u>
	55,500	64,500	50,250
Less opening stock	<u>18,000</u>	<u>31,500</u>	<u>22,500</u>
<b>Purchases</b>	<b>37,500</b>	<b>33,000</b>	<b>27,750</b>

ii) Cash budget for the period October to December 2017.

	October GH¢	November GH¢	December GH¢	Total GH¢	Marks Allocated
<b>Inflows</b>					
Grant	20,000			20,00	1 mark
Receipts from sales (W 2)	35,132	47,364	57,500	139,996	3 marks
Sale of van			<u>3,000</u>	<u>3,000</u>	1 mark
	<u>55,132</u>	<u>47,364</u>	<u>60,500</u>	<u>162,996</u>	
<b>Outflows</b>					
Equipment		4,500		4,500	1 mark
Operating expenses	10,800	16,900	12,600	40,300	2 marks
Purchases (W 1)	<u>30,450</u>	<u>35,250</u>	<u>30,375</u>	<u>96,075</u>	2 marks
	<u>41,250</u>	<u>56,650</u>	<u>42,975</u>	<u>140,875</u>	
<b>Net Cashflow</b>					
Net Cashflow	13,882	(9,286)	17,525	22,121	
Opening balance	8,000	21,882	12,596	8,000	
Closing balance	21,882	12,596	30,121	30,121	2 marks

**(W 1) Payment for Purchases**

	October GH¢	November GH¢	December GH¢
Purchases	37,500	33,000	27,750
Paid			
50% month following purchases	11,700	18,750	16,500
50% month of purchase	<u>18,750</u>	<u>16,500</u>	<u>13,875</u>
	<u>30,450</u>	<u>35,250</u>	<u>30,375</u>

(Total: 20 marks)

## EXAMINER'S COMMENTS

(a) Most candidates could not explain the five features of a good coding system. They identified about three that were in line with the requirement in the scheme.

(b) The calculation of purchases figures. It was a simple question but some candidates could not determine the closing stocks. General performance here was above average.

(ii) The cash budget was fairly attempted. A few had difficulty in calculating the cash receipts and others could not deduct the depreciation from the operating expenses. As have been stated some spread the bad debt over the collection period while others treated it at the collection of the last installment. Both methods were accepted.

## QUESTION THREE

### a) Prime cost for each product

	<b>Taya</b>	<b>Maya</b>	<b>Paya</b>
Direct materials @ GH¢ 4 per kg	6	24	28
Direct labour @ GH¢ 5 per hour			
– Machine Dept	5	40	30
– Assembly Dept	20	15	5
Direct expenses	2	6	3
Prime cost	<b>33</b>	<b>85</b>	<b>66</b> <b>(3 marks)</b>

### b) Profit per unit calculation using current absorption basis:

	<b>Taya</b>	<b>Maya</b>	<b>Paya</b>
Prime Cost	33.00	85.00	66.00
Overhead absorption:			
- Machine Dept @ GH¢ 3.50 per machine hour	7.00 4.00	17.50 3.00	14.00 1.00
- Assembly Dept @ GH¢ 1.00 per hour			
Total Product Cost	44.00	105.50	81.00
Selling Price	56.00	106.00	84.00
Profit Per Unit	12.00	0.50	3.00

**(5 marks evenly spread using)**

**c) Per unit profit calculation using Activity Based Costing basis:**

	<b>Taya</b>	<b>Maya</b>	<b>Paya</b>
Overhead Allocation:			
- Purchasing Dept (W1)	6,000	6,400	10,000
- Production Set-up & Dept (W2)	6,900	6,900	20,700
- Customer Service Dept (W3)	35,000	40,000	48,000
- Machine Dept (W4)	17,500	6,000	3,000
- Assembly Dept (W5)	73,400	67,900	97,700
Total Product overheads			
Units Produced	8,750	4,000	6,000
Overhead per Unit	8.39	16.98	16.28
Prime Cost	33.00	85.00	66.00
Overhead allocation	8.39	16.98	16.28
Total Product Cost	41.39	101.98	82.28
Selling Price	56.00	106.00	84.00
Profit per Unit	14.61	4.02	1.72

**WORKINGS**

Cost Drivers and Rates per unit of Cost Driver

W1 ABC cost per unit of drier for purchasing department  
 $\text{GH¢ } 22,400/112 = \text{GH¢ } 200$  per purchase department

W2 ABC cost per unit of driver for set up & design department  
 $\text{GH¢ } 34,500/50 = \text{GH¢ } 690$  per set up

W3 ABC cost per unit of driver for customer service department  
 $\text{GH¢ } 32,600/326 = \text{GH¢ } 100$  per customer order

W4 ABC cost per unit of driver for machine department  
 $\text{GH¢ } 123,000/53,000 = \text{GH¢ } 2$  per machine hour (see W6)

W5 ABC cost per unit of driver for Assembly Department  
 $\text{GH¢ } 26,500/53,000 = \text{GH¢ } 0.50$  per assembly labour hour (see W6)

W6 Machine Hours (Machine Dept)  
 Taya (8750 x 2 hrs) 17,500  
 Maya (4000 x 5 hrs) 20,000  
 Paya (6000 x 4 hrs) 24,000

61,500 hours

Labour Hours (Assembly Dept)

Taya (8750 x 2 hrs) 35,000

Maya (4000 x 3 hrs) 12,000

Paya (6000 x 1 hrs) 6,000

53,000 hours

(11 marks evenly spread using ticks)

**Alternate Profit per unit using ABC**

	Taya	Maya	Paya
Overhead allocation;			
Purchasing dept.	6,000	6,400	10,000
Prodn. Dept.	6,900	6,900	20,700
Customer service	8,000	8,600	16,000
Machine dept.	35,000	40,000	48,000
Assembling dept.	17,500	6,000	3,000
<b>Total</b>	<b>73,400</b>	<b>67,900</b>	<b>97,700</b>
<b>Units produced</b>	<b>8750</b>	<b>4,000</b>	<b>6,000</b>
<b>Overhead/ unit</b>	<b>8.39</b>	<b>16.98</b>	<b>16.28</b>
Add prime cost	33.00	85.00	66.00
Total production cost	41.39	101.98	82.28
Selling price	56.00	106.00	84.00
<b>Profit</b>	<b>14.61</b>	<b>4.02</b>	<b>1.72</b>

Note workings W4 should be 123,000/61,500

Labour hours under assembly department ; Taya (8750×4) = 35,000

d)	Taya	Maya	Paya
Absorption System – Profit per Unit	12.00	0.50	3.00
ABC System – profit per Unit	14.61	4.02	1.72

The difference in unit profit/loss between the two costing approaches is due to the different approaches in applying overhead. Under the traditional absorption based approach the overhead is absorbed using only volume based cost drivers (machine hours and assembly hours). Using ABC three of the cost pools have cost drivers driven by the number of transactions. Product Maya is the lowest volume product but it

makes relatively low demands on set up costs, customer service and purchasing compared to the other two products hence under ABC it shows a higher profit.

Product Paya has the highest ABC usage of activities compared to the other products. Under traditional costing Paya will get an understated amount of these costs but under ABC it gets a deservedly higher allocation hence returning a lower profit per unit.

**(3 marks)**

**e) Limitations of ABC system**

- Implementing an ABC system is a major project that requires substantial resources. Once implemented an activity based costing system is costly to maintain. Data concerning numerous activity measures must be collected, checked and entered into the system.
- ABC produces numbers such as product margins, which are odds with the numbers produced by traditional costing systems. But managers are accustomed to using traditional costing systems to run their operations and traditional costing systems are often used in performance evaluation.
- Activity based costing data can be easily misinterpreted and must be used with care when used in making decisions. Costs assigned to products, customers and other cost objects are only potentially relevant. Before making any significant decision using activity based costing data, managers must identify which costs are really relevant for the decisions at hand.
- Reports generated by this systems do not conform to generally accepted accounting principles (GAAP). Consequently, an organization involved in activity based costing should have two cost systems - one for internal use and one for preparing external reports.

**(Any 3 points for 3 marks)**

**(Total: 25 marks)**

**EXAMINER'S COMMENTS**

This question tested candidates in the preparation of operating statements using Absorption and Activity Based Costing techniques. The following were their challenges:

- Inability to compute the Prime Cost for each product. Prime cost is simply the sum of direct materials, labour and expenses costs excluding fixed cost.
- Inability to determine profit per unit under the absorption costing because they could not calculate correctly the absorption of overhead costs to get the total production costs.
- Under the ABC method, they have a problem determining the Overhead per unit. Since most of them did not also get the Prime Cost correctly, they did not get the total production cost correct. Hence their inability to get the profit per unit correct.



**QUESTION FOUR**

a) Product	Hyline	Glycerin
	GH¢	GH¢
Selling price	20	15
Variable cost/unit	<u>(8)</u>	<u>(9)</u>
	<u>12</u>	<u>6</u>

(1 mark)

Let total units sold be X;

Contribution:		GH¢
Hyline	0.60x* GH¢12 =	7.20x
Glycerin	0.40x* GH¢6 =	<u>2.40x</u>
		9.60x
Fixed costs		<u>180,000</u>
Profit		<u>93,600</u>
	= 9.60x-180,000 = 93,600	
	= 28,500 units	

Thus

Hyline	= 17,100 units
Glycerin	= 11,400 units

(4 marks)

**Profit statement**

Contribution:		GH¢
Hyline	(17,100 x GH¢12)	205,200
Glycerin	(11,400 x GH¢6)	<u>68,400</u>
		273,600
Fixed costs		<u>(180,000)</u>
Profit		<u>93,600</u>

(2 marks)

**Alternative solution;**

	Hyline	Glycerin
	Contribution 60% of GH¢20	40% of GH¢ 15
	Total contribution = fixed cost + profit.	
	12x = 108,000+97200	6x = 72,000+ (3,600)
	X = 17,100	x= 11,400

Proposal 1;

Profit statement	GH¢
Contribution:	
Hyline 15,390 × 12	184,680
Glycerin 10,260 × 7.5	<u>76,950</u>
	261,630
Fixed cost	<u>180,000</u>
<b>Profit</b>	<b><u>81,630</u></b>

**Proposal 2;**

Note: profit statement; figures in bracket should read 17,100 and 11,400 respectively. 78,660 under the fixed cost should be deleted for the profit to read 96,660.

b) **PROPOSAL 1**

- **increases the price of Glycerin by 25% in expectation that the quantity changed will produce by 10%**

Product	Hyline GH¢	Glycerin GH¢
Selling price	20	18.75
Variable cost/unit	<u>(8)</u>	<u>(11.25)</u>
Contribution/unit	<u>12</u>	<u>7.5</u>

**Profit statement**

Contribution:	GH¢
Hyline (15,390 × GH¢12)	184,680
Glycerin (10,260 × GH¢6)	<u>100,035</u>
	284,715
Fixed costs	<u>180,000</u>
Profit	<b><u>104,715</u></b>

(3 marks)

**PROPOSAL 2**

- **Retool the production process which will result in a reduction of joint fixed cost by 15% and an increase in the variable cost of each product by 10%**

Product	Hyline GH¢	Glycerin GH¢
Selling price	20.0	15.0
Variable costs/unit	<u>(8.8)</u>	<u>(9.9)</u>
Cost/nut	<u>11.20</u>	<u>5.10</u>

Joint Fixed costs = GH¢153,000

**Profit statement**

Contribution:		GH¢
Hyline	(17,110 x GH¢11.20)	191,520
Glycerin	(11,410 x GH¢5.10)	<u>58,140</u>
		249,660
Fixed costs		<u>153,000</u>
		<u>78,660</u>
		<u>96,660</u>

**(3 marks)****PROPOSAL 3**

- Introduce proposal (i) and (ii)

Product	Hyline	Glycerin
	GH¢	GH¢
SP	20	18.75
Variable cost/unit	<u>(8.8)</u>	<u>(9.90)</u>
Cost/unit	<u>11.20</u>	<u>8.85</u>

Fixed costs = GH¢153,000

**Profit Statement**

Contribution:		GH¢
Hyline	(15,390 x 6 GH¢11.20)	172,368
Glycerin	(10,260 x 6 GH¢8.85)	<u>90,801</u>
		263,169
Fixed costs		<u>153,000</u>
		<u>110,169</u>

**Recommendation**

Implement proposed (iii) for an incremental profit of GH¢16,569

**(2 marks)****(Total: 15 marks)****EXAMINER'S COMMENTS**

This question examined the candidates on the use of Break-Even Analysis (n CPV Analysis) to compute the units of each product sold and the profit. Performance was average. Most of the candidates were able to determine the contribution per unit as well as the total number of units sold per production.

However, under the (3) proposals to be considered, they could not get correct. They could not also recommend any of the (3) proposals because the calculations were wrong. Apart from a hand full, most of the candidates who attempted could not score beyond 4 marks. Others who got the breakeven quantities left the profit statements. The sensitivity analysis was almost left out.

## QUESTION FIVE

a) The standard selling price of one unit of the Stand is as follows:

		<b>GH¢</b>
Direct materials	(4kg @ GH¢1.75/kg)	7.00
Direct labour	(2 hours @ GH¢10 per hour)	20.00
Variable overhead	(2 hours @ GH¢8.25 per hour)	16.50
Standard marginal cost		43.50
Standard contribution (Mark-up on cost 30% x GH¢43.50)		13.50
Standard selling price		56.55

**(1 mark)**

### Zealow Ltd - Budgeted Profit Statement for month ended 31 March 2017

		<b>GH¢</b>	<b>GH¢</b>
Sales	(24,000 units @ GH¢56.55)		1,357,200
Direct materials	(24,000 units @ 7)	168,000	
Direct labour	(24,000 units @ GH¢20)	480,000	
Variable overhead	(24,000 units @ GH¢16.50)	396,000	
			<u>1,044,000</u>
			313,200

**(1 mark)**

b) Relevant variances for March 2017

		<b>GH¢</b>
<b>Sales Price Variance</b>		
Did sell	(22,000 units for )	1,276,000
Expected to sell	(22,000 x GH¢56.55)	1,244,100
<b>Sales Volume Variance (based on lost contribution)</b>		
Did sell	22,000 units	

Expected to sell	24,000 units		
	2,000 units @ GH¢13.05	=	26,100 (Adv)

**Materials Price Variance**

Did pay			162,000
Expected to pay	(90,000 × GH¢1.75)		157,500
			4,500 (Adv)

**Materials Usage Variance**

Did use			90,000 kgs
Expected to use (23,000 × 4)	92,000kgs		
	2,000 kgs @GH¢1.75	=	3,500 (Adv)

**Labour Rate Variance**

Did pay			576,000
Expected to pay	(48,000 × GH¢10)		480,000
			96,000 (Adv)

**Labour Efficiency Variance**

Did take			48,000 hours
Expected to take	(23,000 × 2)46,000 hours		
	2,000 hours @ GH¢10		20,000 (Adv)

**Overhead Expenditure Variance**

Did cost			350,000
Expected to cost	(48,000 × GH¢8.25)		396,000
			46,000 (Fav)

**Overhead Efficiency Variance**

Did based on			48,000 hours
Expected to base on (23,000 × 2)			46,000 hours
	2,000 hours @ GH¢8.25		16,500 (Adv)

**(8 variances @1.25 marks each = 10 marks)**

**c) Break-even point in sales and units**

Contribution per unit 13.05

Contribution to sales ratio  $13.05/56.55=0.2307$ .

Breakeven point in units =  $156,000/13.05 = 12,000$  **(1 mark)**

Breakeven in sales=  $12,000 \times 56.55 = \text{GH¢ } 678,600$  or  $156,000 / .2307$ . **(1 mark)**

Margin of safety  $24,000 - 12,000 / 24,000 = 50\%$  or 12,000 units.

(1 mark)

(Total: 15 marks)

### EXAMINER'S COMMENTS

This question tested candidates on computation of sales and cost variances. Performance was satisfactory. Most of them got the variances correct.

The only major challenge was the calculation of the standard selling price which is determined as follows:

Direct Materials	4kg at GHS1.75/kg	7.00
Direct Labour	2 hours at GHS10 per hour	20.00
Variable overhead	2 hours at GHS8.25 per hour	<u>16.50</u>
Standard Marginal Cost		<b>43.50</b>
Standard contribution (Mark-up on cost of 30%)		<u>13.50</u>
Standard Selling Price		<u><b>57.00</b></u>

### CONCLUSION

Generally, the problems identified include poor understanding and application of costing principles and techniques, poor presentation of materials/suggested solutions, poor expression of English language, inability to advise management on decisions after computing the quantitative analysis by way of recommendations.