MAY 2019 PROFESSIONAL EXAMINATIONS
MANAGEMENT ACCOUNTING (PAPER 2.2)
CHIEF EXAMINER'S REPORT, QUESTIONS AND MARKING SCHEME

EXAMINER'S GENERAL COMMENTS

The candidates were examined in the following subject areas of Management Accounting in the May 2019 exams.

- Investment appraisal and decision making.
- Cost behavior and flexible budgeting.
- Overhead absorption and re-apportionment of service department overheads.
- Break-even analysis and profitability under various options.
- Calculation of mix and yield variances

The questions were all within the approved syllabus of the Institute. Written questions and comments accounted for 32% of the total marks. However, no errors and ambiguities were noted in the questions.

The following are the general weaknesses noted in the performance of the candidates.

- Poor presentation of suggested solutions
- Poor expression of the English language in answering the written questions.
- Lack of understanding of the basic principles, concepts, methods and techniques of cost and management accounting.
- Inability to analyse and comment on the results of their presentations.

QUESTION ONE

a) Hukportie Ltd is a manufacturer of product "Okwada" which is sold for GH¢5 per unit. Variable costs of production are currently GH¢3 per unit, and fixed costs excluding depreciation is GH¢350,000. The current machine which was purchased for GH¢120,000 has a written down value of GH¢20,000 and a resale value of GH¢12,000. This can however be used for the next four years.

A new machine is available which would cost GH¢90,000. This could be used to make product "Okwada" for a variable cost of only GH¢2.50 per unit. Fixed costs, however, would increase by GH¢7,500 per annum as a direct consequence of purchasing the machine. The machine would have an expected life of 4 years and a resale value after that time of GH¢8,000. Sales of product Okwada are estimated to be 75,000 units per annum. Hukportie limited expects to earn at least 12% per annum from its investments. Taxation and depreciation should be ignored.

Required:
Advise whether Hukportie Ltd should purchase the new machine. **(10 marks)**

b) Ayittey Ltd is an organization with two divisions: A and B, each with its own cost and revenue streams. Each of the two divisions is classified as Investment center. The company's cost of capital is 12%. Historically, investment decisions have been made by calculating the return on investment (ROI). A new manager who has recently been appointed in division A has argued that using residual income (RI) to make investment decisions would result in 'better goal congruence' throughout the company. The data below shows the current position of the division as at the end of 31 December, 2016:

Details of Projects	**Project A**	**Project B**
Capital required	GH¢ 82.8 million	GH¢ 40.6 million
Sales generated	GH¢44.6 million	GH¢ 21.8 million
Net Profit margin	28%	33%

The company is seeking to maximize shareholders wealth. Assuming that, Division A acquires a more efficient asset at GH¢15 million and Division B sold one of its assets with written down value of GH¢24 million, and profits are expected to increase and decrease by GH ¢11 million and GH¢5 million for division A and B respectively.

Required:

i) Calculate both the current ***Return on Investment (ROI)*** and ***Residual Income (RI)*** for each of the divisions. **(5 marks)**

ii) Calculate and comment on the effect of the decision to invest in the new asset and disposal of some assets will have on the current ROI and RI. **(7 marks)**

c) When negotiated transfer prices are used in the company, the managers who are involved in the proposed transfer within the company meet to discuss the terms and conditions of the transfer. They may decide not to go through with the transfer, but if they do, they must agree to a transfer price.

Required:
Explain **THREE (3)** limitations of negotiated transfer prices. **(3 marks)**

(Total: 25 marks)

QUESTION TWO

a) Komosa Ltd is reviewing the selling price of its product for the coming year. A forecast of the annual costs that would be incurred by Komosa Ltd in respect of this product at differing activity levels is as follows:

Annual production (unit)	100,000	160,000	200,000
	GH¢000	**GH¢000**	**GH¢000**
Direct materials	200	320	400
Direct labour	600	960	1,200
Overhead	880	1,228	1,460

The cost behaviour represented in the above forecast will apply for the whole range of output up to 300,000 units per annum of this product.

Required:

i) Calculate the ***total variable cost per unit*** and ***total fixed overhead***. **(4 marks)**

ii) State the total cost function. **(1 mark)**

b) Otuo has recently opened a fast-food restaurant in a small town. Fast-food restaurants are characterised by their quick food service. The fast-food restaurant market in the town is dominated by a small number of long established restaurants. Otuo is seeking to grow its business and attract the town's residents with its burger meals.

The performance report for the first month of business is to be presented at the restaurant's monthly management meeting. A draft performance report for the first month of business is reproduced below:

	Budget	Actual	Variance
Sales (number of meals)	6,000	5,400	(600)
	GH¢	**GH¢**	**GH¢**
Revenue	180,000	167,400	12,600 A
Direct Material	48,000	49,140	1,140 A
Direct Labour	33,000	27,000	6,000 F
Variable Production Overhead	21,000	18,900	2,100 F
Fixed costs	36,000	40,000	4,000 A
Profit	**42,000**	**32,360**	**9,640 A**

Required:

i) Explain the term ***flexible budget***. **(2 marks)**

ii) Using a flexible budgeting approach, redraft the operating statement so as to provide a more realistic indication of the variances. **(7 marks)**

(Note: You are not required to explain the causes of the variances)

iii) In **TWO (2)** ways, explain why the original operating statement was of little use to management. **(2 marks)**

iv) Identify **FOUR (4)** non-financial measures that Otuo could use to monitor the performance of the new fast-food restaurant. **(4 marks)**

(Total: 20 marks)

QUESTION THREE

a) Bobich Ltd manufactures plastic containers for the pharmaceutical industry. The factory, in which the company undertakes all its production has two production departments namely: Cutting and Shaping and two service departments- Stores and Maintenance.

The information below was extracted from the company's budget for its financial year ended 31 March 2019.

Allocated Overhead Costs	**GH¢**
Cutting Department (Cutting)	14,000
Shaping Department (Shaping)	16,000
Stores Department (Stores)	3,500
Maintenance Department (Maintenance)	2,800

Other Production Overheads	**GH¢**
Factory rent	525,000
Factory building insurance	70,000
Plant & machinery insurance	39,000
Plant & machinery depreciation	58,500
Canteen subsidy	150,000

Direct Costs	**GH¢**
Cutting Department	144,000
Shaping Department	210,000

The following additional information is also provided:

	Cutting	**Shaping**	**Stores**	**Maintenance**
Floor area (square metres)	18,000	12,000	3,000	2,000
Value of Plant & Machinery (GH¢)	300,000	50,000	25,000	15,000
Number of stores requisitions	1,000	500	-	-
Maintenance hours required	2,700	2,000	300	-
Number of employees	34	60	4	2
Machine hours	12,000	2,200	-	-
Labour hour	9,000	15,000	-	-

Required:

i) Explain what is meant by the term ***"blanket overhead rate"***. **(2 marks)**

ii) Prepare an overhead analysis sheet based on the above information. You must clearly state the basis used for any apportionments. **(7 marks)**

iii) Re-apportion the service department costs and calculate the most appropriate overhead rate for each department. (Rate should be calculated to two decimal places). **(3 marks)**

iv) State **THREE (3)** reasons why companies calculate pre-determined overhead absorption rates**.** **(3 marks**)

b) Oria Software Ltd, a computer software company is developing a new accounting package, "Future Accounting". The following are the budgeted amounts for the product over a four-year product life-cycle

	Year 0	**Year 1**	**Year 2**	**Year 3**	**Year 4**
Estimated quantity in units		3,500	5,000	2,000	500
	GH¢	**GH¢**	**GH¢**	**GH¢**	**GH¢**
Research & Dev't costs	360,000				
Design costs	240,000	250,000			
Production costs:					
Variable cost per unit		42	35	35	40
Fixed costs		150,000	150,000	120,000	100,000
Marketing costs:					
Variable cost per unit		40	35	10	22
Fixed costs		30,000	20,000	12,000	15,000
Distribution:					
Variable cost per unit		20	22	18	10
Fixed costs		50,000	60,000	40,000	30,000
Customer service:					
Variable cost per unit		8	12	14	10
Fixed costs		80,000	85,000	45,000	-

To be profitable, Oria Software Ltd must generate revenues to cover costs for all six-business functions taken together and, in particular, its high non-production costs. The company has therefore proposed a selling price of GH¢ 250 per software over the entire product life cycle.

Required:

i) Explain ***lifecycle costing*** and identify **TWO (2)** benefits Oria Software Ltd will derive from using lifecycle costing. **(3 marks)**

ii) Calculate ***cost per software*** taking into account the entire lifecycle and comment on the proposed selling price. **(7 marks)**

(Total: 25 marks)

QUESTION FOUR

Boasiako Ltd manufactures high quality coffee biscuits that are sold to hotels and restaurants in Koforidua. Two months ago it had prepared a budget for the forthcoming financial year.

Details of the budget is presented below:

	GH¢
Sales	6,000,000
Less:	
Direct materials	2,080,000
Direct labour	1,160,000
Variable overheads	840,000
Fixed overheads	972,600
Total costs	5,052,600
Profit	947,400

The budget above has been prepared on the assumption that sales will be 800,000 packets of biscuits. However, due to changing economic conditions, the sales forecast for the year is now 720,000 packets of biscuits. It is expected that selling price per unit, direct costs per unit and variable overhead cost per unit will not change from those budgeted. It is also expected that fixed overheads will be the same as those budgeted.

Management is now considering a number of options so as to improve profitability for the forthcoming financial year:

Option 1:
Decrease the selling price by 20%. It is anticipated that this would increase sales volume by 25% on the forecast sales for the current year.

Option 2:
Decrease all variable costs by 10% and decrease fixed costs by 10%. This is not expected to have any impact on the sales level.

Option 3:
Decrease the selling price by 10% and decrease fixed costs by 5%. This is expected to increase sales volume by 25% on the forecast sales for the current year.

Required:

a) Calculate the expected profit for the current year (forecast sales). **(2 marks)**

b) Based on the forecast activity for the year, calculate:

i) The breakeven point in packets of biscuits.

ii) The margin of safety in percentage terms.

iii) The sales revenue required to earn a profit of GH¢1,440,000. **(6 marks)**

c) Evaluate the ***profitability*** of the three options and recommend the option that Boasiako Ltd should adopt. **(7 marks)**

(Total: 15 marks)

QUESTION FIVE

a) Emefa Ltd bakes cakes by mixing three ingredients namely Flour, Sugar and Butter in the standard proportions 5:3:2 respectively. However, the production process does not always mix the ingredients in these proportions, but the cake can be sold if the mixture is within certain limits.

The new production manager (a celebrity chef) has argued that the business should use only organic ingredients in its cake production. Organic ingredients are more expensive but should produce a product with an improved flavour and give health benefits for the customers. It was hoped that this would stimulate demand and enable an immediate price increase for the cakes.

The standard prices for the ingredients are:
Flour - GH¢ 2.50 per kilo
Sugar - GH¢ 3.00 per kilo
Butter - GH¢ 2.00 per kilo

There is 5% normal loss in the production process.

The budget for production and sales in the period was 50,000 cakes. Actual production and sale of cake mixture was 228,000 kg.
During the period the inputs were as follows:

	Kg	**GH¢**
Flour	96,000	249,600
Sugar	72,000	216,000
Butter	50,000	105,000

Required:
Calculate the following variances:

i) Material Mix Variance **(3 marks)**
ii) Material yield variance **(3 marks)**
iii) Material usage variance **(3 marks)**

b) Differentiate between ***planning variances*** and ***operational variances***. **(2 marks)**

c) Explain why separating variances into their planning and operational components provides better information for planning and control purposes. **(4 marks)**

(Total: 15 marks)

SOLUTION TO QUESTIONS

QUESTION ONE

a) Determination of cost savings:

	GH¢
Existing variable cost per unit	3.00
Less new variable cost per unit	2.50
Savings in variable cost	0.50
Total savings in variable cost (GH¢75,000 x GH¢ 0.5)	37,500.00
Less additional cost per annum	7,500.00
Net cash savings in cost	**30,000.00**

The net investment should be 78,000. This is because the receipt on disposal of old asset should be deducted from the cost of the new machine.
The resale value of the machine is GH¢ 8,000.

Candidates can use annuity due formula to determine the NPV
Using Annuity Due, NPV is obtained as:
= - Co + C x AF + C/ (1+ r) n
= - 78,000 .00 + 30,000.00 x 3.038 + 8,000.00 / (1.12) 4
= - 78,000.00 + 91,140.00 + 5,084.14
= 18,224.14

Alternatively, NPV can be calculated as:

Year	**Cash flows**	**DF (12%)**	**PVs**
0	(78,000.00)	1.000	(78,000.00)
1	30,000.00	0.893	26,790.00
2	30,000.00	0.797	23,910.00
3	30,000.00	0.712	21,360.00
4	8,000.00 + 30,000.00	0.636	24,168
NPV			**18,224**

Alternatively
PV of Operating Cost.

- Old Machine : VC = 3 x 75,000 225,000
  Add FC 350,000
  575,000 @ 3.038 = 1,746,850

- New Machine : VC 2.5 x 75,000 187,500
  Add FC 357,500
  545,000 @ 3.038 = 1,655,710

Net Investment (90,000 – 12,000) @ 1 78,000
Resale Value 8000 @ 0.636 (5,088)
1,728,622
Difference (NPV) **18,228**
(8 marks evenly spread using ticks)

Decision
The NPV is positive and so the project is expected to earn more than 12% per annum and is therefore acceptable.

(2 marks)

b)

i)

Divisional performance measurement using ROI

Division A:

ROI = Net Profit / investment x 100

= 12.49 / 82.8 x 100

=15.085%

Division B:

ROI = Net Profit / investment x 100

= 7.194 / 40.6 x 100

=**17.72%**

Divisional performance measurement using RI

Division A

	GH¢
Net Profit	12.49
Less imputed interest charge (12% @ 82.8) =	(9.936)
Residual Income (RI)	2.554

Division B

	GH¢
RI =Net Profit	7.194
Less imputed interest charge (12% @ 40.6) =	(4.872)
Residual Income (RI)	2.322

(5 marks evenly spread using ticks)

ii) Divisional performance after the new investment

Division A

ROI = Net Profit / investment x 100

= 23.49 / 97.8 x 100

= 24.02 %

Division B

ROI = Net Profit / investment x 100

= 2.194 / 16.6 x 100

= 13.21%

Residual Income after new investment.

	A	B
Income	23.49	2.194
Cost of capital	11.74	1.992
RI	11.75	0.202

(3 marks)

Comment

- If a decision about whether to proceed with the investments is made based on ROI, it is possible that the manager of Division A will accept the new proposal whereas the manager of Division B will reject the new proposal. Prior to the new investment Division A had 15.085%, though this is a bit lower than the target rate of return of 16% whiles Division B basket 17.72%. With the new investment Division A's manager has a ROI of 24.02%, this is above the target rate of return, representing some 37.21% increase in the ROI of division A. Division B has ROI of 13.21%, this is lower than the target rate of return, representing some 25.45% reduction in the ROI of Division B.
- However, since Division B's new ROI of 13.21% is higher than the firm's cost of capital of 12%, accepting the new investment would encourage goal congruence and improves the firm's overall performance. Behaviorally, Division B's manger may not be motivated to venture into the new investment if his rewards are tired to the current level of performance. Accepting the new investment means a reduction in his incentives (bonuses).

(4 marks)

c) **Negotiated transfer prices suffer from the following limitations:**

- The transfer price which is the final outcome of negotiations may not be close to the transfer price that would be optimal for the organisation as a whole since it can be dependent on the negotiating skills and bargaining powers of individual managers.
- They can lead to conflict between divisions which may necessitate the intervention of top management to mediate.
- The measure of divisional profitability can be dependent on the negotiating skills of managers who may have unequal bargaining power.
- They can be time-consuming for the managers involved, particularly where large numbers of transactions are involved.

(Any 3 points for 3 marks)

(Total: 25 marks)

EXAMINER'S COMMENTS

Performance of the candidates is not satisfactory. Difficulties encountered include: inability to determine the net cash flows resulting from the cash savings in cost which is GH¢ 30,000 (ii) inability to factor in the resale value of the current and the new machine in arriving at the yearly cash flows of GH¢ 12,000 in year zero and GH¢ 8,000 in year four. None of the candidates could get the NPV of GH¢18,228 correctly. They have no difficulties in computing the RO1 for the divisions but some of them had problems calculating the R1 because they could not calculate the imputed interest charge to be deducted from the net profit. The imputed interest charge is the cost of capital (12%) of the capital required.

QUESTION TWO

a)

i) Variable cost per unit

Material Cost $\frac{\text{GH¢ } 200{,}000}{100{,}000}$ = ¢2 per unit

Labour Cost $\frac{GHS\ 600{,}000}{100{,}000}$ = ¢ 6 per unit

Variable overhead cost can be arrived at using high and low method

Variable cost per unit = $\frac{GHS\ 1{,}460{,}000 - GHS\ 880{,}000}{200{,}000 - 100{,}000}$ = ¢ 5.8

Therefore, total variable cost per unit = ¢ 13.8 **(3 marks)**

Fixed cost = 1,460,000- (200,000 x 5.8) = ¢ 300,000. **(1 mark)**

ii) Y= 300,000 + 13.8x **(1 mark)**

b)

i) Flexible budget is a budget which recognises differences between fixed and variable costs when volume of activity changes. Flexible budgets are useful for control purposes as the actual volume of activity may be compared to budget by flexing the budget so that it is based on actual activity. Flexible budget cannot be prepared until the end of a budget period. **(2 marks)**

ii)	**Budget 6,000 units GH¢**	**Flexed per unit GH¢**	**5,400 units GH¢**	**Actual 5,400 units GH¢**	**Variances GH¢**
Revenue	180,000	30	162,000	167,400	5,400 F
Less Variable cost:					
Direct Material	48,000	8	43,200	49,140	5,940 A
Direct Labour	33,000	5.5	29,700	27,000	2,700 F
VP O/H	21,000	3.5	18,900	18,900	-
Contribution	78,000	13	70,200	72,360	
Fixed Cost	36,000	N/A	36,000	40,000	4,000 A
Profit/(Loss)	42,000		34,200	32,360	1,840 A

(7 marks evenly spread using ticks)

iii) Reasons why the original operating segment is of little use to management

- A static budget is fixed for the entire period covered by the budget, with no changes based on actual activity. Thus, even if actual sales volume changes significantly from the expectations documented in the static budget, the amounts listed in the budget are not changed.

- In more dynamic environments where operating results could change substantially, a static budget can be a hindrance, since actual results may be compared to a budget that is no longer relevant.
- Static budget is not effective for evaluating the performance of cost centers as management may be comparing unlike terms.

(Any 2 points for 2 marks)

iv) Non-financial measures Otuo could use to monitor performance

- **Speed of food delivery.** Customers at fast food restaurants expect their food order to be served quickly. If Otuo is to be successful, it must achieve fast food delivery. Therefore, a measure of time from customer order to food service is a key metric to monitor in ascertaining the restaurant's success at this requirement.
- **Number of repeat customers.** Otuo operates in a small town that offers a number of other choices of fast food restaurant to its residents. If Otuo is to establish itself and grow market share, the restaurant needs to develop a loyal customer base. Number of repeat customers is a measure that could indicate the sustainability of the business and future financial success.
- Cleanliness of the environment
- Curtesy of waiters and waitress
- Responsiveness
- Availability of food

(Any 4 points for 4 marks)

(Total: 20 marks)

EXAMINER'S COMMENTS

Performance of the candidates is satisfactory. Two problems were encountered.

- Difficulties in calculating the Variable Overhead cost per unit using the High-Low method. Hence the TVC per unit was wrongly calculated.
- Inability to flex the budget to performance before comparing with the actual results.

About 50% of the candidates got this correctly determined.

QUESTION THREE

a)

i) Blanket overhead rates are where a company calculates one overhead rate for the company as a whole. Example; A company budgets that its production overheads will be GH¢ 200,000 in the forthcoming year and total budgeted machine hours are 50,000 and total budgeted labour hours are 25,000. The company's pre-determined overhead rate will equal [GH¢ 200,000/ 50,000 M/H] GH¢ 4 per machine hour if the company decided to absorbed based on machine hours than labour hour. This method is not as accurate as using individual departmental overhead rates.

(2 marks)

ii)

Nature of cost	**Basis of apportionment**	**Total**	**Cutting Dept**	**Shaping Dept**	**Stores Dept**	**Maint Dept**
		GH¢	**GH¢**	**GH¢**	**GH¢**	**GH¢**
Allocated	N/A	36,300	14,000	16,000	3,500	2,800
Apportioned						
Rent	Floor area	525,000	270,000	180,000	45,000	30,000
Building insurance	Floor area	70,000	36,000	24,000	6,000	4,000
P&M insurance	Value of P&M	39,000	30,000	5,000	2,500	1,500
P&M Dep	Value of P&M	58,500	45,000	7,500	3,750	2,250
Canteen subsidy	No. of employees	150,000	51,000	90,000	6,000	3,000
		878,800	**446,000**	**322,500**	**66,750**	**43,550**

(7 marks evenly spread using ticks)

iii) **Using Step-down method (all other applicable methods are also allowed)**

		878,000	446,000	322,500	66,750	43,550
Maint Dept	Maint hours		23,517	17,420	2,613	(43,550)
Stores Dept	Stores Req's		46,242	23,121	(69,363)	0
			515,759	**363,041**	**0**	**0**

Overhead Absorption Rate for Cutting Dept : 515,759/12, 000 hrs
= 42.90

Overhead Assumption Rate for Shapping Dept.: 363,041/ 15,000 hrs
= 24.20

(3 marks)

iv) **Reasons companies calculate pre-determined overhead rates:**

- In order to establish selling prices
- For inventory valuation purposes
- Facilitates the control process within an organisation

(3 points for 3 marks)

b)

i) Lifecycle costing is a concept which traces all costs to a product over its complete lifecycle, from design through to cessation. It recognises that for many products there are significant costs to be incurred in the early stages of its lifecycle. This is probably very true for Oria Software Inc. The design and development of software is a long and complicated process and it is likely that the costs involved would be very significant.

(1 mark)

Benefits of lifecycle costing

- The profitability of a product can then be assessed taking all costs into consideration.
- It is also likely that adopting lifecycle costing would improve decision-making regarding product introduction, product mix and for discontinuation of the product
- It is also considered a way to enhance cost control of manufacturing costs.
- It helps in pricing decision therefore preventing underpricing at the launch point.

(Any 2 points for 2 marks)

ii) Cost per software taking into account the entire life cycle

		GH¢'000
R&D		360
Design (240 +250)		490
Production	– variable (147 +175+70+20)	412
	-fixed (150 +150 +120+ 100)	520
Marketing	-variable (140 +175 + 20 +11)	346
	-fixed (30 + 20 + 12 + 15)	77
Distribution	– Variable (70+ 110 + 36 + 5)	221
	- fixed (50 +60 + 40 + 30)	180
Customer service	– variable (28 + 60 + 28 + 5)	121
	-fixed (80 +85 + 45)	210
Total life cycle costs		2,937
Production ('000 units) (3.5 +5 +2 + 0.5)		÷ 11
Cost per unit		**GH¢ 267**

(6 marks evenly spread using ticks)

Conclusion

Clearly, proposed selling price per software of GH¢250 is not advisable as it is lower than cost of production. Oria Software Inc. may either increase the selling price or undertake cost reduction techniques like value engineering, quality cycle or alternative source of cheaper material to be able to reduce the cost to be lower than GH¢ 250 per unit.

(1 mark)

(Total: 25 marks)

EXAMINER'S COMMENTS

The performance of the candidates in this question are also satisfactory. The problem they have is using the appropriate basis for apportioning the other overhead costs to the various departments. Hence, some of them got the apportioned costs wrongly distributed which affected the total costs distributed to the various departments. Some level of difficulties were also noted when allocating the service departments costs to the production departments. Just because of selecting the inappropriate bases for the apportionment.

The definition and benefits of Lifecycle costing by the candidates was also not satisfactory indicating that the candidates do not appreciate the importance of reading costing principles, methods and concepts.

QUESTION FOUR

a) Profit made by the company for the year

	Per unit	**Total**
		720,000
	GH¢	**GH¢**
Sales	7.50	5,400,000
Less: variable costs		
Direct materials	2.60	1,872,000
Direct Labour	1.45	1,044,000
Variable Overheads	1.05	756,000
Total Variable Costs	5.10	3,672,000
Contribution	2.40	1,728,000
Less: Fixed Overheads		972,600
PROFIT		**755,400**

b)

i) Breakeven points in packet of Biscuits, Margin of safety in % and revenue required to earn a profit of GH¢1,440,000

Breakeven point in units (BEP) = $\frac{\text{Total Fixed Costs}}{\text{Contribution per units}} = \frac{\text{GH¢972,600}}{\text{GH¢ 2.40}} =$

Break even Packets of biscuits = **405,250**

(2 marks)

ii) Margin of Safety in % terms = $\frac{\text{Actual Sales – BEP sales}}{\text{Actual sales}} \times 100 =$

$\frac{720,000-405,250}{720,000} \times 100 =$ **43.7%**

(2 marks)

iii) Revenue required to earn Target Profit

= $\frac{\text{Total Fixed Costs + Target Profit}}{\text{Contribution to sales ratio}}$

= (GH¢972,600+ GH¢1,440,000)/ 0.32

=**GH¢ 7,539,375**

(2 marks)

Contribution to Sales ratio** 0.32

**Contribution to sales ration = $\frac{\text{Contribution}}{\text{Sales}} = \frac{\text{GH¢2.40}}{7.50} = 0.32$

c)
Evaluation of 3 options

	Option 1 SP-20% Volume+25%	Option 2 VC-10%; FC-10%	Option 3 SP-10%; FC-5% Volume +25%	Current Situation
Units	900,000	720,000	900,000	720,000
	GH¢	GH¢	GH¢	GH¢
Sales	5,400,000	5,400,000	6,075,000	5,400,000
Less: Variable Costs	4,590,000	3,304,800	4,590,000	3,672,000
Contribution	810,000	2,095,200	1,485,000	1,728,000
Less: Fixed Costs	972,600	875,340	923,970	9,72,600
Profit	**(162,600)**	**1,219,860**	**561,030**	**755,400**

(6 marks evenly spread using ticks)

Recommendation:
The company should consider option 2 as this gives a higher profit. **(1 mark)**

(Total: 15 marks)

EXAMINER'S COMMENTS
The calculation of the expected profit for the current year was satisfactorily done by applying the sales and costs per unit to the new forecast sales figure of 720,000 units. Few candidates have problem calculating the C/S ratio needed to determine the revenue required to earn a target profit. The C/S Ratio is contribution/sales, that is GH¢2.40/7.50 which is 0.32**.**

QUESTION FIVE

a)

i) Material Mix Variance

Flour	(96,000 – (5/10 x 218000)@GH¢2.5	= 32,500 F
Sugar	(72,000 - (3/10 x218,000)@GH¢ 3.0	= 19,800 A
Butter	(50,000 - (2/10 X 218,000) @GH¢2.0	= 12,800 A
Total Material Mix Variance		**100A**

(3 marks)

ii) Material Yield Variance

Flour (109,000 – 120,000) @GH¢2.5	= 27,500F
Sugar (65,400 - 72,000) @GH¢3.0	= 19,800F
Butter (43,600 – 48,000) @ GH¢2.0	= 8,800F
Total Material Yield	**56,100F**

Alternative solution to Yield variance.

Total input	218,000
Less normal loss (5%)	10,900
Standard yield	207,100
Actual yield	228,000
Yield variance	**20,900 F**
× WAC	2.6842
	56,100 F

WAC.	**Flour**	(5×2.5)	12.5
	Sugar	(3×3)	9.0
	Butter	(2×2)	4.0
	Total		**25.50 ÷9.5**
			2.6842

(3 marks)

iii) Material Usage variance_ = Mixed Variance + Yield Variance

Flour	= 32,500 F + 27,500F	=	60,0000 F
Sugar	=19,800A + 19,800F	=	-
Butter	= 12,800 A +8,800F	=	4,000 A
Total	100A + 56,100F		**56,000 F**

Alternatively

Flour	= (96,000 -120,000) @GH¢2.5	= 60,000F
Sugar	= (72,000 - 72,000) @GH¢3.0	= -
Butter	= (50,000 - 48,000) @GH¢2.0	= 4000 A
Total Usage		**56,000F**

(3 marks)

ALTERNATIVE SOLUTION

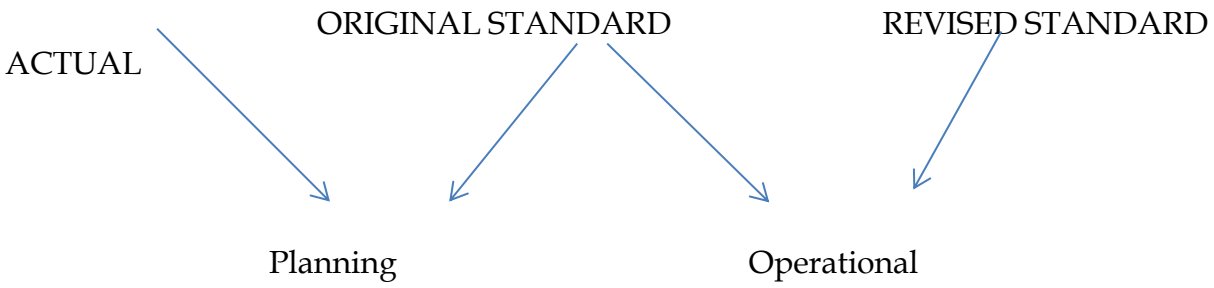
MATERIAL	FLOUR	SUGAR	BUTTER	TOTAL
STANDARD MIX	5/10	3/10	2/10	10/10
AQAM	96,000	72,000	50,0000	218,000
AQSM	109,000	65,400	43,600	218,000
SQSM (ACTUAL PRODUCTION)	120,000	72,000	48,000	240,000
STANDARD PRICE	GH¢2.50	GH¢3.00	GH¢2.00	
MIX VARIANCE	32,500F	19,800A	12,800A	**100A**
YEILD VARIANCE	27,500F	19,800F	8,800F	**56,100F**
USAGE	60,000F	-	4,000A	**56,000F**

b) **Planning Variance: (revision variance)** - compares an original standard with revised standard that would have been used if the planner had known what was to happen. The update to the original standard to reflect the change in conditions and environment. They are often deemed to be uncontrollable hence management cannot be held responsible. Planning variance is very useful for providing feedback on just how skilled management are interested in future prices and cost.

Operational Variance: (Operating variance) - compares an actual result with revised standard. They are often deemed to be controllable hence management be held responsible for operational variances. The operational variance is more meaningful in that it measures the efficiency of management given the market conditions that prevailed at the time. It therefore ignores factors that cannot be controlled, which in turn stop management from becoming demotivated.

(2 marks)

c)



Planning and operational variances provide better information for planning and control purposes for the following reasons:

- The use of planning and operational variances will enable management to draw a distinction between variances caused by factors outside the control of the business and planning errors (planning variances) and variances caused by factors that are within the control of management (operational variances).

- The managers' performance can be compared with the adjusted standards that reflect the conditions the manager actually operated under during the reporting period. If planning and operational variances are not distinguished, there is potential for dysfunctional behaviour especially where the manager has been operating efficiently and effectively and performance is being judged by factors outside the manager's control.

- The use of planning variances will also allow management to assess how effective the company's planning process has been. Where a revision of the budget is required due to changes that were not foreseeable at the time the budget was prepared, the planning variances are uncontrollable. However, budgets that failed to anticipate foreseeable market trends when they were set will reflect faulty planning. It could be argued that some of the planning variances are in fact controllable at the planning stage.

- The information used in setting the ex-post standards can be used in future budget periods. The planning variances may also indicate problems in the standard setting process and the reasons for this can be identified and improvement made to the process.

(4 points for 4 marks)

(Total: 15 marks)

EXAMINER'S COMMENTS

The calculation of the Mix, Yield and Usage variances was well done. However, the candidates could not differentiate between planning variance and operational variance.

Planning variance simply compares original standard with revised standard whilst operational variance compares actual results with revised standards.