NOVEMBER 2018 PROFESSIONAL EXAMINATIONS MANAGEMENT ACCOUNTING (PAPER 2.2) CHIEF EXAMINER'S REPORT, QUESTIONS AND MARKING SCHEME

EXAMINER'S GENERAL COMMENT

The questions were standard and were based on the syllabus. There were not too many areas of ambiguity. Unfortunately, the performance was far below expectation which could be as a result of inclusion of some unexpected areas of the syllabus.

STANDARD OF THE PAPER

The paper was of the same standard as those administered in previous exams. The questions were fairly spread over the key areas of the syllabus and marks were based on the weightings. Per the weightings in the manual, Investment Appraisal should be assigned 10 marks while Performance Measurement should be 15 marks. However the Investment Appraisal in question one was allotted 14 marks and Performance Measurement 11 marks. Question 2 (b) was quite easy but the calculations involved would require more time to complete. None of the questions was seen as overloaded and marks allocation was fair.

PERFORMANCE OF CANDIDATES.

The performance was below expectation. There was no evidence that high and low performances were concentrated in specific areas. Those who performed well were those who could attempt questions four and five. There were no signs of copying as far as the review of scripts showed. Candidates' preparedness was average as evidenced in the performance in questions one to three.

STRENGTHS AND WEAKNESSES OF CANDIDATES.

Candidates did quite well in the calculation and theory questions. Calculation of relevant receipts and payments relating to capital budgeting was done well as well as receipts and payments for budgeting in question two.

The candidates demonstrated these strengths because the areas were familiar topics and the computational questions were relatively easier. The theory questions had a lot options to select from; e.g. objectives of transfer pricing, inter-relationship of variances. These strengths can be enhanced when candidates can predict the areas and format of the paper.

The weaknesses were in the candidates' inability to cover the entire area of the syllabus. Question under pricing policy and the use of relative measure for fixed overhead variances were not thoroughly understood by candidates.

QUESTION ONE

a) Mawuena Ltd, a manufacturer of building materials has recently suffered falling demand due to economic recession, and thus has unutilised capacity. Management has identified an opportunity to produce designer ceramic tiles for the home improvement market. It has already paid GH¢1.5 million for development expenditure, market research and feasibility studies.

A new machine, with a useful life of four years could be bought at $GH \notin 6.5$ million, payable immediately. The scrap value of the machine is expected to be 5% of the cost recoverable a year after the end of the project.

The research and development division has prepared the following demand forecast:

Year	1	2	3	4
Demand (units)	110,000	130,000	150,000	145,000

The selling price is GH¢50 per box (at today's price). Estimated operating costs, largely based on experience are as follows:

Cost per box of tiles (at today's price)	GH¢
Materials cost	12.00
Direct labour	5.00
Variable overhead	2.50
Fixed overhead (allocated)	3.50
Distribution (Variable)	5.50

In addition to the initial cost of machinery, investment in working capital of GH¢0.2 million will be required in year two. Mawuena Ltd pays tax one year in arrears at an annual rate of 30% on returns from the project. Mawuena Ltd shareholders required a nominal return of 14% per annum after tax, which includes allowance for generally expected inflation of 5.55% per annum. (Ignore Capital Allowance).

Required:

Assess the *financial desirability* of this venture in *real terms*, computing the net present value offered by the project. (14 marks)

b) Super Express Transport Company runs a fleet of buses on Accra-Sunyani route which is considered as a business unit.

The following is an extract from the final accounts of the company as at the last operating year; Stock of buses on that route at cost less depreciation is $GH\phi660,000$, and net operating profit is $GH\phi198,000$. One of the buses bought three years ago at the cost of $GH\phi150,000$ was not performing efficiently because it got involved in an accident just a year after it was purchased. Although the damage was minor, the Operations Manager suggested that the bus be scrapped inspite of the fact that it earned a profit of $GH\phi6,000$ in the year. Depreciation is at the rate of 20% p.a. on straight line.

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Required:

Evaluate the effect of this proposal on the performance of the business unit, if Return on Investment is used to measure performance of subunits. (5 marks)

c) Intra-group trading within multinational is trending and is a very important part of business today. This intra-group trade is aimed at promoting global trade competitiveness. Within this competitive environment, companies within the group usually trade with each other and therefore maybe required to set fair and arm length prices for goods and services. Such prices may give benefits other than the mere value for goods and services.

Required:

Identify and explain THREE (3) objectives of *transfer pricing*. (6 marks)

(Total: 25 marks)

QUESTION TWO

a) Costs may be classified as fixed or variable. This classification method is useful for decision making because variable costs are relevant cost whereas fixed costs are irrelevant.

Required:

Explain this statement.

- b) Uswa Ltd is engaged in manufacturing and sale of footwear. The company maintains one central factory and warehouse and sells its products through company operated retail outlets as well as through distributors. Management is in the process of preparing the budget for the year 2018 on the basis of the following information:
- The marketing director has provided the following annual sales projections:

Men	1,200,000	100 - 400
Women	500,000	85 - 250

No. of units

- It has been estimated that 30% of the units would be sold through distributors who paid GH¢95 and GH¢70 per footwear for men and women respectively.
- The remaining 70% will be sold through company operated retail outlets.
- The previous pattern of sales indicates that 60% of these units are sold at the minimum price; 10% units are sold at the maximum price and remaining 30% at a price of GH¢200 and GH¢120 per footwear for men and women respectively.
- The company incurs variable cost of GH¢45 per footwear regardless of whether sales is through company operated retail outlet or distributors.

(5 marks)

Retail price range (GH¢)

- The company operates 22 outlets all over the country. The fixed costs per outlet are GH¢ 12,000 per month and include rent, electricity, maintenance etc.
- Fixed costs for the factory and head office are GH¢4.5 million and GH¢1.5 million per month respectively.

Required:

- i) Prepare budgeted profit and loss account for the year 2018 for Uswa Ltd. (13 marks)
- ii) Explain the term budget manual

(Total: 20 marks)

(2 marks)

QUESTION THREE

a) The quarterly demand for an item of raw materials is estimated at 2,000 units at a purchase price of GH¢180 per unit. It is estimated that the cost per order will be GH¢270 and the cost of holding a unit of material in inventory will be GH¢24.

Required:

- i) Compute the *optimal order quantity*, and *total minimum costs*. (4 marks)
- ii) Suppose a supplier offers 5% quantity discount for purchase of 8,000 units, should the offer be accepted? (3 marks)
- b) KYC Ltd makes three products Hand Chew (HC), Yogurt Swallow (YS) and Canned Lick (CL). All three products are sold as a package and so are offered for sale each month in order to be able to provide a complete market service. The products are fragile and their quality deteriorates rapidly once they are manufactured. The products are produced on two types of machine and worked on by a single grade of direct labour. Five direct employees are paid GH¢8 per hour for a guaranteed minimum of 160 hours each per month. All of the products are first moulded on machine type 1 and then finished and sealed on machine type 2. The machine hour requirements for each of the products are as follows:

	Product	Product	Product
	НС	YS	CL
	Hours/Unit	Hours/Unit	Hours/Unit
Machine type 1	1.5	4.5	3
Machine type 2	1	2.5	2

The capacity of the available machines type 1 and 2 are 600 hours and 500 hours per month respectively. Details of the selling prices, unit costs and monthly demand for the three products are as follows:

	Product HC	Product YS	Product CL
	GH¢/Unit	GH¢/Unit	GH¢/Unit
Selling price	91	174	140
Component cost	22	19	16
Other direct material cost	23	11	14
Direct labour cost at GH¢8 per hour	6	48	36
Overheads	24	62	52
Profit	<u>16</u>	34	22
Maximum monthly demand (units)	120	70	60

Although KYC Ltd uses marginal costing and contribution analysis as the basis for its decision making activities, profits are reported in the monthly management accounts using the absorption costing basis. Finished goods (inventories) are valued in the monthly management accounts at full absorption cost.

Required:

- i) Calculate the *machine utilisation rate per month* for each machine and explain which of the machines is the bottleneck/limiting factor. (4 marks)
- ii) Using the current system of marginal costing and contribution analysis, calculate the *profit maximising monthly* output of the three products. (5 marks)
- iii) Explain why throughput accounting might provide more relevant information in KYC's circumstances. (4 marks)
- iv) Using a throughput approach, calculate the *throughput-maximising monthly output* of the three products. (5 marks)

(Total: 25 marks)

QUESTION FOUR

Oliso Ltd manufactures and sells an executive game for two distinct markets in which it currently has a monopoly. The fixed costs of production per month are $GH \notin 20,000$, and variable costs per unit produced, and sold, are $GH \notin 40$. The monthly sales can be thought of as X, where X = X1 + X2, with X1 and X2 denoting monthly sales in their respective markets. Detailed market research has revealed the demand functions in the markets are to be as follows, with prices shown as P1 and P2:

Market 1: P1 = 55 - 0.05X1 Market 2: P2 = 200 - 0.2X2

The price is currently GH¢50 per game in both markets and the Management Accountant believes there should be price discrimination.

Required:

- a) Explain the term *'price-discrimination'* and explain **THREE (3)** conditions that are necessary for the successful operation of this pricing strategy. **(5 marks)**
- b) Calculate the *price to charge in each market*, and the quantity to produce (and sell) each month, to maximise profit. (4 marks)
- c) Calculate the *Total Monthly Contribution for each* market at the price and quantities calculated in part (a) and the maximum monthly profit in *total*. (3 marks)
- d) Write brief notes to the Management Accountant to explain how this pricing strategy would change if new competitors enter the market and suggest other pricing strategies which the business may have to consider, as well as pricing strategies that a new competitor may use.

(3 marks)

(Total: 15 marks)

QUESTION FIVE

a) With regard to variance analysis for all production costs (direct material, direct labour, and overhead), it is important to note that each variance does not represent a separate and distinct problem to be handled in isolation. All variances in one way or another are interdependent.

Required:

- i) Explain what you understand by the term *"inter-relationship between variances"*. (2 marks)
- ii) Explain possible reasons for inter-relationship between *material variances* and *labour variances*. Support your answer with examples. (4 marks)

b) Ghana National Gas Company is a gas processing company and has its plant located in Atuabo in Western Region. The Plant produces three gas products – Lean Gas (LG), Liquefied Petroleum Gas (LPG) and Natural Gas Condensate (NGC).

The standard time for the production of the products are: LG - 40 minutes per metric tonne, LPG - 30 minutes per metric tonne, NGC – 45 minutes per metric tonne

The budget for the month of February is as follows: LG - 45,000 metric tonnes, LPG - 25,000 metric tonnes, NGC - 30,000 metric tonnes

The actual data for the month were as follows: Labour hours 70,000 hours Production: LG – 48,000 metric tonnes, LPG – 27,000 metric tonnes, NGC– 25,000 metric tonnes

Required:

Compute and interpret the following:	
i) The efficiency ratio.	(3 marks)
ii) The capacity ratio.	(3 marks)
iii) The production volume or activity ratio.	(3 marks)

(Total: 15 marks)

SOLUTION TO QUESTIONS

QUESTION ONE

a) You should recognise that the proposed venture is to be assessed in real terms rather than money terms. This involves deflating the money terms discount rate and applying this to uninflated cashflows. You should also take care to include only relevant cashflows and to include the stated rate of taxation.

The real rate of return is calculated as:

(1+m) = (1+r) x (1+i)

Where m = money rate, r = real rate, i = inflationIn the case of this project, this becomes:

> (1 + 0.14) = (1 + r) (1 + 0.0555)r = 8%

> > (3 marks)

Allocated overhead are not relevant to this analysis as they will arise regardless of the decision being made.

The relevant operating costs per box are calculated as follows.

	GH¢	
Materials cost	12.00	
Direct labour	5.00	
Variable overhead	2.50	
Distribution, etc	<u>5.50</u>	
	25.00	(3 marks)

Year	0	1	2	3	4	5
	GH¢′000	GH¢′000	GH¢′000	GH¢′000	GH¢′000	GH¢′000
Sales revenue	e	5,500	6,500	7,500	7,250	
Variable cost		<u>2,750</u>	3,250	<u>3,750</u>	<u>3,625</u>	
Contribution	L	2,750	3,250	3,750	3,625	
Tax (30%)	-		<u>(825)</u>	(975)	<u>(1,125)</u>	(1,087.5)
		2,750	2,425	2,775	2,500	(1,087.5)
Initial investr	nent (6,500))				
Scrap (5% of e	6,500)					325
Working capi	tal <u>-</u>		(200)		200	
Free cashflow	v (6,500)	2,750	2,225	2,775	2,700	(762.5)
Discount fact	tor (8%) <u>1.00</u>	0.926	0.857	0.794	0.735	0.681
	(6,500)	2,546.5	1,906.83	2, 203.35	1,984.5	(519.26)

(6 marks)

NPV = GH¢1,621.92 million As the net present value is positive, the project should be taken on. (2 marks) *Note:* Initial research costs are sunk cost and should be excluded.

(Total: 14 marks)

b)	ROI without the proposal;	Profit/ Assets	
		GH¢198,000/ GH¢660,000	
		0.30 or 30%	
			(2 marks)
	ROI with the proposal	GH¢192,000/600,000	
		0.32 or 32%	
			(2 marks)
	Decision		
	The disposal will improve the	e unit's performance.	(1 marks)

c) **Objectives of Transfer Pricing (TP) include:**

• **Goal congruence:** The prices should be set so that the divisional management desire to maximize divisional earnings is consistent with the objectives of the company as a whole. The transfer prices should not encourage sub-optimal decision-making. The system should be so designed that decisions that improve business unit profits will also improve company profits.

• Foreign exchange gains maximized and loses minimized

Transfer prices could be set between group members such that, foreign exchange losses are minimized and the gains maximized. This can be achieved by setting the transfer price in the subsidiary domestic country currency, where currency strengthens against other subsidiaries domestic country currencies. The group stand to gain, if profit from exchange gain transaction is repatriated to the group for consolidation as part of income it derived from its worldwide operations.

- **Performance appraisal:** The prices should enable reliable assessments to be made of divisional performance. The prices form part of information, which should:
 - ✓ Guide decision making
 - ✓ Appraise managerial performance
 - ✓ Evaluate the contribution made by the division to overall company profits.
 - \checkmark Assess the worth of the division as an economic unit.
 - ✓ The transfer prices should be designed such that they help in measuring the economic performance
- **Divisional autonomy:** The prices should seek to maintain the maximum divisional autonomy so that the benefits of decentralization (motivation, better decision-making,

initiatives, etc.) are maintained. The profits of one division should not be dependent on the actions of other divisions.

• Outwit international repatriation laws

In some jurisdictions there are legislations that bar repatriation of profit beyond certain amount, In the United Kingdom, only 5% of the group profit or turnover can be repatriated. Group members can outsmart this law, by setting lower transfer prices for intra- group transactions, so that, profit loading on the under invoiced goods remains with the foreign subsidiaries which could be consolidated as part of the group profit.

• Reduce tax liabilities on transactions

Transfer price can be set between group members such that the overall tax liabilities of the group is reduced, and so maximizes the group profit. For instances, group members can under invoice goods to a subsidiary in low tax bracket, so that, those goods attract the minimum tax liability and the group benefits thereon, when the profit from those subsidiaries are remitted to the group.

• Avoid anti- dumping legislations

Governments of subsidiary countries normally pass anti- dumping legislation to discourage the consumption of certain goods. In this situation, to maximize the group's profit, the transfer price should be at a level to outwit this legislation. Group members may quote high or low prices depending on the circumstances of the subsidiary country government anti- dumping legislation, if an inferior product is laced with low price, then invoice prices on those goods can be increased to outwit the cap of the legislation.

• Reduce tariffs on goods in transit

To minimize customs duties paid by the group members especially, when the tax is based on the value of the export (ad-valorem), low transfer prices should be quoted for goods invoiced between subsidiaries. Where tariffs are the highest in a particular subsidiary country, the group member invoicing goods to the former, will quote a lower price to outwit high tariffs charged in that jurisdiction, aimed at maximizing, the overall consolidated profit of the group.

(Any 3 points well explained for 6 marks)

(Total: 25 marks)

EXAMINER'S COMMENTS

The requirement of the question was clear. The major challenge to candidates was the treatment of allocated fixed overhead. Most candidates included this as part of the

relevant cash outflow. A few candidates included the research and development cost which is a sunk cost. Some candidates also factored in inflation and used the nominal values to calculate the NPV contrary to the requirement to appraise the project in real terms. In the allocation of marks the examiner considered relevant cost. In Capital Budgeting, the focus should not be on relevant cost but relevant cash flow.

The preamble for question 1 (C) was on multinationals but the requirement was general. Though the original suggested solution was on foreign divisions other general objectives were included in the solution.

QUESTION TWO

a)

- Generally, the classification of costs as fixed or variable identifies those costs which changes in total when activity changes (variable costs) and those whose total remains constant (fixed costs).
- Relevant costs are those which are affected by a decision, and since most decisions affect activity levels, variable costs (which change when activity changes) can be seen to be relevant costs.
- However, it does not automatically follow that fixed costs are not relevant. Some fixed costs may be specific to product or department and therefore may be avoidable. For example, a decision to discontinue a product will cause the product specific cost to be saved.
- The general notion that fixed costs are not relevant is therefore incorrect thus each decision must be considered individually there would be circumstances when fixed cost must be considered relevant, due to their avoidability.

(5 marks)

b)				
i)	Budgeted Profit And Loss	s Account For The Year En	ding	g 2018
	Revenue			GH¢
	Distributor:			
	Men –	(30% x 1,200,000) x GH¢ 95	5	= 34,200,000
	Women -	(30% x 500,000) x GH¢70)	= 10,500,000
	Outlets:			
	Men			
	Minimum Price -	60% x 840,000 x GH¢100		= 50,400,000
	Maximum Price -	10% x 840,000 x GH¢400		= 33,600,000
	Average Price -	30% x 840,000 x GH¢200		= 50,400,000
	Women			
	Minimum Price -	60% x 350,000 x GH¢85		= 17,850,000
	Maximum Price	10% x 350,000 x GH¢250		= 8,750,000
	Average Price	30% x 350,000 x GH¢120		= 12,680,000
	Total Revenue		=	218,300,000
	Less cost			
	Variable Cost G	H¢ 45(1,200,000 + 500,000)		= 76,500,000
	Less Factory Overhe	eads 4,500,000 x12	=	54,000,000
	Gross Profit		=	87,800,000
	Less: Administrative o	overhead 12 x 1,500,000	=	18,000,000
	Cost of retail o	utlets 12x 22x 12,000	=	3,168,000
	Net profit		=	66,632,000

(13 marks evenly spread using ticks)

ii) The **budget manual** is a collection of instructions governing the responsibilities of persons and the procedures, forms and records relating to the preparation and use of budgetary data. (2 marks)

(Total: 20 marks)

EXAMINER'S COMMENTS

(a) The requirement was quite ambiguous. It was not clear whether the candidates were required to agree or disagree with the statement made. The marking scheme was thus made so flexible so that the candidates were not adversely affected.

(b) The question was easy and most candidates fairly attempted it well. Candidates who attempted it scored all the marks.

QUESTION THREE

a)

i)
$$EOQ = \sqrt{\left(\frac{2DC_0}{C_h}\right)} = \sqrt{\left(\frac{2x8,000x270}{24}\right)} = 424.26 \text{ units}$$
 (2 marks)

Relevant costs:

Holding costs = $\frac{424.26x24}{2}$ = GH¢5,091	
Ordering costs = $\frac{8,000x270}{424.26}$ = GH¢5,091	(2 marks)

ii) Total cost with discount;	purchase cost 8,000 @ 171= 1,368,000.	
Ordering cost 8000÷8000	×270= 270	
Holding cost 8000÷2×24	= 96,000	(2 marks)

The decision should be reject offer.

b)

i)

Product	HC	YS	CL	TOTAL
Machine hours required				
Type 1	180	315	180	675
Type 2	120	175	120	415

Machine type 1 has the highest utilisation rate and the rate is above 100%. Therefore machine type 1 is the bottleneck/limiting factor.

(4 marks)

(1 mark)

ii)

	HC	YS	CL
Contribution per unit	40.00	96.00	74.00
Machine type 1 hours	1.50	4.50	3.00
Contribution per hour	26.67	21.33	24.67
Ranking	1	3	2

Allocation of machine type 1 hours according to this ranking:

	600 hours used
Product YS (240/4.5) 53 units using	240 hours
	360 hours used
Product CL 60 units using	180 hours
Product HC 120 units using	180 hours

(5 marks)

(4 marks)

iii)

iv)

A major concept underlying throughput accounting is that the majority of costs, with the exception of material and component costs, are fixed. In KYC's case it is clear that the labour cost, which is treated as a variable cost in traditional marginal costing, is indeed a fixed cost. Furthermore, given the perishable nature of KYC's products, the throughput accounting approach to inventory minimisation and maximisation of throughput would be more appropriate.

Product	HC	YS	CL
	Per Unit	Per Unit	Per Unit
Sales revenue	91	174	140
Component cost	22	19	16
Other direct material	<u>23</u>	<u>11</u>	<u>14</u>
Throughput per unit	<u>46</u>	<u>144</u>	<u>110</u>
Machine type 1 hours	1.5	4.5	3
Throughput per hour	30.67	32.00	36.76
Ranking	3	2	1

Allocation of machine type 1 hours according to this ranking:

	Hours
Product C - 60 units using	180
Product Y 70 units using	315
Ū.	495
Product H (105/1.5) 70 units using	105
hours used	600

(5 marks)

EXAMINER'S COMMENTS

(a) Some candidates could not get the annual demand right and used the quarterly demand of 2,000. Otherwise they demonstrated enough understanding of the formula and application of the EOQ. The introduction of discount was also handled fairly.

(b) The performance of candidates was average. Most candidates got the machine utilization rate correct. A few, in determining the throughput left the components which affected the ranking. The requirement (ii) could best have been tested under decision making for production plan where limiting factors are involved.

QUESTION FOUR

a) A price-discrimination strategy is where a company sells the same products at different prices in different markets. In pure price discrimination, the seller charges each customer the maximum price he or she will pay. In more common forms of price discrimination, the seller places customers in groups based on certain attributes and charges each group a different price. (2 marks)

Conditions that are necessary for the successful operation of this pricing strategy:

- The seller must be able to determine the selling price. MOC has a monopoly and therefore this would be possible.
- It must be possible to segregate customers into different markets, e.g. using geographical location or age.
- Customers must not be able to buy at the lower price in one market and sell at the higher price in another market.

(3 points for 3 marks)

 b) Profit will be maximised when marginal revenue = marginal costs. In each market, marginal costs = GH¢40

Market 1 MR = 55 - 0.1X1So that: 55 - 0.1X1 = 40X1 = 150P1 = 55 - 0.05X1when: X1 = 150 P1 = GH¢47.50

Market 2

MR = 200 - 0.4X2So that: 200 - 0.4X2 = 40X2 = 400P2 = 200 - 0.2X2 when: X2 = 400 P2 = GH(120)

(1.5 marks)

The company should sell 150 units for GH¢47.50 each to Market 1, and 400 units at GH¢120 each to Market 2. In total, 550 units should be produced.

-)	Market 1	(1 mark)
C)	Total contribution = $(GH$ ¢47.50 – GH ¢40) × 150 units = GH ¢1,125	(1 mark)
	Market 2 Total contribution = (GH¢120 – GH¢40) × 400 Units = GH¢32,000 Total profit	(1 mark)
	GH¢1,125 + GH ¢32,000 - GH ¢20,000 = GH ¢13,125	(1 mark)

d)

- This pricing strategy calculated previously may not be able to be applied if competition was to emerge in the market, as the business would now have to be more aware of the competitors' prices. We may be forced to use going rate pricing to match the competitors' prices, in order to remain competitive.
- However, competitors may choose to adopt a penetration pricing strategy, which means that they will start off with as low as possible a price, in order to try and gain some of our market share. Competing at this price will drive down our profit margins.
- However, we may be able to sustain low margins in the short term to try and hold onto our customer base. As we have had such a strong monopoly of the market, we should already have sufficient economies of scale to be able to withstand the lower profit margins for longer than the competitor.
- Furthermore, we may even be able to undercut competitors, so that they cannot gain any market share. Alternatively, as we are already an established name in the market, we may be able to rely on brand loyalty and keep our prices high. By keeping a high price our customer may also perceive our product to be of higher quality. This could work particularly well, because this is an executive game and presumably the customer would be more likely to choose quality over a lower price.

(Any 3 points for 3 marks) (Total: 15 marks)

EXAMINER'S COMMENTS

The question was poorly attempted. Though pricing policy is in the syllabus and manual, it is not a popular area and it is believed candidates did not look at the topic in their preparation. Most of them attempted to explain the concept and other pricing strategies that gave them some reasonable marks.

QUESTION FIVE

a)

i) Variances, like ratios, should never be viewed in isolation when being interpreted. Inter-relationship between variances means that there is often a natural connection between variances which are calculated. This connection may become apparent when management is seeking explanations to variances which have arisen in a period. Identifying these connections helps provide assurance that the reasons being suggested are logical and are more likely than not to be correct.

(2 marks)

ii) **Note:** The question does not ask for causes of labour and material variances, but for inter-relationship. The key is to think about *quality* of labour and materials used.

Materials used

If we use a low grade raw material we may get it more cheaply and therefore experience a favourable price variance. The downside on this is that we may use more of it due to breakages, waste and spoilage. This will not only cause an adverse usage variance but also may also cause a greater time to be taken due to waste and rejection and therefore result in adverse labour efficiency.

(2 marks)

Labour used

Using a low grade of unskilled labour may cause a favourable rate variance whilst resulting in the job taking longer due to lack of experience. At the same time, their lack of knowledge may also result in lower quality of work causing waste of materials and there being more rejections. This may cause an adverse material usage variance. (2 marks)

b)

i) Efficiency ratio X Capacity ratio = Production Volume ration

 $\frac{Expected hours to make output}{Or Standard hours}}{Actual hours taken} \times \frac{Actual hours worked}{Hours budgeted} = \frac{Output measured in expected}{Or Standard hours}}{Hours budgeted}$ Efficiency Ratio = $\frac{Standard Hours}{Actual Hours} \times 100\%$ $= \frac{64,250}{70,000} \times 100\%$

91.78%

This means that actual level of production was achieved in more time than the standard time set for it. That is 5,750 hours or 8.22% is below the normal efficiency level.

(3 marks)

ii) Capacity Ratio = $\frac{Actual Hours}{Budgeted Hours} \times 100\%$

$$= \frac{70,000}{65,000} \times 100\%$$

This means that the actual hours worked were more than budgeted hours by 7.69% or 5,000 hours.

(3 marks)

iii) Production Volume Ratio = $\frac{Standard Hours}{Bugeted Hours} \times 100\%$ = $\frac{64,250}{65,000} \times 100\%$

This means that the actual level of production is less than the budgeted level of production by 1.16%

(3 marks)

(Total: 15 marks)

WORKINGS

 Computation of Standard Hours of Actual Production

 $LG = 48,000 \times 40/60$ = 32,000

 $LPG = 27,000 \times 30/60$ = 13,500

 NGC = 25,000 \times 45/60
 =18,750

 Total
 64,250 Hours

Computation of Budgeted Hours

$LG = 45,000 \times 40/60$	= 30,000
$LPG = 25,000 \times 30/60$	= 12,500
$NGC = 30,000 \times 45/60$	= <u>22,500</u>
Total	<u>65,000</u> Hours

EXAMINER'S COMMENTS

Most candidates unfortunately did not do well. Inter- relationship of variances could not be explained well by candidates. Besides, though most of them understood the concept of fixed overhead variances they probably did not expect the relative measure of such variances. So after calculating the budgeted and standard hours most of the candidates calculated the absolute figures.

CONCLUSION

The level of ambiguity in questions has reduced and the standard of questions was not different from previous ones. It is good that the structure of the paper is made available to candidates ahead of time. Candidates are advised to cover all the areas of the syllabus in their preparation.