THE INSTITUTE OF CHARTERED ACCOUNTANTS (GHANA)

NOVEMBER 2008 EXAMINATIONS
(PROFESSIONAL)

PART 2

MANAGEMENT ACCOUNTING & CONTROL
(Paper 2.2)

Attempt <u>five (5)</u> Questions in ALL

TIME ALLOWED: 3 HOURS

NB: Please use Separate Booklet(s) for each part
Do not Answer PARTS A & B in the same Answer Booklet(s)

PART A: MANAGEMENT ACCOUNTING

Attempt ALL Questions in this Section
NB: Use a Separate Answer Booklet(s) for Part A

QUESTION 1

(a) Explain the following terms as used in divisional performance measurement and suggest the best way that managers could be evaluated under each:

(i) Cost Centre

(ii) Profit Centre

(iii) Investment Centre

(9 marks)

(b) Rural Manufacturers Association has successfully developed and launched its cocoa butter soap called 'Rural Bright'. Two separate plants have been established; the first processes the cocoa husk into the main raw material for the production of the soap. The second plant then incurs additional processing cost of GH¢1,500 per tonne to produce Rural Bright. This plant has capacity to process only 100,000 tonnes a year and can buy the raw material at GH¢320 per tonne from small scale producers.

The plant that produces the raw material has annual operating capacity of 400,000 tonnes with the following cost structure per tonne

	GH¢
Direct Material Cost	120
Direct Labour Cost	90
Variable Overhead Cost	70
Fixed Overhead Cost	160
	440

The current market price of this material from Rural Manufacturers Association is GH¢650 per tonne with a commitment to supply 280,000 tonnes in the current year to external market.

You are required to:

(i) determine the minimum transfer price of the raw material from the first plant

(ii) determine the maximum transfer price that the second plant manager will be prepared to pay

(iii) calculate the gross profit of the first plant if 100,000 tonnes are sold to the second plant at the minimum transfer price in addition to her current commitment to the external market.

11 marks

QUESTION 2

(a) Chipolopolo Company Ltd is preparing its production budget for the year 2009.

The company uses three components in the manufacture of its final product "Polopolo". Machine capacity available for the production of these components is limited to 2,520 hours.

The company is thus considering which of the components to make and which it should buy.

The information below relates to the production cost of the three components.

Component	K	R	Y
Unit Cost:	GH¢	GH¢	GH¢
Direct Material	20.0	23.5	6.0
Direct Labour	15.0	16.0	10.00
Variable Overhead	7.5	8.0	5.0
Fixed Overhead	20.0	20.0	10.0
	62.5	67.5	31.0

Chipolopolo Company Ltd budgets that the following quantities of the components will be required to meet the 2009 production budget.

Component	Budgeted Quantity
K	375
R	350
Y	500

Quotations received from suppliers indicate that the components could be bought at the following prices per each unit.

		GH¢
Component	K	55
Component	R	40
Component	Y	30

It is the company's policy to absorb fixed overheads at the rate of GH¢2.5 per machine hour.

Required:

(i) Show workings to demonstrate whether Chipolopolo Company Ltd can make all the components or it has to buy some from outside suppliers.

(4 marks)

(ii) Compute the quantities of the various components that should be bought in order to meet the production budget.

(4 marks)

(iii) State **four (4)** factors that need to be considered when making decisions whether to make or buy these components.

(2 marks)

(b) KCA Ltd is considering accepting an offer from a new client to produce 500 gas cylinders.

The Chief Executive presents to you a cost estimate of the order prepared by the Financial Accountant. His advice is that, any offer below GH¢33,870 should not be accepted.

Details of the costs are shown below.

		GH¢
1)	Cost of equipment	8,000
2)	Depreciation of building	1,600
3)	Cost of plant	800
4)	Cost of labour	425
5)	Hiring and overhead cost	16,500
6)	Material cost	900
7)	Markup	5,645
		33,870

The following notes are relevant to the above costs.

1) A specialized equipment to be used in the production of the order has a historical cost of GH¢8,000 and a book value of GH¢3,000. If the order is not accepted, the equipment could be sold for GH¢2,000 now or GH¢1,200 in two months after the completion of the order.

2) If the order is accepted KCA Ltd will be compelled to rent a temporary space elsewhere to store old materials at a cost of GH¢1,200. The allocated depreciation of the building to be used for the production is GH¢1,600.

3) If the order is accepted, KCA Ltd will require additional special scheduling plant to be hired at GH¢600 or manufactured internally at GH¢800. The manufacturing cost includes Fixed and Variable cost of GH¢300 and GH¢500 respectively.

4) KCA will produce the order during normal working hours using 100 hours of existing skilled labour paid at GH¢3 per hour. Additional 250 casual labour hours will be required for the order at a cost of GH¢0.50 per hour.

5) A specialized machine will also be hired for 2 months for the production of the orders. Hiring cost is GH¢1,000 per month with a minimum hiring cost of GH¢2,500. Overhead cost will also increase from GH¢12,100 to GH¢14,000 as a result of the order. Allocated fixed cost to the order is also GH¢1,600.

6) Materials required for the job are already in stock. They were purchased at GH¢900 for another job 3 months ago. If used for the order, it will require replacement at a cost of GH¢1,400. Additional materials costing GH¢250 will be needed to make up the difference in supply to be able to produce the order.

7) It is the policy of KCA to mark up the cost of the order by 20%.

As a Management Accountant, prepare a revised cost estimate for the order based on the above additional information using opportunity cost approach.

(10 marks)

Total: 20 marks

QUESTION 3

The following information relates to the operations of KeKe Manufacturing Ltd:

Budgeted results for the month January 2008:

(i) Input: 20 batches of 500 litres each

(ii)	Direct Material	% of Quantity	Price per Litre (GH¢)
	X	30	0.60
	Y	20	0.30
	Z	50	0.45

(iii)	Direct Labour	% of Hours	Rate per Hour (GH¢)
	Blending	60	2.50
	Filtering	30	2.25
	Packing	10	2.00

(iv) Total labour hours 8,000

(v) Overheads Costs:

Variable	GH¢0.06 per litre
Fixed	GH¢5,750

(vi) Output 10,000 litres

(vii) Selling price GH¢3.55

Actual results for the month of January 2008:

(i)	Direct materials used:	Litres	Price per litre (GH¢)
	X	2,200	0.80
	Y	2,500	0.35
	Z	4,800	0.65
(ii)	Direct labour:	Hours	Rate per Hour (GH¢)
	Blending	5000	2.60
	Filtering	2000	2.20
	Packing	700	2.00
(iii)	Overhead cost:		
	Variable	GH¢655	
	Fixed	GH¢5,800	

(iv) The output of 9,500 litres from 19 batches processed was sold at an average price of GH¢3.71 per litre.

You are required to:

(a) Prepare the budget and actual income statements for the month of January 2008.

(13 marks)

(b) Calculate the labour Cost Variance for the company analysed into rate and efficiency variances.

(7 marks)

Total: 20 marks

PART B: QUANTITATIVE TECHNIQUES

Attempt ANY Two (2) Questions

NB: Use a Separate Answer Booklet(s) for this Section

QUESTION 4

(a) State **two (2)** characteristics of the normal distribution.

(2 marks)

(b) For the past four (4) years, the sales of fairly used car engines at Abossey Okai have been as follows:

Monthly sales (Quantity)	200	150	450	300	250
Number of Months	9	15	6	6	12

An engine is sold on average for GH¢350. Assume that the monthly sales of the engines are normally distributed.

Required:

(i) What is the probability that between 200 and 400 engines will be sold in a month?

(***10 marks)***

(ii) What is the probability that more than 500 engines will be sold in a month?

(4 marks)

(iii) What is the maximum expected revenue per month of the sales of engines if the probability of sales per month is 0.4?

(***4 marks)***

Total: 20 marks

QUESTION 5

a) (i) Differentiate with respect to x using the product rule,

$$y = (4x^3 + 6x^2)(3x^2 + 6x)$$ (***3 marks)***

(ii) Integrate $\int \sqrt{x}\, dx$

(3 marks)

b) Cubanco Company is a manufacturer of a prestigious product. The marginal cost function of the company is MC = 32x - 3182 (thousand GH¢) and its marginal revenue function is MR = 18 (thousand GH¢).

Required:

(i) Find an expression for profit.

(6 marks)

(ii) Find the output at which the profit is maximum when the fixed cost is 1000 (thousand GH¢).

(6 marks)

(iii) Also find the maximum profit.

(2 marks)

Total: 20 marks

QUESTION 6

(a) Describe the terms: **regression** and **correlation**.

(2 marks)

(b) A study conducted on the relationship between advertisement of a product of a company and total sales of the product on monthly basis for a particular year is given as follows:

Month	Advertisement (GH¢00)	Sales (GH¢00)	Month	Advertisement (GH¢00)	Sales (GH¢00)
January	4	20	July	6	36
February	8	56	August	8	50
March	12	64	September	10	60
April	6	28	October	11	54
May	12	72	November	9	52
June	7	44	December	14	76

Required:

(i) Plot the scatter diagram to show the relationship between advertisement and sales.
(***3 marks)***

(ii) Find the least squares regression line of sales on advertisement and draw it on the graph.
(8 marks)

(iii) Estimate sales if the company advertised to the tune of GH¢1,600.
(2 marks)

(iv) Calculate the product moment correlation coefficient between advertisement and sales. Comment on your result.
(5 marks)

Total: 20 marks

QUESTION 7

a. Explain the following terms relating to Network analysis:

(i) Free float ***(2 marks)***

(ii) Independent float ***(2 marks)***

b. The following table gives data on a simple project.

Activity	Preceding Activity	Normal Duration (Days)	Schedule Cost (GH¢)	Crush Duration (Days)	Schedule Cost (GH¢)
A	-	4	400	3	600
B	-	2	200	2	200
C	-	7	700	4	1,200
D	A	3	250	3	250
E	D	2	100	2	100
F	B,J	6	500	6	500
G	C	3	300	1	400
H	E, F, G	5	160	5	160
J	A	5	160	5	160

Required:

(i) Draw a network diagram to represent the normal schedule of activities of the project.

(4 marks)

(ii) Determine the critical path and the average cost per day of the project for a normal schedule.

(4 marks)

(iii) Determine the free float of activity G.

(***2 marks)***

(iv) Using additional information from the crush times and costs, determine the duration and cost of the project.

(***6 marks)***

Total: 20 marks