THE INSTITUTE OF CHARTERED ACCOUNTANTS (GHANA)

MAY 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 booklets

PART A: MANAGEMENT ACCOUNTING

Attempt ALL Questions in this section
NB: Use a separate answer Booklet(s) for Part A

QUESTION 1

Nyameye Block Factory is a concrete block moulding factory at Asukwa in Kumasi that manufactures concrete blocks for sale. The blocks are manufactured in a process which requires the following standard mix:

Material	Quantity	Price (GH¢)	Amount (GH¢)
Sand (A)	4 kg	0.5 per kg	2.00
Cement (B)	3 kg	1.2 per kg	3.60
Stones (C)	10 kg	0.05 per kg	0.50

The standard mix requires 2.5 hours of Labour at a rate of GH¢0.80 to produce 100 pieces of concrete blocks. Variable overhead (100 KWh of electricity) is expected to be GH¢0.40 per standard mix. Each standard mix produces 100 pieces of concrete blocks and is sold at GH¢0.10 a piece.

During the month of April 2008, 60 mixes were processed. The actual output was 6,400 pieces of concrete blocks and was sold at GH¢633.60 from an input of:

Material	Quantity	Price (GH¢)	Amount (GH¢)
Sand (A)	300 kg	0.45 per kg	135.00
Cement (B)	150 kg	1.30 per kg	190.00
Stones (C)	720 kg	0.05 per kg	36.00

Employees worked for 162 hours, but 170 hours were paid for at a total cost of GH¢153.00. Variable overhead (electricity) was at the rate GH¢0.45 per KWh and amounted to GH¢24.30.

Required:

(a) Calculate the following variances:
- (i) Sales margin volume and sales price variances. (***4 marks)***
- (ii) Price, mix and yield variances for each material. (***10 marks***)
- (iii) Labour rate, labour efficiency and idle time variances. (***3 marks***)

(b) Suggest possible explanations for the following variance:
- (i) Material price, mix and yield variance. (***3 marks)***

***(*Total: 20 marks)**

QUESTION 2

Zoomlion Company Ltd, a plastic waste management company is planning to acquire an ultra-modern waste conveyance truck called the "Zooming Bebe" at a cost of GH¢21,200.

It is estimated that the truck will have a life of 5 years, after which it will have a realizable value of GH¢2,400 before selling expenses of GH¢100.

Initial estimates indicate that 80,000 tonnes will be conveyed in the first year, rising by 10% per year until year 5. However, the price charged per tonne will remain fixed at 94Gp.

Running and maintenance costs are expected to be GH¢860 in the first year (excluding depreciation expenses) and to increase in line with inflation at 10% over the years. Each tonne is processed to meet environmental protection standards at 74 Gp.

Zoomlion is in a 25% corporate tax bracket and taxes are paid one year in arrears. Capital expenditure is eligible for 20% capital allowances on a reducing balance basis, and proceeds from the disposal of assets are subject to tax.

Required:

(a) Using an 18% after-tax cost of capital, advise the management of Zoomlion Company Ltd whether the acquisition of the ultra-modern truck should go ahead.
(***16 marks***)

(b) Explain **four (4)** behavioural principles that may be relevant in managerial performance evaluation. (***4 marks)***
(**Total: 20 marks**)

QUESTION 3

Omega Group of Companies has two companies, Alpha Ltd, which is operating at 50% capacity and Beta Ltd, which is operating at full capacity (7,000 production hours).

Beta Ltd produces two products, Radio and TV, using the same labour force for each product. For the next financial year its budgeted capacity involves a commitment to the sale of 3000 Units of TV, the remainder of its capacity being used on Radio.

Direct costs of the two products are:

	Radio	TV
	GH¢/Unit	GH¢/Unit
Direct materials	180	140
Direct Wages	150	100
	(1 Production Hour)	(⅔ Production Hour)

The company's overheads is GH¢1,260,000 per annum relating to Radio and TV in proportion to their direct wages. At full capacity, GH¢700,000 of this overhead is variable. Beta Ltd prices its products with a 60% mark-up on its total costs.

For the coming year, Alpha Ltd wishes to buy from Beta Ltd 2000 Units of Radio, which it proposes to re-brand and sell as Beta Radio for GH¢1, 000 per unit. The direct costs of the re-branding are GH¢150 per unit. Alpha Ltd's total fixed costs will not change, but a variable overhead of GH¢20 per unit will be incurred.

Required:

(a) List and explain **three (3)** major methods of establishing transfer prices.
(***6 marks***)

(b) As group management accountant, recommend at what range of transfer prices, if at all, 2000 units of radio should be sold to Alpha Ltd. (***14 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) Define each of the following decision rules indicating the type of people who would like to use them.

(i) maximax rule

(ii) maximum rule

(iii) minimax rule (***6 marks)***

(b) Wiriwiri is a freight company in Ghana. The company has to transport a container by road from Accra to Wa.

There are two routes that are viable. The Bolga route is longer but less dangerous than the Bamboi route. If the container reaches Wa successfully the company will receive a fee of GH¢15,000. Fuel and other direct costs incurred amount to GH¢6,000 on the Bolga route and GH¢4,500 on the Bamboi route. The propability that the vehicle carrying the container will be attacked and the container stolen is 0.2 on the Bolga route and 0.4 on the Bamboi route.

Wiriwiri receives no fees if the container is stolen on the way. The only savings made for the company is a reduction in fuel and other direct costs by one third. For some strange reasons, Wiriwiri does not insure its containers for such journeys.

Required:

(i) Draw a decision tree to represent the situation Wiriwiri faces. (***4 marks***)

(ii) Advise the company on the best course of action (i.e. the better route) (***6 marks***)

(iii) There are reports of armed incursions on the Kintampo – Tamale highway. As a result, the probability of the container being stolen on the Bolga route must be revised to 0.4.

Explain what effect, if any, this will have on the best course of action obtained in (ii) above. (***4 marks***)

(**Total: 20 marks**)

QUESTION 5

(a) Explain the term Time Series and give **two (2)** examples. (***3 marks)***

(b) Zapad Ltd manufactures a prestigious product. Below are Zapad's quarterly production figures (in Tonnes) for the period 2004 – 2007.

Year	Quarterly production			
	I	II	III	IV
2004	35	39	34	36
2005	35	41	37	40
2006	35	39	37	42
2007	40	46	38	45

Required:

(i) Draw the graph of the time series. (***5 marks)***

(ii) Using the method of moving averages, extract the trend. (***6 marks)***

(iii) Plot the trend figures on your graph in b (i) above. (***4 marks)***

(iv) Using your graph, project the trend figure for the first quarter of 2008. (***2 marks***)

(**Total: 20 marks)**

QUESTION 6

(a). A chemical manufacturer processes two chemicals, BOOM and ZOOM in varying proportions to produce three products, A, B and C. He wishes to produce at most 150 units of A, 200 unites of B and 60 units of C.

Each kilogram of BOOM yields 3 of A, 5 of B and 3 of C.
Each kilogram of ZOOM yields 5 of A, 5 of B and 1 of C.

One (1) kilogram of BOOM when used will result in a contribution to profit of GH¢400 and one (1) kilogram of ZOOM results in a contribution to profit of GH¢500.

Required:

(i) Formulate the linear programming problem using the following as decision variables:

x for quantity of BOOM (in kg)
y for quantity of ZOOM (in kg) (***5 marks)***

(ii) Construct the initial simplex tableau using the following as slack variables.

S_1, slack for product A
S_2, slack for product B
S_3, slack for product C (***4 marks)***

(iii) Write down the variable that will leave and the variable that will enter the basis in the first iteration. (***3 marks)***

(b) The final simplex tableau to the LP above is shown below:

Basis	x	y	S_1	S_2	S_3	Solution
y	0	1	0.25	0	-0.25	22.50
S_2	0	0	-7.50	1	-7.50	25
x	1	0	-0.08	0	0.42	12.50
	0	0	91.67	0	41.67	16250

Required:

(i) Identity the optimum solution and the shadow prices of all the constraints.
(***5 marks***)

(ii) The costs of producing products A, B and C are GH¢100, GH¢90 and GH¢30 respectively. Is it economically viable to produce any extra unit of these products at the optimum level? (***3 marks*****)**
(**Total: 20 marks)**

QUESTION 7

a) State **two (2)** assumptions associated with inventory models. (***2 marks)***

b) Explain **two (2)** purposes for keeping an inventory. (***2 marks)***

c) Deedee Enterprise is a retail shop that sells 25,000 packets of Amala sweets annually. The supplier of the sweets to Deedee is offering a quantity discount.

The price list and quantities are given below:

Quantity (packets)	Price (GH¢) per packet)
1 – 999	25
1000 - 1999	24
2000 – 2499	22
2500 and over	20

It costs Deedee GH¢20 to place an order for Amala sweets from the supplier. Inventory carrying cost is 20% of the value of the item.

Required:

(i) Find the EOQ for each price level and indicate its feasibility (***9 marks***)

(ii) Calculate the total cost (Purchase cost + Inventory cost) of all quantity levels. (***5 marks)***

(iii) Determine the optimal purchasing policy for Deedee Enterprise. (***2 marks)***

(**Total: 20 marks)**