

**THE INSTITUTE OF CHARTERED
ACCOUNTANTS (GHANA)**



NOVEMBER 2006 EXAMINATIONS
(PROFESSIONAL)

PART 2

MANAGEMENT ACCOUNTING & CONTROL
(Paper 2.2)

Attempt five (5) 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

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

QUESTION 1

- (a) Mr. Kofi Nti is a young graduate who has just qualified and has been admitted into ICA membership. He has inherited ₵50 Million in his grandfather's estate and he intends to invest in either of two projects. A consulting firm, Quest and Associates Ltd., provided the following information on the cash flow of the two projects.

	Project A	Project B
	₵'million	₵'million
Initial outlay	5,000	5,000
<u>Net cash inflow:</u>		
Year 1	2,600	1,800
Year 2	1,500	2,000
Year 3	800	2,500
Year 4	600	2,800
Year 5	-	3,000

The initial cash outlay will occur immediately and the net cash inflows will arise at the end of each year.

Given that the cost of capital over the five year life span of the project is 12%.

You are required to:

- i) Outline the 2 merits and 2 demerits of the "Pay Back" method of capital investment appraisal. **(4 Marks)**
- ii) State 2 relative merits and 2 demerits of the net present value (NVP) method of investment appraisal over the pay back method. **(4 Marks)**
- iii) Assess the two projects above using:
- iii. a Pay Back period method. **(4 Marks)**
- iii. b Net Present Value (NPV) method. **(4 marks)**

- (b) The Nyato Clinic provides physiotherapy for 280 patients with other services. You are the management accountant responsible for the budgetary control information for the physiotherapy unit of the clinic.

Below is the budgetary control information for the physiotherapy unit. The budgetary control report is for the unit to the end of month nine of the annual budget. The financial year of Nyato Clinic ends on 31st March 2007.

**Physiotherapy Unit Monitoring Statement
For month-9 ending 31 December 2006**

	Annual Budget	Budget to Date	Expenditure To Date	Variance
	€	€	€	€
<u>Remuneration</u>				
Senior Doctors	180,000	135,000	145,000	-10,000
Junior Doctors	300,000	225,000	235,000	-10,000
Physiotherapists	150,000	125,000	147,000	-22,000
Nurses	80,000	60,000	62,000	-2,000
Administrator	18,500	13,875	14,550	-675
	728,500	558,875	603,550	-44,675
<u>Other Expenditure</u>				
Medical Supplies	450,000	337,500	258,000	79,500
Laundry and Toiletries	0	0	8,000	-8,000
Printing & Stationery	2,260	1,695	1,555	140
Repairs and Maintenance	6,000	0	4,500	-4,500
Travel	4,540	3,405	3,455	-50
Hospital Overheads	20,500	15,375	11,975	3,400
	483,300	357,975	287,485	70,490
Total Expenditure	1,211,800	916,850	891,035	25,815

On reviewing the statement you are concerned by the large under-expenditure, and you feel some investigation is necessary to verify the situation.

Your investigations established the following:

- i. An extra junior doctor has been taken on. This should have been included in the annual budget figures but has been omitted. The expected full cost is €60,000. The extra doctor commenced employment on 1 June 2006.
- ii. A 2.5% nursing pay award (which covers nurses) effective from the 1st April 2006 has not been incorporated into the budget. The staff have however received the award.
- iii. One of the two physiotherapists has been off on sick leave (on full pay) from 1st April 2006. An agency supplied a temporary replacement to maintain the numbers. The temporary staff has been on the payroll.
- iv. The Administrator post was vacant until 1st April 2006.

- v. All charges are allocated to budgets on a monthly basis except for laundry and toiletries, which it charges on an actual number of laundry services and toiletries ordered during each month.
- vi. The unit, charges each member an annual registration fee of ₺2,000.
- vii. The unit operating at full capacity, opens for 12 hours a day and 6 days a week and 52 weeks in a year and charges ₺500 per hour.
- viii. The unit during the period operated at 85% capacity.
- ix. 250 patients registered and used the facility during the period under review.

You are required:

I Produce a revised budgetary control statement taking into account your investigations.

(6 marks)

II Comment on the financial position of the unit and identify areas of concern and possible action to be taken.

(3 Mark)

(Total: 25 Marks)

QUESTION 2

- (a) Merban Company Limited manufactures a component which is finally assembled to its main product. The component is produced in two manufacturing stages. The normal annual production of the component is 50,000 units.

The following are the standard costs of performing the manufacturing stages:

<u>STAGE 1</u>	₺'000
Direct Materials	82,800
Direct Labour	110,400
Variable Overhead	55,200
Other overhead	47,840
	<u>296,240</u>

<u>STAGE 2</u>	₺'000
Direct Labour	73,600
Variable Overhead	44,800

Other Overhead	44,160
	<u>162,560</u>
Total cost of both stages:	458,800

The other overhead comprising both fixed and variable overhead is allocated as ₵36,800,000 plus 10% of direct labour cost.

The company will not require Stage 1 if components are brought from outside. The outsider will supply 50,000 units a year at ₵4,350 per unit. The company will have to pay freight of ₵10,000,000 per year on purchases. If the components are purchased, this will release space occupied for performing Stage 1. The opportunity cost of the space is ₵20,000,000 per year.

Required:

Advise management whether the component should be manufactured or bought from outsider. (5 Marks)

(b) Ghana Workers Company Ltd manufactures and sells three products with the following price structure:

	Tango	Fruity	Lemon
	₵/unit	₵/unit	₵/unit
Selling Price	3,000	2,450	4,000
Variable Costs	1,200	1,670	2,600

The company is considering expenditure on advertising and promotion of Tango Products. It is hoped that such expenditure, together with a reduction in the selling price of the product, would increase sales. Existing annual sales volumes of the three products are:

Tango	460,000 units
Fruity	1,000,000 units
Lemon	380,000 units

If ₵60 million per annum was to be invested in advertising and sales promotion, sales of Tango at reduced selling price would be expected to be:

560,000 units at ₵2,750 per unit or 650,000 units at ₵2,550 per unit.

Annual fixed costs are currently ₵1,710 billion per annum.

Required:

i) Calculate the current break-even sales revenue of the business.

(5 Marks)

ii) Advise the management of the company as to whether the expenditure on advertising and promotion, together with selling price reduction, should be introduced on Tango.

(5 marks)

- iii) Calculate the required unit sales of Tango, at a selling price of ₦2,750 per unit in order to justify the expenditure on advertising and promotion. **(5 marks)**

(Total: 20 Marks)

QUESTION 3

- (a) KASSAK is a manufacturing company that has specialized in the production of rain boots for both the international and domestic markets. They process raw rubber purchased from the local farmers. You have just been appointed as a management accountant in the company.

Required:

- i) Explain 2 criteria a good transfer policy should have. **(2 Marks)**
- ii) Explain 2 characteristics of negotiated transfer pricing policy. **(2 Marks)**
- iii) Explain the circumstances in which Marginal Cost should be used as the transfer policy. What impact will this pricing policy have on divisional autonomy? **(2 Marks)**
- (b) Explain the following terms as used in performance evaluation:
- i. Residual Income
- ii. Return on Investment **(4 Marks)**
- (c) Ojera Ltd uses return on Investment (ROI) to assess the performance of its divisions. The company has two divisions and below is a summary of the annual reports of the two divisions.

	<u>Division X</u>	<u>Division Y</u>
	₦'000	₦'000
Capital	16,800	28,000
Net Profit	3,360	5,040

The company's cost of capital is 15%.

Required:

- i. Which of the two divisions is more profitable? **(2 Marks)**
- ii. Calculate the Residual Income of the two divisions and indicate which is better.

(3 Marks)

(Total: 15 Marks)

PART B

Attempt ANY Two (2) Questions

NB: Use a SEPARATE answer booklet(s) for this Section

QUESTION 4

a) Differentiate the following functions using the stated rules.

(i) $y = (x^2 + 2)^3$ (Chain's Rule)

(ii) $y = (x + 1)(2x + 3)$ (Product Rule)

(iii) $y = \frac{2x}{x^2 - 1}$ (Quotient rule)

(6 marks)

b) The marginal revenue (MR) of ZIAD Manufacturing Co., for its product is $(600 - 12Q)$ million cedis, where Q is the number of units sold. The Marginal Cost (MC) of the Company is given as $(3Q + 15)$ million cedis. The company has an overhead cost (Fixed Cost) of $\text{¢}45$ million. You have been engaged as a management consultant of the company to find and advise the company on the following:

- i) The exact expressions for Total Revenue (TR) and Total Cost (TC). **(4 Marks)**
- ii) An expression for profit (P). **(3 Marks)**
- iii) The quantity that must be produced and sold to maximize profit. **(3 Marks)**
- iv) The price at which profit is maximized. **(3 Marks)**
- v) The maximum profit **(1 Mark)**

(Total: 20 Marks)

QUESTION 5

a) Briefly describe the terms:

- i) Additive model
- ii) Multiplicative model as applied to time series analysis

(4 Marks)

b) Western Rubber Company sells tyres. Sales of Western Rubber Company for the last 11 three month periods are given below:

Year Quarter	2004				2005				2006		
	1	2	3	4	1	2	3	4	1	2	3
Output	36	75	84	96	119	134	119	120	140	150	132

Required:

- i) Using the method of moving averages, extract the trend. **(4Marks)**
- ii) Calculate the average seasonal variation (use the additive model). **(2 Marks)**
- iii) Calculate the average trend movement. **(2 Marks)**
- iv) Forecast sales for the next three periods. **(2 marks)**

c) The following table shows the observations of the ages (X) in years of 12 patients and their systolic blood pressures (Y) at a clinic on a day:

Age (X)	56	42	72	36	63	47	55	49	38	42	68	60
Blood Pressure (Y)	147	125	160	118	149	128	150	145	115	140	152	155

- i) Calculate the Product Moment Correlation Coefficient and interpret your results. **(3 marks)**
- ii) Determine the least square regression equation of Y on X. **(3 Marks)**

(Total: 20 Marks)

QUESTION 6

- (a) State two (2) assumptions employed in the basic static model for the management of inventory of a single product.

(2 Marks)

- (b) Bookay enterprise is a trading company. The company holds one item of stock, demand for which is at the rate of 4000 units per annum. The cost of holding (carrying) one item of stock for one year is 20% of item price.

There is a fixed charge (Order Cost) of ₵40,000 per order. The basic price of the item is ₵10,000.

Bookay's supplier will charge a price per unit supplied that depends on the number ordered each replenishment. Details are:

For order quantities	800 - 1599	less 2%
	1600 - 3199	less 4%
	3200 and over	less 5%

Required:

What size of replenishment order should Bookay place?

(8 Marks)

- (c) List three approaches in defining probability.

(1½Marks)

- (d) Bush & Forest Associates, an accounting firm, received supplies of calculators from three sources A, B & C. Sixty percent of the calculators came from A, 30% came from B and 10% came from C. It is found from experience that 10% of the calculators supplied by A are defective, 2% of those supplied by B are defective and 1% of those supplied by C are defective.

Required:

- i) If a calculator is picked at random, what is the probability that it comes from A?

(1 mark)

- ii) Calculate the probability of picking a calculator that came from A and is defective.

(2 Marks)

- iii) If a calculator picked at random, is first examined and is found to be defective what then is the probability that it came from A?

(3 Marks)

- (e) GLOBAL, is an old-established firm. The firm wishes to go public, by trading on the Ghana Stock Exchange. It has been reported that eighty percent of the stockbroking firms are recommending the issue to their clients. Five (5) stock broking firms have been selected at random to know their view on GLOBAL's initial public offer.

Required:

Find the probability that at least 3 of them are recommending the purchase of this issue to their clients.

(2½ Marks)

(Total 20 Marks)

QUESTION 7

A construction company plans to submit a bid on a KVIP construction project for a district in the Western Region. In preparing the estimates, it has put together the following information:

Activity	Preceding Activity	Normal Operations		Crash Operations	
		Time (weeks)	Cost (€'000)	Time (weeks)	Cost (€'000)
A	-	5	10,000	3	12,000
B	-	10	15,000	7	24,000
C	A,B	11	15,000	5	18,000
D	B	6	5,000	8	6,500
E	B	8	3,000	4	9,000
F	C,D	9	12,000	8	14,000
G	F	12	6,000	8	9,000

The Regional Minister wants the project to be completed early before the forthcoming district elections.

Required:

- a) Using only normal operations, determine the critical path, the duration and cost of the project.
(8 Marks)
- b) What is the minimum time possible to complete the project and at what cost?
(6 Marks)
- c) What is the least cost associated to the minimum time possible?
(6 Marks)

(Total: 20 Marks)