

THE PUBLIC ACCOUNTANTS EXAMINATIONS BOARD

A Committee of the Council of ICPAU

CPA(U) EXAMINATIONS

LEVEL TWO

MANAGEMENT DECISION AND CONTROL - PAPER 10

WEDNESDAY, 10 DECEMBER 2008

INSTRUCTIONS TO CANDIDATES:

1. Time allowed: **3 hours**
2. Section **A** has **one** compulsory question carrying 30 marks.
3. Section **B** has **four** questions and only **three** questions are to be attempted. Each question carries 20 marks.
4. Section **C** has **two** questions and only **one** question is to be attempted. Each question carries 10 marks.
5. Please read further instructions on the answer book.

SECTION A

Question 1

- (a) Ben Muhindo operates a moulding company whose main products are the standard pre-formed windows for housing estates. A worker who is paid Shs 9,000 per hour, can produce two windows an hour. Each window uses material and glass costing Shs 10,000 and incurs a variable overhead cost of Shs 7,000 per hour. Each window sells for Shs 30,000. At present, owing to the adverse economic conditions, work is rather slack and three of Ben's employees are occupied in carrying out extensive repairs to his own house. Ben also owns a warehouse next to the factory, which has been used as a factory store in the past. Today it is set to be let out on a renewable annual lease of Shs 6m for storage to Sekandi Enterprises.

A new building company which specializes in the construction prefabricated houses has asked Ben if he would be interested in accepting a contract for Shs 300 million, which will be initially for a year, to produce moulded internal building sections. Ben estimates that the work would take 13,200 hours, or the work for five men a year and that variable overheads would be Shs 100m. The work could be carried out in the factory, but because of the large amount of space needed it would have to displace 9,600 hours of existing work. He estimates that the material required for the contract would cost Shs 60 million.

Alternatively the work could be carried out in the warehouse; the lease is due to be renewed next December anyway. Ben believes this would incur an extra cost of Shs 3 million for heating and the cost of power would be increased by Shs 5 million. He would have to hire two new workers and pay them Shs 22 million each per annum. The other three men would be those presently repairing Ben's house. These are paid Shs 77 million per annum in total and it would cost Shs 25 million to get an outside contractor to finish the house repairs.

Required:

- (i) Advise Ben on whether to accept the contract. The advice should be supported by relevant computations.

(10 marks)

- (ii) What would be the longer-term implications of the decision in (i) above to Ben's business?

(5 marks)

- (b) Aquila Co. Ltd manufactures two models of pocket calculators. A unit of the basic model sells for Shs 5,000, has a direct material cost of Shs 1,250 and requires 0.25 hours of labour to produce. A unit of the other model, the scientist, sells for Shs 7,500, has a direct material cost of Shs 1,630 and takes 0.375 hours to produce. Labour, which is paid for at a rate of Shs 6,000 per hour, is currently very scarce, but the demand for the calculators is high. The company is currently producing 8,000 units of the basic model and 4,000 of the scientist model per month. Fixed costs are Shs 24 million per month.

A foreign customer has offered the company a contract worth Shs 35 million for a number of calculators made to its specifications. The Production department has ascertained the following facts in respect of the contract:

- Labour hours for the contract would be 1,200.
- The material cost would be Shs 9 million plus the cost of a particular component not normally used in the company's models.
- These components could be purchased from a supplier for Shs 2.5 million or they could be made internally at a material cost of Shs 1 million and an additional 150 labour hours.

Required:

Advise the management of Aquila Co. Ltd as to whether they should accept the contract from the foreign customer.

(15 marks)

Total 30 marks)

SECTION B

Question 2

Dembelyo Company Ltd deals in the processing of maize flour. It has a demand of 250 tonnes of maize grain per annum. It takes 4 days to receive a batch of maize grain from suppliers and usage during lead time from past records is given on the table below:

Usage in lead time (Tonnes) Probability

0	0
1	0.01
2	0.05
3	0.15
4	0.25
5	0.30
6	0.10
7	0.09
8	0.05

The cost of maize grain per tonne is Shs 10 million and the stock holding cost is 30% per annum. The delivery cost per batch of maize grain is estimated at Shs 400,000. The cost of a stock out is estimated to be Shs 4 million.

Required:

- Calculate the economic batch quantity and the expected number of orders per annum.
(5 marks)
- Ascertain the optimum re-order level taking the information given above into consideration.
(10 marks)
- Describe the "ABC" analysis as used in inventory control and give **two** advantages and **two** disadvantages of its use.
(5 marks)

(Total 20 marks)

Question 3

In November 2007 the students of Moto Business College (MBC) agreed to hold an end of year party. It was to be held after the December 2007 examinations. A committee was set up to plan and make a budget for the party. Many types of drinks were planned for including punch. Punch is a popular drink with the students of MBC; it is a mixture of waragi and crest soda.

From experience, a standard mixture was agreed upon; a five-litre jerrycan of punch is normally produced using four litres of crest soda and two litres of waragi.

The standard cost of five litres of punch agreed upon in November was as follows.

In put	Volume Litres	Price per litre Shs	Amount Shs
Crest soda	4	1,000	4,000
Waragi	2	8,000	<u>16,000</u>
			<u>20,000</u>

Kapere, a CPA (U) student who was sitting for MDC - Paper 12, was put in charge of drinks for the party. He bought eight litres of crest soda at Shs 1,200 per litre and six litres of waragi at Shs 7,000 per litre. Out of these, he produced 10 litres of punch.

The committee put Kapere to task to explain why he had used more money and bough more inputs than had been agreed upon before the party.

Required:

Assume you are Kapere.

Define and calculate each of the following variances for the inputs as part of your explanation to the committee:

- (a) price variance.
- (b) usage variance.
- (c) mix variance.
- (d) yield variance.

(20 marks)

Question 4

- (a) Briefly explain the meaning of the terms 'activity-based costing' and 'cost driver'.

(5 marks)

- (b) Kitenge Manufacturers Ltd manufactures a single product with a production cost of Shs 45,000 per roll of kitenge cloth material. The rolls are sold to three different distributors as shown below:

Distributor	Rolls per annum
A	20,000
B	20,000
C	20,000

All sales are made at Shs 200,000 per roll.

Kitenge Manufacturers Ltd apportions non-production overhead cost on the basis of a rate on the production cost. The non-production overhead costs are summarized below:

	Shs '000'
After sales service	200
Quality inspection	400
Delivery	440
Salesmen's commissions	<u>160</u>
Total	<u>1,200</u>

The Finance Manager has expressed dissatisfaction with the selling price, arguing that it is not appropriate to sell the product to different distributors at the same price because the company incurs different costs when dealing with different distributors. He has, therefore, asked for an analysis of costs based upon activity-based costing (ABC) method.

The accountant has provided the following activity volumes for period:

	Distributor		
	A	B	C
Number of deliveries	5,000	200	30
After sales visits	400	0	600
Number of inspections	19,000	1,000	0
Number of salesmen visits	200	30	20

Required:

- (i) Using ABC principals, calculate the total costs of selling the product to each distributor and determine the resulting profit or loss.
(8 marks)
- (ii) Comment on the results of your answer in b (i) above.
(2 marks)
- (c) Kitenge Manufacturers Ltd wishes to introduce activity-based budgeting, instead of the zero-based budgeting system currently in use.

Required:

List and explain the advantages of activity-based budgeting.

(5 marks)

(Total 20 marks)

Question 5

Quaro Chemicals Limited, a newly incorporated company, is developing compounds for use in the agricultural sector. The product codes for the three products are Cedar 1 simply known as X1, Cedar 2 simply known as X2 and Cedar 3 simply known as X3.

Their related information is summarized as below:

- (a) Chemical constituents: Percentage of makeup per tonne.

	Sodium	Phosphate	Potash	Filler
X1	10	10	20	60
X2	10	20	10	60
X3	20	10	10	60

- (b) Maximum available input in tonnes per month:

	Tonnes
Sodium	1,200
Phosphate	2,000
Potash	2,200
Filler	No limit

- (c) Selling prices of fertilizer (per tonne):

	Shs '000
X1	83
X2	81
X3	81

- (d) Input prices per tonne:

	Shs '000
Sodium	150
Phosphate	60
Potash	120
Filler	10

Required:

- (a) Formulate the above data into a linear programme with the objective as the maximization of contribution.

(5 marks)

- (b) Construct the initial simplex tableau.

(5 marks)

(c) The final matrix of the simplex solution is given as below

Basic Variables	X1	X2	X3	X4	X5	X6	Solution
X1	1	0	3	20	-10	0	4,000
X2	0	1	-1	-10	10	0	8,000
X6	0	0	-0.4	-3	1	1	600
Z	0	0	22	170	40	0	284,000

Interpret the matrix and specify its significance with respect to the new product development.

(10 marks)

(Total 20 marks)

SECTION C

Question 6

The Chief Executive Officer of a leading telecommunications company in Uganda is confused about business process re-engineering and process innovation, and the role of information technology in each of these techniques.

Required:

Write a memorandum to the Chief Executive Officer explaining the role of information technology in:

- business process re-engineering.
- process innovation.

(10 marks)

Question 7

In his address to the staff of Diraw Group of Companies at the annual staff party, the Chief Operations Officer (COO) stated the following:

"... In the forthcoming year, we need to perform a value chain analysis in addition to benchmarking, look at our just-in-time solutions and then if possible carry out business process re-engineering."

The General Manager of Customer Services has not understood the COO's message because of the terms used in his speech. He has come to you to explain to him those terms and their aims.

Required:

Write a memorandum to the General Manager of Customer Services explaining the following terms used in the COO's speech:

- value chain analysis.
- benchmarking.
- just-in-time.

(10 marks)