

THE PUBLIC ACCOUNTANTS EXAMINATIONS BOARD

A Committee of the Council of ICPAU

CPA(U) EXAMINATIONS

LEVEL TWO

MANAGEMENT DECISION AND CONTROL - PAPER 10

WEDNESDAY, 17 JUNE 2009

INSTRUCTIONS TO CANDIDATES:

1. Time allowed: **3 hours 15 minutes.**
The first 15 minutes of this examination have been designated for reading time. You may not start to write your answer during this time.
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

Tech Soft (U) Ltd is a newly formed company offering ICT services, consultancy, hardware maintenance and related solutions. The company has heavily invested in start-up infrastructure worth many millions in ICT facilities with estimated useful life of 5 years. As a result, the company is experiencing working capital problems. In particular, the company has been unable to determine its temporary cash needs on a timely basis. Consequently, it has had to obtain short term credit facilities at less than favorable terms. Therefore, the company wants to design a mechanism of forecasting their cash needs in advance so as to eliminate cash shortages. A review of cash flows indicates all factors can be adequately predicted except for hourly payroll and other expenses.

The company's accountant has advised that:

- most of the customers pay upfront for their services, so cash receipts can be determined accurately.
- materials to be used during the month are purchased one month in advance with the exception of June 2010 where the raw material purchases will be equal to that of May 2010. This will help in the accuracy of forecasting the payments for raw materials.
- payments for monthly fixed obligations such as lease payments and salaried staff are well known in advance of the payment dates.

A business analyst has been engaged in an attempt to improve forecast cash requirements for the next month. The company has conducted a statistical analysis of many possible variables that might be suitable as a basis for forecasting the expenditure for payroll and other items. This analysis has revealed a high correlation between advance sales orders received in a month and the expenditure in the next month. The following relationships, which are useful for cash forecasting have been identified:

1. N = the forecast month.
2. Collections on account; $C_N = 0.9S_{n-1} + 0.15S_{n-2}$, where S = sales.
3. Payments for raw materials purchases; $D_n = R_{n-1}$, where R = raw materials purchases.
4. Monthly fixed obligations; $F_N = \text{Shs } 1,000,000$.
5. Payroll and other expenditure; $P = 0.25A_{n-1} + 175,000$, where A = advance sales orders.
6. $n-1$ = sales for the previous month; $n-2$ = sales for the month before the previous month.

Required:

- (a) Estimate the change in the cash balance for June 2010 using the relationship specified above and the following data:

	Sales	Raw materials purchases	Advance sales orders
Month	Shs million	Shs million	Shs million
February 2010	2,000	500	2,500
March 2010	3,250	750	3,062.5
April 2010	3,000	1,000	2,625
May 2010	2,500	875	3,500

(7 marks)

- (b) Using the data in (a) above, prepare a cash budget for Tech Soft (U) Ltd and budgeted profit and loss statement for the three months period of April to June 2010.

(15 marks)

- (c) How could management use the information obtained in (b) above to evaluate alternative plans to reduce short-term borrowing?

(8 marks)

(Total 30 marks)

SECTION B

Question 2

Peter Acidri is an aggressive entrepreneur dealing in fast-moving consumer goods. He uses the economic order quantity model which assumes no stock-outs to determine the optimal order quantity in order to minimize costs. To meet his customer needs, he predicts that annual demand will be 2,000 units. Each unit will cost Shs 2,565 and the incremental cost of processing each order will be Shs 3,819. He also estimates the incremental cost of storage to be Shs 342 per unit per annum. Acidri has further assumed that the inventory cycle precisely repeats every year.

Required:

- (a) Using the economic order quantity model, determine the optimal order quantity.
(2 marks)
- (b) What are the total relevant costs of inventory from the policy in (a) above?
(4 marks)
- (c) Suppose that Acidri has incorrectly predicted the Shs 3,819 incremental cost per order but has been precisely correct in all other predictions, state and solve the equation to predict the maximum amount Acidri should pay to discover the true incremental cost per order if:
 - (i) this true cost is Shs 1,881 per order and
 - (ii) in the absence of any knowledge to the contrary, Acidri will implement the solution.
(6 marks)
- (d) Assume that Acidri implements the solution in (a) above for two years. Assume also that all his initial predictions were correct except that the actual incremental cost of storage per annum is Shs 1,140 per unit.

Required:

State the equation to determine the cost of prediction error of not changing his inventory policy at the beginning of the second year, if it costs Acidri a total of Shs 228 to alter his inventory policy.

Note: $EOQ = \sqrt{\frac{2CoD}{CH}}$

(8 marks)
(Total 20 marks)

Question 3

Ujinga (U) Ltd is a local company that exports a range of products to the United States and European Union markets. However, the current economic crisis has forced the company's senior management to review its costs in order to rationalize its operations. Ujinga (U) Ltd's products have an average contribution/sales ratio of 30% on current prices. The chief finance officer has stated that currently fixed costs are Shs 150 million per year and estimates are being prepared for the next budget period for which the following have been forecast:

Sales (at current prices) Shs million	Probability
400	0.2
700	0.7
900	0.1

Inflation rate for the next budget period	Probability
12%	0.3
6%	0.5
2%	0.2

The inflation rate is expected to affect all variable costs and 60% of the fixed costs. The company anticipates being able to raise selling prices in line with inflation without losing sales. The probabilities shown are independent.

Required:

- Prepare a table of all possible results and calculate the probability of breaking even.
(8 marks)
 - Calculate the probability of making at least a Shs 70 million profit.
(2 marks)
 - Describe the problems created in standard costing systems by the volatility of sales, costs and inflation rates with specific reference to the interpretation of variances.
(5 marks)
 - Briefly explain possible solutions to the problems you have outlined in your answer to (c) above.
(5 marks)
- (Total 20 marks)**

Question 4

Mazewo Engineering Ltd produces three kinds of bikes, the 100K Tiger, 20K Tiger and 5K Tiger. The following information relates to the period ending 31 May 2009.

The unit cost data per bike are as follows:

Bike	100K Tiger Shs '000'	20K Tiger Shs '000'	5K Tiger Shs '000'
Direct materials	200	300	200
Variable processing costs	400	150	100
Fixed processing costs	100	200	100

The wholesale prices of the bikes are as follows:

	Shs '000'
100K Tiger	1,000
20K Tiger	650
5K Tiger	400

The bikes undergo two production processes, i.e. assembling and finishing and the number of hours per bike for each process are:

	100K Tiger	20K Tiger	5K Tiger
Assembling	2	3	2.5
Finishing	3	2	2

For the period ending 31 May 2009 only 1,920 hours for assembling and 2,200 hours for finishing are available. Also, due to increasing competition, the sales for the 100K Tiger for the period will be only 200 bikes.

The stated objective of Mazewo Engineering Ltd in this period is to maximize contribution.

Required:

- (a) Formulate the information into a linear programming model to help the management of Mazewo Engineering Ltd in their decision making. **(5 marks)**
- (b) (i) Briefly explain the term 'shadow price' as used in linear programming.
(ii) Formulate (but do not solve) the initial simplex tableau. **(5 marks)**
- (c) Interpret the final simplex tableau below:
- | | X1 | X2 | X3 | X4 | X5 | X6 | Solution |
|----|----|----|-------|-------|----|-------|-----------|
| X2 | 0 | 1 | 0.83 | 0.33 | 0 | -0.67 | 506.7 |
| X5 | 0 | 0 | 0.33 | -0.67 | 1 | -1.67 | 586.7 |
| X1 | 1 | 0 | 0 | 0 | 0 | 1 | 200 |
| Z | 0 | 0 | 66.67 | 66.67 | 0 | 266.7 | 181,333.8 |

(5 marks)

- (d) Determine what an increase of 30 hours of assembly time will have on the overall contribution for Mazewo Engineering Ltd.

(5 marks)

(Total 20 marks)

Question 5

Robert Musiwufu is a leading concert promoter/organizer who enters into arrangements with leading musicians to help them sell tickets for their concerts in return for a discount. He makes his profits on the difference between the discounted tickets bought from the musicians and the actual prices of tickets sold to concertgoers. This arrangement is that he receives discounts according to the number of tickets purchased as follows:

No. of tickets purchased	Discount received (%)
200	20
300	25
400	30
500	40

The average price per ticket is Shs 3,000 and tickets must be purchased in hundreds.

Robert must purchase the tickets in advance to be able to qualify for the discount. However, should he be unable to sell the tickets within a week to the holding of the concert, he must return them to the music group who will sell them at the gates on the dates of the concert. For those tickets sold at the gates, Robert receives only 10% of their gate price.

His records show that for the popular artistes he can sell 500 tickets; for the less popular artistes, he can sell 350 and for the upcoming artistes, he can sell 200 tickets. In addition, only 10% of the tickets he takes back are sold at the gates on the day of the concert.

There are two possible scenarios in which his ticket sales can be viewed.

Scenario 1: On average, he can expect to promote concerts with less popular artistes.

Scenario 2: The probability of the concerts will be as follows:

Artistes	Probability (%)
Popular	45
Less popular	30
Upcoming	<u>25</u>
	<u>100</u>

Required:

Calculate separately for each scenario 1 and 2, the:

- (a) expected demand for tickets per concert. **(4 marks)**
- (b) (i) level of Robert's purchases of tickets per concert that will give him the largest profit. **(8 marks)**
- (ii) profit per concert that the level of purchases of tickets in (i) above will yield. **(8 marks)**

(Total 20 marks)

SECTION C

Question 6

Since the global economic crisis started a year or so ago, some reputable and renown companies the world-over have closed. In one company in the United States of America, local shareholders have been affected mostly. One major shareholder, Mr. P.J Byoona has got concerned about the performance of his firm and has requested management to hire a team of consultants to review the operations of the company.

Mr. Global, a leading management consultant recently introduced to him the concepts of 'principal-agent paradigm', 'executive contracts' and 'share incentive plans' that Mr. Global believes are at the centre of the collapse of most companies in the United States.

Mr. P.J. Byoona had dismissed these terms outright as mere "analysis- paralysis" of management consultants that they use to charge a lot of fees and get rich at shareholders' expense.

Required:

Write a report to Mr. P.J. Byoona providing specific responses to the following queries raised:

- (a) Explain **five** actions that the management of a company may take to increase reported earnings through actions that do benefit the firm but may not increase the value of the firm.
(5 marks)
 - (b) The role the Board of Directors of Mr. P.J. Byoona's company may play in offsetting potential limitations of executive incentive plans.
(5 marks)
- (Total 10 marks)**

Question 7

- (a) Explain the term 'zero-based budgeting'.
(2 marks)
 - (b) Give **four** advantages and **four** disadvantages of zero-based budgeting.
(8 marks)
- (Total 10 marks)**