ZCAS University

BAC2202 MANAGEMENT ACCOUNTING

TEST

TUESDAY, 17TH OCTOBER 2023

12:30 – 15:30

TIME ALLOWED: THREE HOURS (plus 5 minutes to read through the paper)

INSTRUCTIONS:

1. Section A: this question is **compulsory** and must be attempted.
2. Sections B: Answer Three (3) questions from this section.
3. This question paper carries a total of **100 marks**.
4. Candidates must **not turn this page** until the invigilator tells them to do so.

SECTION A: Question 1 is compulsory and must be attempted

Question 1

Yam Co is involved in the processing of sheet metal into products A, B and C using three processes, pressing, stretching and rolling. Like many businesses Yam faces tough price competition in what is mature world market.

The factory 50 production lines each of which contain the three processes: Raw material for the sheet metal is first pressed then stretched and finally rolled. The processing capacity varies for each process and the factory manager has provided the following data:

Processing time per metre in hours

	Product A	Product B	Product C
Pressing	0.50	0.50	0.40
Stretching	0.25	0.40	0.25
Rolling	0.40	0.25	0.25

The factory operates for 18 hours each day for five days per week. It is closed for only two weeks of the year for holidays when maintenance is carried out. On average one hour of labour is needed for each of the 225,000 hours of factory time. Labour is paid at K10 per hour.

The raw materials cost per metre is K3.00 for product A, K2.50 for product B and K1.80 for product C. Other factory costs (excluding labour and raw materials) are K18,000,000 per year. Selling prices per metre are K70 for product A, K60 for product B and K27 for product C.

Yam carries very little inventory.

Required:

(a) Identify the bottleneck process and briefly explain why this process is described as a bottleneck. **(6 marks)**

(b) Calculate the throughput accounting ratio (TPAR) for each product assuming that the bottleneck process is fully utilised. **(16 marks)**

(c) Assuming that the TPAR of product C is less than 1:

(i) Explain how Yam could improve the TPAR of product C. **(8 marks)**

(ii) Briefly discuss whether this supports the suggestion to cease the production of product C and briefly outline three other factors that Yam should consider before a cessation decision is taken. **(10 marks)**

(Total: 40 marks)

SECTION B: Attempt any THREE questions in this section

Question 2

The Cosmetic Co is a company producing a variety of cosmetic creams and lotions. The creams and lotions are sold to a variety of retailers at a price of K23.20 for each jar of face cream and K16.80 for each bottle of body lotion. Each of the products has a variety of ingredients, with the key ones being silk powder, silk amino acids and aloe vera. Six months ago, silk worms were attacked by disease causing a huge reduction in the availability of silk powder and silk amino acids. The Cosmetic Co had to dramatically reduce production and make part of its workforce, which it had trained over a number of years, redundant.

The company now wants to increase production again by ensuring that it uses the limited ingredients available to maximise profits by selling the optimum mix of creams and lotions. Due to the redundancies made earlier in the year, supply of skilled labour is now limited in the short term to 160 hours (9,600 minutes) per week, although unskilled labour is unlimited. The purchasing manager is confident that they can obtain 5,000grams of silk and 1,600 grams of silk amino acids per week. All other ingredients are unlimited.

The following information is available for the two products:

	Cream	Lotion
Material required: silk powder (at K2.20 per gram)	3 grams	2 grams
-silk amino acids (at K0.80 per gram)	1 gram	0.5 grams
-aloe vera (at K1.40 per gram)	4 grams	2 grams
Labour required: skilled (K12 per hour)	4 minutes	1.5 minutes.

Each jar of cream sold generates a contribution of K9 per unit, whilst each bottle of lotion generates a contribution of K8 per unit. The maximum demand for lotions is 2,000 bottles per week, although demand for creams is unlimited. Fixed costs total K1,800 per week. The company does not keep inventory although if a product is partially complete at the end of one week, its production will be completed in the following week.

Required:

(a) Calculate the optimum number of each product that the Cosmetics Co should make per week, assuming that it wishes to maximise contribution. Calculate the total contribution per week for the new production plan. All workings MUST be rounded to 2 decimal places.

(14 marks)

(b) Calculate the shadow price for silk powder and the slack for silk amino acids. All working must be rounded to 2 decimal places. **(6 marks)**

(20 marks)

Question 3

A ticket agent has an arrangement with a concert hall that holds concerts on 60 nights a year whereby he receives discounts as follows per concert:

For the purchase of:	He receives a discount of:
200 tickets	20%
300 tickets	25%
400 tickets	30%
500 tickets or more	40%

Purchases must be in full hundreds. The average price per ticket is K30.

He must decide in advance each year the number of tickets he will purchase. If he has any tickets unsold by the afternoon of the concert he must return them to the box office. If the box office sells any of these he receives 60% of their price.

His sales records over a few years show that for a concert with extremely popular artistes he can be confident of selling 500 tickets, for one with lesser popular artistes 350 tickets and for one with relatively unknown artistes 200 tickets.

His records show that 10% of the tickets he returns are sold by the box office. (Note: these are in addition to any sales made by the ticket agent).

His administration costs incurred in selling tickets are the same per concert irrespective of the popularity of the artistes.

Sales records show that the frequency of concerts will be:

With popular artistes	45%
With lesser-known artistes	30%
With unknown artistes	25%
	100%

Required:

(a) Calculate:

(i) The expected demand for tickets per concert

(ii) The level of his purchases of tickets that will give him the largest profit over a long period of time and the profit per concert that this level of purchases will yield.

(11 marks)

(b) Calculate the number of tickets the agent should buy, based on the following criteria:

(i) Maximin

(ii) Maximax

(iii) Minimax regret **(5 marks)**

(c) Advise the ticket agent. **(4 marks)**

(20 marks)

Question 4

(a) Find the linear relationship between price(P) and the quantity demanded (D) in relation to the following sales and demand data:

- selling price of $300 = sales of 500 units per month
- Selling price of $330 = sales of 400 units per month. **(8 marks)**

(b) Using the price equation in (a) and assuming the variable cost per unit is $90, calculate the optimum price and output. - **(8 marks)**

(c) Calculate the maximum contribution. **(4 marks)**

(20 marks)

Question 5

SY Company, a manufacturer of computer games, has developed a new game called the MANPAC. This is an interactive 3D game and is the first of its kind to be introduced to the market. SY Company is due to launch the MANPAC in time for the peak selling season.

Traditionally SY Company has priced its games based on the standard manufacturing cost plus selling and administration costs plus a profit margin. However, the management team of SY Company has recently attended a computer games conference where everyone was talking about life cycle costing, target costing and market-based pricing approaches. The team has returned from the conference and would like more details on the topics they heard about and how they could have been applied to the MANPAC.

Required:

As management accountant of SY Company:

(a) Discuss how the following techniques could have been applied to MANPAC:

(i) Life cycle costing.

(ii) Target costing **(8 marks)**

(b) Evaluate the market-based pricing strategies that should have been considered for the launch of the MANPAC and recommend a strategy that should have been chosen.

(6 marks)

(c) Explain briefly each stage in the product life cycle of the MANPAC and consider ONE issue that the management team will need to consider at each stage.

(6 marks)

(20 marks)

END OF TEST