
CERTIFIED PUBLIC ACCOUNTANT

ADVANCED LEVEL 2 EXAMINATIONS

A2.2: STRATEGIC PERFORMANCE MANAGEMENT

FRIDAY: 7 JUNE 2019

INSTRUCTIONS:

1. **Time Allowed: 3 hours 45 minutes** (15 minutes reading and 3 hours 30 minutes writing).
2. This examination has one case study.
3. Show all your workings.

Munyaneza, Kayitare and Associates (MKA) is a fast growing local firm of Certified Public Accountants located in Kigali. MKA was established in 2015 by Franco Munyaneza and Pierre Kayitare as partners with vast experience in audit and other assurance activities having practiced audit in the United States. MKA provides high quality services at affordable professional fees. MKA has one support department and three operational departments that is audit, taxation and business development.

Lately the business development department has become MKA's cash cow and currently it is overwhelmed by professional assignments from new clients. This department specialises in the provision of advisory services on organisational corporate strategy and helping businesses reduce costs, improve their top line level and mitigate risks. Staff in this department must be fully equipped with skills in areas of economics, marketing, business development and finance. The manager of business development department has expressed concern over limited staff skills and experience to handle the new assignments. He has requested the partners to recruit two part-time experienced officers to help in handling the following assignments from four new clients and provide feedback by the end of third quarter ending 30 September, 2019.

1. Burera Plastics Limited

Burera Plastics Limited (BPL) is the second largest manufacturer of plastic products in Rwanda that produces a range of products including tanks, Jerri cans, basins, polyethylene terephthalate (PET) bottles and cups among others. BPL is currently facing economic difficulties that are largely attributed to the government's strict policies on production and use of plastic materials. BPL's gross revenue reduced by over 10% when the government banned the use of non-biodegradable polythene plastic bags in Rwanda. Currently the government is in the process of introducing a law to ban the production and use of single-use plastics.

BPL's Chief Executive Officer (CEO) expressed his concerns to the board of directors (the Board) that PET bottles had turned out to be the largest source of revenue due to the fact that they are used by most beverage companies for packaging juice, fanta and water. The CEO stressed further that the current gross revenue may reduce by over 15% unless alternatives are sought as immediately as possible. The Board resolved to unanimously invest in the production of re-usable plastic bottles and cups to avoid costs relating to non-compliance with the law. The Board tasked the heads of finance and production to ensure that the best alternatives are in place to replace the banned products before the law comes into force.

The CEO is not certain when the law will be passed for implementation but to avoid the expected risks, he supports the Board's resolution of phasing out the current production of PET bottles and introducing re-usable ones.

BPL packs half-litre bottles in cartons of 250 bottles that are manufactured using polyethylene terephthalate (PET) material, plasticizers and other additives. Each carton is sold for Frw 21,250. The standard cost card for producing a carton of half-litre bottles is as below:

Direct materials:	Quantity	Unit cost (Frw)
Polyethylene terephthalate (PET) (grams)	100	80
Plasticizers (grams)	60	30
Other additives (grams)	40	25
Direct labour (hours)	0.45	12,500

BPL employs the just-in-time (JIT) system in all its processes which is considered to have eliminated material wastage and stock theft. Total quality management (TQM) system is

implemented together with JIT to ensure production of quality products with no wastage. BPL implements activity-based costing (ABC), activity-based budgeting (ABB), and standard costing and variance analysis systems for especially cost control and performance evaluation. BPL's performance extracts for the year ending 31 May, 2019 are provided as Part 1 of Appendix 1.

The Head of Production (HOP) has advised that the current production of single-use plastic bottles be downsized as requested by the CEO so that 55% of the labour force focuses on production of re-usable plastic bottles. Similarly half-litre re-usable plastic bottles will be packed in cartons of 200 bottles. Production of half-litre re-usable plastic bottles will require high density PET material, plasticizers and other additives. The standard cost card for producing a carton of half-litre re-usable bottles is as below:

Direct materials:	Quantity	Unit cost (Frw)
Polyethylene terephthalate (PET) (grams)	112.5	82
Plasticizers (grams)	67.5	30
Other additives (grams)	45	26

The HOP expects complete elimination of costs relating to idle time and is sure that at an 80% learning curve, workers will be able to produce quality re-usable plastic bottles. Production of the first carton of half-litre re-usable plastic bottles is expected to take 15 hours as workers will be adopting to new technology. Each carton of half-litre re-usable plastic bottles is anticipated to be sold for Frw 20,000. BPL's budget extracts for the year ending 31 May, 2020 are provided as Part 2 of Appendix 1.

The Head of Finance (HOF) has continuously failed to provide justifiable reasons for the diverging trend in sales from the product line of tanks which also affects realistic budgeting for revenue streams. The Management Accountant has proposed the use of regression analysis and time series analysis techniques during the last quarterly finance department meeting. The Management Accountant supported both techniques that they use past sales to create a sales trend which is then used in forecasting future sales. BPL's sales analysis from tanks for the last four years is provided as Part 3 of Appendix 1.

During that meeting, the HOF emphasised to his staff, the Board's resolution of requiring all staff to participate fully in the budgeting process. He also informed them about the Board's commitment towards staff skills development and thus as finance department, skill gaps were identified in application the ABC system, ABB system and standard costing system.

2. Virunga Volcanoes Hotel

Virunga Volcanoes Hotel (VVH) is located in a prime tourist area of Musanze district. VVH has administration, accommodation and restaurant units which are headed by managers. VVH's proprietor, Mrs. Lorraine Mukamutara who also doubles as the managing director (MD) is concerned with performance appraisals of unit managers especially the profit centres. Currently unit managers earn monthly bonus based on monthly revenue targets. The MD wants a rational basis for determining unit managers' bonus that is appropriate to them and VVH as a whole.

The MD shared this issue with her longtime school friend CPA Callixte Dukuzumuremyi who advised her to give full autonomy to accommodation and restaurant units as investment centres. CPA Dukuzumuremyi further advised her that she can use economic value added (EVA) to evaluate both economic and managerial performance of the units. The MD believes that this

sharing was very productive and she considers changing performance evaluation from monthly basis to quarterly basis effective 1 July, 2019 beginning of the year ending 30 June 2020. VVH's budget extracts for the first quarter ending 30 September 2019 is provided as Part 1 of Appendix 2.

The current bonus policy awards managers of accommodation and restaurant units a bonus of 8% of the monthly net revenue in excess of Frw 20 million. However, the proposed bonus policy will award unit managers a bonus of 20% of the quarterly EVA in excess of Frw 5 million.

3. Kigali Institute of Science and Technology

Kigali Institute of Science and Technology (KIST) is a private university offering technology based courses and research to equip students with job creation skills. KIST operates on a semester system and its academic year begins on 01 September. KIST's popularity is growing fast due to the visible quality productive former students on the market and the marketing network established by alumni. Despite KIST's popularity, the public is not comfortable with its high tuition charges which has affected student population growth.

KIST's vice-chancellor who recently attended a fellowship in Havana organized by International Association of Universities (IAU), where most facilitators emphasized gradual re-engineering of university business processes, to match with the current technological trends. Information technology and e-commerce were at the centre of the fellowship as universities are obligated to spearhead technological innovations with help of game theory and developing automated management information systems. He is currently geared towards using the acquired knowledge to steer the growth of the student population at the university. He also plans to embark on the task of developing a data warehouse centre for the university.

KIST's council together with administration are looking for possibilities of boosting student population growth among which is to reduce tuition fees for all courses. Currently KIST uses traditional absorption costing system and course fees are charged at full cost plus pricing method. According to KIST's records, Bachelor of Science in Biomedical Technology (BBT) is the course with the least number of students at every intake. KIST's bursar suggested use of target costing approach to establish the best tuition fees for the BBT course.

Other universities charge tuition fees of Frw 500,000 per semester for such a course yet KIST charges Frw 625,000. KIST anticipates to admit 200 students on the BBT course in the first semester of 2019/20 academic year. KIST's target profit margin is 25% per course, a strategy that was set for generation of adequate internal funds to further expansion. KIST's budget extracts for first semester of 2019/20 academic year is presented as Part 1 of Appendix 3.

KIST owns a restaurant that provides classified meals to the students which are prepared and served in three classes, which include standard, executive and deluxe. The restaurant manager anticipates selling 4,000 plates of standard meal, 3,000 plates of executive meal and 2,500 plates of deluxe meal during the academic year 2019/20. The restaurant's budget extracts for the academic year 2019/20 are presented as Part 2 of Appendix 3.

KIST's administration is not satisfied with the profitability performance of the restaurant which is also considered to be the cause of its high managerial turnover. During the 2018/19 academic year meeting, the Dean of students tabled the proposal by Peace Catering Services (PCS) to take over the restaurant in order to save KIST from engaging in restaurant activities. PCS is offering to supply KIST at Frw 1,450; Frw 1,800 and Frw 2,195 per plate of standard, executive and deluxe respectively.

KIST's School of Agricultural Sciences produces a concentrate of poultry feeds suitable for growth of kuroiler and broiler chicken. The concentrate is code named KIST 15–SAS with high demand within the East African Community (EAC) and neighbouring regions. However, the Dean of the School of Agricultural Sciences engaged an economist to develop a model that can help in determination of the selling price per kilogram (kg) which maximises profit from the production of KIST 15–SAS. The Economist's results on the model for the production of KIST 15–SAS are provided as Part 3 of Appendix 3.

4. Kayonza Millers Limited

Kayonza Millers Limited (KML) deals in the production of wheat baking flour and currently is undergoing restructuring process with plans to expand its production capacity from 2,000 tonnes to 5,000 tonnes per month. KML's Board of Directors (the Board) resolved to acquire a development loan of Frw 200 million from Kivu Development Bank (KDB) to finance the acquisition of plant and machinery. KDB requested KML to submit its financial statements for the previous two years ended 31 December, 2017 and 2018. KML's financial statements extracts are provided as Part 1 of Appendix 4.

KDB uses profitability (return on capital employed), gearing (debt-to-equity ratio) and liquidity (current ratio) ratios to evaluate and approve loan applications. The appraisal of a loan is based on minimum scores of 20%, 1.2:1 and 2:1 for return on capital employed, debt-to-equity ratio and current ratio respectively. For KDB to approve the loan, the applicant must perform above the minimum scores for the last two financial years. KML's Board resolved also to use performance pyramid and balanced scorecard techniques in measuring its performance in order to achieve its vision and strategies.

Considering the current volume of work, MKA recently appointed the two part-time staff to undertake professional assignments from the new clients. You are considered to be one of the newly appointed part-time staff and you are expected to provide feedback to the clients by 30 September, 2019.

REQUIRED:

- (a)
 - (i) Advise BPL's CEO on whether to downsize production of single-use half-litre plastic bottles by devoting 55% of the labour force to the production of re-usable half-litre plastic bottles during the year ending 31 May, 2020. **(20 Marks)**
 - (ii) Forecast BPL's sales from tanks using both additive model of seasonal variations and least squares method for the first quarter of the year ending 31 May, 2020 and recommend to BPL's management, the best forecasting tool for budgeting. **(7 Marks)**
- (b) Explain to BPL's board on:
 - (i) The relevance of participative approach during budgeting process. **(3 Marks)**
 - (ii) Why TQM has not improved the efficiency of standard costing system **(4 Marks)**
- (c)
 - (i) Distinguish between divisional economic and managerial performance. **(2 marks)**
 - (ii) Evaluate VVH's proposed bonus policy changes. **(10 Marks)**
- (d)
 - (i) Advise KIST's Council on the likely target tuition fees gap that may arise during the process of establishing the best tuition fees for BBT course effective first semester of 2019/20 academic year **(5 Marks)**

- (ii) On the basis of limited labour hours, evaluate PCS' proposal of taking over the restaurant and advise KIST's administration on the best option that maximizes profits
(7 Marks)
- (iii) Advise the Dean of the School of Agricultural Sciences on the selling price, per kg of KIST 15–SAS and the maximum profit basing on the economist's models.
(10 Marks)
- (e) Write a memo to KIST's Vice Chancellor explaining:
- (i) How price skimming and penetration pricing strategies can help to address KIST's pricing problems.
(6 Marks)
- (ii) Four stages of the implementation process of business process re-engineering (BPR)
(5 Marks)
- (iii) Game theory and how it influences organizational strategic planning.
(4 Marks)
- (iv) Two importances of developing data warehouses.
(5 Marks)
- (f) (i) Basing on the KDB's loan appraisal process, advise KML's board on whether the loan of Frw 200 million will be approved.
(8 Marks)
- (ii) Explain to KML's Board how balanced scorecard can be used to evaluate the financial performance of an organisation.
(4 Marks)
- (Total 100 Marks)**

APPENDICES

Appendix 1: Burera Plastics Limited (BPL)

1. Performance extracts for the year ending 31 May 2019

(a) Variance analysis report for production of single-use half litre bottles

Production and sales output (cartons)	120,000
Variances:	
Material price variance	Frw '000'
Polyethylene terephthalate (PET)	13,800 A
Plasticizers	12,960 F
Other additives	<u>5,040 F</u>
	<u>4,200 F</u>
Material usage variance	Frw '000'
Polyethylene terephthalate (PET)	144,000 A
Plasticizers	21,600 F
Other additives	<u>6,000 A</u>
	<u>128,400 A</u>
Labour rate variance	Frw '000'
	<u>135,000 A</u>
Idle time variance	Frw '000'
	<u>75,000 A</u>

(b) Manufacturing overheads absorption rates and allocation bases for single-use half-litre bottles:

Overhead	Absorption rate (Frw)
Production electricity (per sq. metre)	5,328
Production depreciation (per set up)	5,860
Other manufacturing overheads (per machine hour)	5,340
Material handling costs (per order)	6,000

2. Budget extracts for the year ending 31 May, 2020

- (a) Actual material prices, wage rates and manufacturing overhead absorption rates for the year ending 31 May, 2019 were used in formulating the budget for the year ending 31 May, 2020.
- (b) Allocation bases are expected to change as follows when production of half-litre re-usable bottle commences.

Allocation base	Single-use bottles	Re-usable bottles
Floor space (sq. metres)	1,250	2,300
Production set ups (set ups)	2,700	3,750
Machine hours (per machine hour)	3,600	5,000
Material orders (per order)	300	500

- (c) The projected income statement extract for the year ending 31 May 2020 for production of single-use half litre bottles only.

	Frw '000'
Sales revenue	2,550,000
Direct material	(1,420,200)
Direct labour	(810,000)
Contribution	319,800
Manufacturing overheads	(94,800)
Budgeted manufacturing profit	<u>225,000</u>

3. Analysis of sales from the product line of tanks for the past four years
 (a) Quarterly sales, trend and variations for the past four years ending 31 May

	Quarter	Sales Frw 'million'	Trend Frw 'million'	Variation Frw 'million'
2015/ 16	1	120		
	2	95		
	3	145	133.125	11.875
	4	170	133.75	36.25
2016/ 17	1	125	134.375	-9.375
	2	95	135	-40
	3	150	135.625	14.375
	4	170	136.875	33.125
2017/ 18	1	130	137.5	-7.5
	2	100	138.125	-38.125
	3	150	138.125	11.875
	4	175	138.125	36.875
2018/ 19	1	125	139.375	-14.375
	2	105	140.625	-35.625
	3	155		
	4	180		

(b) Regression analysis table for the past four years ending 31 May:

Year	X	Sales – Y	XY	X ²	Y ²
	Quarter	Frw ‘million’	Frw ‘million’		Frw ‘million’
2015/ 16	1	120	120	1	14,400
	2	95	190	4	9,025
	3	145	435	9	21,025
	4	170	680	16	28,900
2016/ 17	5	125	625	25	15,625
	6	95	570	36	9,025
	7	150	1,050	49	22,500
	8	170	1,360	64	28,900
2017/ 18	9	130	1,170	81	16,900
	10	100	1,000	100	10,000
	11	150	1,650	121	22,500
	12	175	2,100	144	30,625
2018/ 19	13	125	1,625	169	15,625
	14	105	1,470	196	11,025
	15	155	2,325	225	24,025
	16	180	2,880	256	32,400
Totals	136	2,190	19,250	1,496	312,500

Appendix 2: Virunga Volcanoes Hotel (VVH)

1. Budget extracts for the first quarter ending 30 September, 2019

- (a) Projected statement of financial position for accommodation and restaurant units as at 30 September 2019

	Accommodation	Restaurant
	Frw '000'	Frw '000'
Assets:		
Property, plant & equipment	60,530	59,895
Current assets	<u>16,525</u>	<u>17,670</u>
Total assets	<u>77,055</u>	<u>77,565</u>
Capital & liabilities:		
Issued share capital	-	-
Preference shares	-	-
Retained earnings	15,785	19,520
Noncurrent liabilities	36,370	40,245
Current liabilities	<u>24,900</u>	<u>17,800</u>
Total capital & liabilities	<u>77,055</u>	<u>77,565</u>

40% and 25% of the current liabilities for accommodation and restaurant units respectively form short-term debt of the noncurrent liabilities

- (b) Projected statement of profit or loss for accommodation and restaurant units for the first quarter ending 30 September 2019

	Accommodation	Restaurant
	Frw '000'	Frw '000'
Net sales	75,975	80,170
Cost of sales	(30,360)	(33,175)
Gross profit	45,615	46,995
Operating expenses	<u>(26,430)</u>	<u>(27,630)</u>
Operating profit	19,185	19,365
Finance costs	<u>(495)</u>	<u>(130)</u>
Profit before tax	18,690	19,235
Provision for income taxes	<u>(5,760)</u>	<u>(6,075)</u>
Net income	<u>12,930</u>	<u>13,160</u>

20% of the operating expenses for both units relates to depreciation expenses.

- (c) VVH's cost of capital is 10%.

Appendix 3: Kigali Institute of Science and Technology (KIST)

1. Budget extracts for the first semester of 2019/20 academic year

(a) The budgeted expenditure per student offering BBT course per semester

Item of cost	Frw
Library	22,500
Guild	8,000
Research/ development	21,500
Computer	33,500
Examination	25,500
Medical	12,500
Utilities	5,000
Sports	5,500

Total non-student related costs per semester:

Item	Frw '000'
Course designing and accreditation	3,000
Marketing consultancy	3,400

- (b) Each student in a semester will require 32 lecture hours for BBT course at Frw 12,500 per hour. However, it is expected that there will be unavoidable idle time equal to 5% of the total lecture time paid for.

2. Restaurant's budget extracts for the academic year 2019/20

The cost of preparing each plate of standard, executive and deluxe meals

	Standard	Executive	Deluxe
Labour hours	3	4	4.5
Variable cost (Frw)	850	1,550	1,800

The canteen labour has capacity to work for a total of 30,000 labour hours in a year.

3. Economist's results on the model for the production of KIST 5-SAS

The Economist derived the following marginal revenue (MR) and marginal cost (MC) functions for the poultry farm.

$$MR = 34 - 3Q \text{ and } MC = Q^2 - 10Q + 26;$$

where MR and MC are in Frw millions while Q (quantity) is in batches of 5,000kg.

Appendix 4: Kayonza Millers Limited (KML)

Financial statements extracts for previous years ended 31 December, 2017 and 2018

(a) Statement of profit or loss

	2018	2017
	Frw '000'	Frw '000'
Revenue	512,000	489,000
Expenses	446,000	435,000
Net profit	66,000	54,000

(b) Statement of financial position

	2018	2017
Assets	Frw '000'	Frw '000'
Property & equipment	492,150	475,420
Stock consumables	24,500	31,500
Receivables	126,000	176,080
Cash	<u>6,500</u>	<u>6,350</u>
Total assets	<u>649,150</u>	<u>689,350</u>
Equity & liabilities:		
Capital	100,000	100,000
Retained earnings	87,850	51,850
Long-term loan	274,000	292,000
Payables	122,000	195,500
Bank overdraft	<u>65,300</u>	<u>50,000</u>
Total equity & liabilities	<u>649,150</u>	<u>689,350</u>

- (d) KML acquired a 5 year bank loan of Frw 300 million at fixed annual interest rate of 15% during the year ending 31 December 2016.

Appendix5: List of Formulae

1. Quadratic equation: $aX^2 + bX + c = 0$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

2. Least squares equations: $Y = a + bX$

$$\sum Y = an + b \sum X$$

$$\sum XY = a \sum X + b \sum X^2$$