

# CERTIFIED PUBLIC ACCOUNTANT

## FOUNDATION LEVEL 2 EXAMINATIONS

# **F2.1: MANAGEMENT ACCOUNTING**

DATE: WEDNSDAY ,27 JULY 2022

## MARKING GUIDE AND MODEL ANSWERS

### **OUESTION ONE**

## **Marking Guide**

Sub	Criteria	Marks
a) 221Cl	2 Marks awarded for a clear definition of process costing RULLY 2022 ICPARULL	Y2022ICP <b>2</b> F
b) <sup>221C1</sup>	1 Mark awarded for each step outline maximum 5 022 ICPARJULY 2022 ICPARJUL	Y2022ICP.5
c) i)	Equivalent units' statement and cost per unit statement	
2022ICI	Output units' presentation in equivalent units statement ARJULY2022ICPARJUL	Y20221CP <b>A</b> F
	Closing work in progress units UY2022 ICPARJULY2022 ICPARJULY202 ICPARJU	Y2022 1.5
	Total equivalent units	1.5
	PaTotal amountARJULY2022ICPARJULY2022ICPARJULY2022ICPARJULY2022ICPARJUL	Y2022I <b>(1.5</b> )
	Cost per unit	Y <sup>2022</sup> 1.5
2022 ii)	Process account: v20221CPARILITY2021CPARILITY2021CPARILITY2021CPARILITY2021CPARILITY2021CPARILITY20221CPARILITY202	
2022ICI	P Value of output JULY2022ICPARJULY2022 ICPARJULY2022ICPARJULY2022ICPARJUL	Y2022I <b>[</b> ].5
	Value of closing work in progress	Y <sup>2022</sup> 1.5
	Correct posting of opening work in progress, materials, added materials and conversion (0.5 marks awarded for each *4	Y2022 ICP 2F Y2022 ICP 2F Y2022 ICP AF
	Correct balancing of the totals of process account	Y2022ICPAF
	partioly20221CPa	20

#### Model Answer

a) Process costing is a term used in cost accounting to describe one method for collecting and assigning manufacturing costs to the units produced.

## b) 22 Process Costing consists of the following steps:

- Step 1: Physical flow of units
- Step 2: Equivalent units statement preparation showing total equivalent units
- Step 3: Cost per equivalent unit statement preparation
- Step 4: Find the value of output, abnormal loss or gain and closing work in progress
- Step 5: Prepare process account
- c) i)

## Equivalent units' statement and cost per unit statement

Details	<b>Output Units</b>	<b>Closing WIP Units</b>	<b>Total Equivalent Units</b>
Materials WW Y20221	28,000 022 ICPAR	(100%*10,000)=10,000 AR	LY20221CPARJULY2(38,000
Added Materials	28,000	(60%*10,000)=6,000	34,000
Conversion	28,000	(40%*10,000)=4,000	32,000

F2.1 cparith y2022 icparith y2022 icparith y2022 icparith y2022 icparith y2022 icparith Page 2 of 20

## Cost per unit statement

Details	Total Amount	<b>Total Equivalent Units</b>	Cost per Unit
Materials	(47000+181000)= 228,000	PARJULY2022ICPAR38,000	ICPARJULY2022ICP6
Added Materials	(6,000+96,000) = 102,000	34,000	ICPARJULY2022ICPAR
Conversion	(10000+118000) =128,000	32,000	ICPARJULY2022ICP <u>4</u> R
Total PARJULY2022	ICPARJULY2022ICPARJULY2022I	CPARJULY2022ICPARJULY2022	ICPARJULY2022IC <b>13</b> R

## ii) Process 2 account for March 2021

# Value of output 20221CPARJULY20221CPARJULY20221CPARJULY20221CPARJULY20221CPARJULY20221CPARJULY20221CPAR

Details RHHY2022ICPARHH	Output Units	Cost per Unit	<b>Total Amount</b>
Materials	28,000 A	JULY20221CPARJUI6/20	168,000
Added Materials	28,000	JULY2022ICPARJUI <b>3</b> /20	84,000
Conversion	Y2)221CPARJUL\28,000\AI	JULY2022ICPARJUI <b>4</b> /20	221CPARJU 112,000
<b>Total Value of Output</b>	Y 2022 ICPARJULY 2022 ICPAJ Y 2022 ICPARJUT Y 2022 ICPAJ	UULY 2022 ICPARJULY 20 UUJ Y2022 ICPARJULY 20	364,000

## II v Value of closing work in progress ariuly 2022 ICPARIULY 2022

V Details RJULY2022 ICPARJULY202	Units LY2022 ICPARI	Cost per Unit	Total Amount	
Materials	10,000	DLY 2022 ICPARJULY 60	60,000	
Added Materials	6,000 d	JLY2022ICPARJULY30	18,000	
Conversion Y20221CPARJULY202	4,000 d	JLY2022ICPARJULY402	16,000	
Total Value of Closing stock	2ICPARJULY2022 ICPAR.	JLY2022ICPARJULY203	94,000	

Y2022ICPARJULY2022ICPAR	JULY2022ICPARJU	Process 2	JULY2022ICP	2ICPARJULY2022ICP	
Particulars 20221CPAR	<u>Units</u>	Amount	<b>Particulars</b>	<u>Units</u>	Amount
Op. WIP	8,000	63,000	JULY2022ICPAR JULY2022ICPAR		
Materials WIY2022ICPAR	30,000	181,000	Output ICPAR	28,000	364,000 P
Added materials		96,000	Cl. WIP	10,000	94,000
Conversion costs	JULY20 <u>221CP</u> ARJU	118,000	JULY2022ICPAR	JULY2022ICP	ARJ <u>ULY2022IC</u> P
	<u>38,000</u>	458,000	JULY2022ICPAR JULY2022ICPAR	38,000	<u>458,000</u>

IUI  $\mathbf{F2.1}$ ICPARIULY2022ICPARIULY2022ICPARIULY2022 ICPARIULY2022ICPARIULY2022ICPARIULY $\mathbf{2022ICPARIUI}$  Page  $\mathbf{3}$  of  $\mathbf{20}$ 

## **QUESTION TWO**

## **Marking Guide**

Criteria DELLA VANCOLICA DELLE	Marks
a) Break-even point and margin of safety calculation:	
Award 1 Mark for BEP calculation ARTH 192022 ICPARTH 192022 ICPARTH 192022	CPARJULY2022ICPA
Award 1 Mark for total number of rooms Y2022 ICPARIULY2022 ICPARIULY2022	ICPARJULY2022ICPA
Award 1 Mark for correct budgeted occupancy CPARJULY2022/CPARJULY2022	CPARJULY2022ICP41
Award 0.5 Marks for MOS in units and 0.5 Marks for MOS %	ICPARJULY2022ICP4
b) Advise on whether the hotel should close over the duration of Q1:	
Award 1 Mark for contribution calculation	ICPARJULY 2022 ICPAI
Award 1 Mark for Fixed cost calculation and explanation	CPARTULT Y2022TCPA
Award 1 Mark for explanation for the loss 2022   CPARIULY 2022	CPARJULY2022ICPA
Award 1 Mark for advice not to close WHY2022 ICPARIULY2022 ICPARIULY2022	ICPARJULY2022ICPA
c) Breakeven point in sales value for project 1 and advise on	
adoption:	
Calculation of Contribution to sales ratio	ICPARJULY2022ICPAI
Correct calculation of breakeven revenue	CPARJULY 2022 ICPA
Correct advise 20221CPARJULY202	CPARJULY 2022 ICPA
d) Quantification and comment on the effect of project 2: [MARIUM 2022]	CPARJULY2022ICPAI
Statement on increase in fixed cost	CPARJULY2022ICP41
Revenue per occupied room statement	CPARJULY2022ICPA
Total cost prediction at 8000 units	ICPARJULY2022ICPA
Increase in breakeven point	CPARJULY2022ICPA
	CPARJULY 2022 ICPA
Margin of safety statement Y2022ICPARIULY202ICPARIULY202ICPARIULY202ICPARIULY202ICPARIULY202ICPARIULY202ICPARIULY202ICPARIULY202ICPARIULY202ICPARIULY202ICPARIULY	ICPARJULY 2022 ICPA
Confect final Comment	CDAD II II VAAAA I CDA
Total Parjuly 2022 (CPARJULY 2022) CPARJULY 2022 (CPARJULY 2022) CPARJULY 2022)  2002 (CPARJULY 2022) CPARJULY 2022)	CPARJULY 2022 IC 20

## **Model Answer**

- a) Break-even point (BEP) in units and Margin of safety as a percentage
- Break Even Point (Rooms):

Break Even Point (BEP) = Fixed Cost / Contribution per unit

BEP (Units) = FRW 600,000,000 / (FRW 180,000 - FRW 60,000) = 5,000 room nights

Margin of Safety (%):

Margin of Safety (%) = ({Budgeted rooms - BEP rooms} / Budgeted rooms) \* 100

Budgeted rooms = 365 days \* 25 rooms = 9,125 rooms \* 70% = 6,388 rooms

Break Even Point in rooms = 5,000 rooms

Margin of Safety (%) =  $(\{6,388 - 5,000\}/6,388) * 100 = 21.72\%$ 

F2.1 cpariii y2022icpariii y2022icpariii y2022icpariii y2022icpariii y2022icpariii y2022icpariii Page 4 of 20

## b) Profit or loss for Q1

Profit / Loss = (Selling price/unit – Variable cost/unit) \* Sales units – Fixed cost

- Selling price/unit = FRW 180,000
- Variable cost/unit = FRW 60,000
- Sales units = 900 rooms
- Fixed Cost per quarter = FRW 600,000,000 / 4 = FRW 150,000,000

Profit / Loss = (180,000 - 60,000) \* 900 - 150,000,000

Profit / Loss = 108,000,000 - 150,000,000

Loss = FRW (42,000,000)

Kubaho Hotel should not close in Q1. The fixed costs will still be incurred and closure would result in lost contribution of FRW 108, 000,000. This in turn would result in a decrease in annual profits of FRW 108,000,000. In addition, the hotel could lose customers at other times of the year, particularly their regular business customers, who may perceive the hotel as being unreliable.

# c) Break Even Point in Sales value of project 1 and advise on whether the hotel should adopt the project

Sales value of two room nights (2 \* FRW 67,500) = FRW 135,000

Sales value of a pair of theatre tickets = FRW 100,000

Total sales value = 135,000 + 100,000 = FRW 235,000

Variable cost of two room nights (2 \* FRW 60,000) = FRW 120,000

Variable cost of a pair of theatre tickets = FRW 95,000

Total variable cost = 120,000 + 95,000 = FRW 215,000

Contribution = Sales – Variable cost = 235,000 - 215,000 = FRW 20,000

Contribution to Sales ratio (C/S) = 20,000/235,000 = 8.51%

Break-even point in FRW = Fixed cost/Contribution to sales ratio

Breakeven point = FRW 20,000,000/8.51% = FRW 235,000,000

BEP (units) = Fixed cost /contribution per unit =FRW 20,000,000/FRW 20,000 = 2000 tickets

The unit contribution per theatre package is low and it requires a large number of sales to break even. Each theatre package would require two room nights to be sold which would mean 2,000 room nights needed in Q1 to break even.

F2.1 cparjuly20221cparjuly20221cparjuly20221cparjuly20221cparjuly20221cparjuly20221cparjul $_{
m Page}$  5 of 20

## d) Quantification and comment on financial impact of project 2

Project 2 will cause the fixed costs of the hotel to rise from FRW 600,000,000 per annum to FRW 800,000,000 per annum for the hotel and restaurant combined. This is an annual increase of FRW 200,000,000.

Revenue per occupied room will rise from FRW 180,000 to FRW 250,000 (FRW 2,000,000,000 / 8,000 rooms) which reflects the extra guest expenditure in the restaurant.

The total cost predicted at a level of 8,000 occupied rooms is FRW 1,560,000,000 which means the variable costs must be FRW 760,000,000 (FRW 1,560,000,000 – FRW 800,000,000 fixed costs). This is a variable cost per occupied room of FRW 95, 000 which is an increase of FRW 35,000. This reflects the variable costs of the restaurant.

As a result of these changes, the breakeven point has increased from 5,000 to 5,161 occupied rooms so the hotel needs to sell more room nights to cover costs.

However, budgeted occupancy is now 7,300 occupied room nights which gives 80% occupancy (7,300 / 9,125). This gives a margin of safety of 2,139 occupied room nights or 29%. This is an increase on the current position and the hotel's position appears safer. At 7,300 occupied room nights the KUBAHO Hotel's budgeted profit is FRW 331,500,000 (FRW 250, 000 – FRW 95,000) \* 7,300 – FRW 800,000,000.

#### **OUESTION THREE**

### **Marking Guide**

y2022ICPARJULY2022ICPARJULY2022ICPARJULY2022ICPARJULY2022ICPARJULY2022IC <b>Marks</b>	
A) i) Production units budget 21CPARJULY2022 ICPARJULY2022ICPARJULY2022ICPARJULY2022ICPARJULY	
0.5 mark awarded for the formula of production units budget ICPARJULY2022ICPARJUL	Y2022I 0.5
Calculation of closing inventory for each month (0.5 marks *3)	1.5
Correct posting of opening inventory for each month (0.5 marks * 3)	1.5
Correct answer for production units for	2022 1.5
ii) Material purchase budget in kgs and FRW for A01: PICPARIULY 2022 ICPARIUL	
Correct materials usage budget for each month (0.5 marks * 3) PARJULY2022ICPARJUL	Y2022IC <b>1</b> .5
Correct materials purchase budget in kgs (1 mark * 3)	Y2022ICP <b>3</b> I
Correct materials purchase budget in FRW (0.5 marks * 3)	1.5
B) Marginal costing profit statement for each month	
Correct calculation of sales total figure for each month (0.5 marks * 3)	Y20221(1.5)
Correct answer for variable cost of sales for each month (1 mark * 3) Y2022 CPARJUL	Y2022ICP3
Correct contribution for each month (0.5 marks * 3) JULY2022 ICPARJULY2022 ICPARJULY	Y2022IC1.5
Correct fixed cost computation for each month	Y2022IQ.5
Correct net profit (marginal cost profit) (0.5 marks * 3)	1.5
Total: PARTICLY 2022 ICPARTICLY 2022 ICPARTICL	
	2022 20

F2.1 cparith y2022 icparith y2022 icparith y2022 icparith y2022 icparith y2022 icparith Page 6 of 20

## **Model Answer**

## a) i) Production budget in units

Production units = Sales units + Closing inventory units - Opening inventory units

Details	July	PARJULY2	August	221CPARJUI	September	2022ICPAR.
Y20221CPARJULY2022I	Working	PARJULY2	Working	221CPARJUI	Working	2022ICPAR.
Sales Units 1 120221	CPARJULY2022IC	PARJULY2	022 ICPARJULY20	22ICPARJUI	Y2022ICPARJULY:	2022ICPAR.
	CPARJULY2022IC	18,000	022 ICPARJULY20	22,000	Y2022ICPARJULY	24,000
Add Closing Stock	50% of 22000	11,000	50% of 24000	12,000	50% of 20000	10,000
Less Opening Stock	50*of 18000	9,000	)22 ICPARJULY20 )22 ICPARJULY20	11,000	Y2022ICPARJULY: Y2022ICPARJULY:	12,000
Production Budget	CPARJULY2022IC CPARJULY2022IC	20,000	22 ICPARJULY20 22 ICPARJULY20	23,000	Y2022ICPARJULY Y2022ICPARJULY	22,000

## ii) Material purchase budget for A01 in kgs and FRW

- Materials Usage Budget (kgs) = Production Units \* Kgs per Unit
- Materials Purchase Budget (Kgs) = Materials Usage Budget (kgs) + Closing Inventory (kgs) Opening Inventory (kgs)
- Material Purchase Budget (FRW) = Materials Purchase Budget (FRW) \* Price per kg

Details	July		August		Septembe	1221CPARJI
Y 2022 I CPAR II II Y 2022 I CPAR II II Y 20	Working	1022 ICPARJI 2022 ICPAR II	Working	R II II V2022	Working	1221CPARII
Production Budget CPARJULY20	22 ICPARJULY	20,000	ILY2022ICPA	23,000	CPARJULY2	22,000
Material Usage per unit	22ICPARJULY	22 ICPARJI	ILY2022ICPA	R2ULY2022	CPARJULY2	2 ICPARJI
Total Material Usage	22ICPARJULY	40,000	JLY2022ICPA	46,000	CPARJULY20	44,000
Add closing	20% of 46000	9,200	20% of 44000	8,800	20% of 41000	8,200
Less opening stock PARJULY20	20% of 40000	8,000	ILY2022ICPA ILY2022ICPA	9,200	CPARJULY20 CPARJULY20	8,800
Materials Purchases in Kgs	22ICPARJULY	41,200	ILY2022ICPA	45,600	CPARJULY2	43,400
Price per Kgs	22 ICPARIULY	42 ICPARII	II Y 2022 I CPA	4 II V2022	CPARIUTY2	4 ICPARII
Materials Purchases in value	22ICPARJULY	164,800	ILY2022ICPA	182,400	CPARJULY2	173,600

F2.1 cpariuly2022 icpariuly2022 icpariuly20

## b) TURYENEZA Ltd Marginal Costing Profit and Loss Account for three months

Details	July	CPARJULY 20.	August	D221CPARJUL	September	TYZUZZICPAR
720221CPARJULY20221CF 720221CPARJULY20221CF	Working	FRW "000"	Working 2	FRW "000"	Working	FRW "000"
Sales PARJULY2022ICF	18000*50	900	22000*50	1,100	24000*50	1,200
Less Variable Cost	ARJULY 20221	CPARJULY 20.	22 ICPARJULY 2	D221CPARJUL	Y2022ICPARJU	LY2022ICPAR
Opening Inventory	9000*35	315	11000*35	385	12000*35	420
Production LY20221CI	20000*35	700 ULY20	23000*352	805 ARJUL	22000*35	77021CPAR
Less closing inventory	11000*35	385	12000*35	420	10000*35	350 CPAR
Y2022ICPARJUI Y2022ICI	ARJULI 20221 PARJULI Y20221	630	DD ICPARILITY2	770	V2022ICPARILI	840
Less Variable selling OH	2.5% of 900	22.50 Y20	2.5% of 1100	27.50 RJUL	2.5% of 1200	30 22 ICPARI Y2022 ICPARI
Total Variable cost	ARJULY20221	652.50	22 ICPARJULY2	797.50	A 2022ICPARJU	870
Contribution	ARJULY 20221 0AR II II V20221	247.5	22 ICPARJULY 2	302.5	M2022ICPARIU	330
Less Fixed Cost	ARJULY2022I	CPARJULY20	22 ICPARJULY2	122ICPARJUI	Y2022ICPARJU	Y2022ICPAR
Production 1 Y 2022 1 Cl	324000/3	108	324000/3	108	324000/3	10821CPAR
Selling and Distribution	125000/3	41.667	125000/3	41.667	125000/3	41.667
Administration	105000/3	35 <sub>RHHY20</sub>	105000/3	35 PARJUI	105000/3	35,021CPAR
Total Fixed cost	ARJULY20221	184.667	22 ICPARJULY2	184.667	Y20221CPARJU	184.667
Profit PARJULY2022ICI	ARJULY20221	62.833	22 ICPARJULY2	117.833	Y 2022ICPARJU	145.333

YW12ICPARJULY2022ICPARJULY	Kgs/Hour FRW Pe	er Kg or per Hour CPAR FRW
Material A01 Y2022 ICPARJULY	2022ICPARJULY20224PARJUL	Y2022ICPARJULY2022ICPARJ <b>8</b> Y202
Material B01	203 ICPARJULY2022 6 PARJUL	Y2022ICPARJULY2022ICPARJI <sub>18</sub> /202
Direct labour	1.5 PARJULY 2022 4 PARJUL	Y 2022 I CPARJULY 2022 I CPARJULY 202 V 2022 I CPAR II II V 2022 I CPAR II <b>6</b> V 202
Variable production	201.5 PARJULY2022 2 PARJUL	Y2022ICPARJULY2022ICPARJI <b>3</b> LY202
Total variable cost per unit		Y2022ICPARJULY2022ICPARJ <b>35</b> '202

20221CPARIULY $\mathbf{F2.1}$ ICPARIULY20221CPARIULY20221CPARIULY20221CPARIULY20221CPARIULY20221CPARIUL $\mathbf{Page 8 of 20}$ 

## **QUESTION FOUR**

## **Marking Guide**

Item CPARJULY 2022 ICPARJULY 2022 IC	Marks	
a) 2022 ICPAR JULY 2022 ICPAR II II V2022 ICPAR JULY 2022 ICPAR JULY 2022 ICPAR JULY 2022 ICPAR II II V2022 ICPAR II VI		
i) Cost of goods sold variable cost per unit and fixed cost:		
Variable cost per unit computation PARJULY2022 ICPARJULY2022ICPARJULY2022		2
Fixed cost computation UUIY2022ICPARJULY2022ICPARJULY2022ICPARJULY2022		2
ii) Operating expenses variable cost per unit and fixed cost ICPARULIY2022		
Variable cost per unit computation		2
Fixed cost computation		2
iii) Total cost equation		
Total cost equation for cost of goods sold Y2022 ICPARJULY2022ICPARJULY2022		CP <b>A</b> R
Total cost computation for operating expenses ICPARJULY2022ICPARJULY2022		CPAR
Maximum ILY2022ICPARJULY2022ICPARJULY2022ICPARJULY2022ICPARJULY2022		10
b) 22 ICPARJULY 2022		
i) Determination of whether labour is a limiting factor		2
ii) Determination of optimal production plan and total contribution:		
Calculation of contribution per unit ARJULY2022 ICPARJULY2022ICPARJULY2022		CP <b>A</b> R
Calculation of contribution per unit of limiting factor ULY2022ICPARJULY2022		CPAR
Ranking of the products in the order of production RJULY2022ICPARJULY2022		CP4R
Allocation of scarce resources to each product		CPAR
Finding the optimal production plan (production units for each product)		2
Finding the total contribution PARTHELY OF THE		2
Maximum 1Ly20221CPARJULY20221CPARJULY20221CPARJULY20221CPARJULY2022		10
Total PARJULY2022ICPARJULY2022ICPARJULY2022 ICPARJULY2022ICPARJULY2022		20

20221CPARJULY $\mathbf{F2.1}$ ICPARJULY20221CPARJULY20

#### **Model Answer**

a) i) Cost of goods sold variable cost per unit and fixed cost

Variable Cost/unit = (Cost at Highest Activity - Cost at Lowest Activity)

(Highest Activity - Lowest Activity)

Variable Cost/unit = (800,000 - 740,000)/(300,000 - 240,000) =

## Variable Cost/unit = FRW 1 per unit

Fixed Cost = 800,000 - (1\*300,000)

Fixed Cost = 800,000 - 300,000

Fixed Cost = FRW 500,000

## ii) Operating expenses variable cost per unit and fixed cost

Variable Cost/unit = (450,000 - 420,000)/(300,000 - 240,000)=

Variable Cost/unit = FRW 0.50/unit

Fixed Cost = 450,000 - (0.5\*300,000)

Fixed Cost = 450,000 - 150,000

Fixed Cost = 2022 | CPA | FRW 300,000

## iii) Total cost equation for cost of goods sold and operating expenses

Cost of Goods Sold:

y = mx + c

Cost of goods sold= x + 500,000

**Operating Expenses:** 

y = mx + c

Operating expenses = 0.5x + 300,000

## b) i) Determining of labour as a limiting factor

Labour is a limiting factor if the hours needed are more than the hours available.

Total hours available = 12,000 hours

Total hours needed is computed as follows:

Product RJULY20221CP Y20221CPARJULY20221CP	Labour cost per unit	Labour cost per Hour	Number of Hours	Demand	Total Hours
					Required
$_{\rm Y}$ A)221CPARJULY20221CP	1,200	1,200	ILY2022ICPAR	1,000	1,000
MB)221CPARJULY20221CP	ARJULY202,400	JULY2022 11,200	JLY2022ICP/ <b>2</b> R	JULY2025,000	10,000
YC022ICPARJULY2022ICP	ARJULY2023,600	1,200	JLY2022ICP/3R	4,000	12,000
DOZZICPARJULY 2022ICP	4,800	1,200	4	2,000	8,000
Total required Hours					31,000
Available Hours					12,000

 ${
m F2.1}$  cpariii y2022icpariii y2022icpariii y2022 icpariii y2022icparii i y2022icparii  ${
m Page~10~of~20}$ 

Total hours needed is 31,000 hours yet the hours available are only 12,000 hours. Therefore, labour is a limiting factor

## ii) Determining of optimal production plan and total contribution

**Step 1: Calculate contribution per unit** 

Particular Ty20221CPARJULY20	221C <b>A</b> \RJULY20221CI	ABJULY2022ICPAR	□ <b>C</b> Y20221CPA1	U <b>D</b> LY2022ICPAI
Selling price per unit ARJULY20	22 CPARJULY 3,800	ARJULY2025,000	8,000	10,000
Less Variable cost per unit	221CPARJULY2022 ICI	ARJULY2022ICPAR	JULY2022ICPAI	JULY2022ICPAF
Labour cost per unit	1,200	2,400	3,600	4,800
Materials Cost per unit	22 PARJULY 1800	ардуу 202 1800 г	3000	3200
Total Variable cost per unit	221 CPARJULY <b>3,000</b> 1	ARJULY202 <b>4,200</b>	6,600	JULY20 8,000
Contribution	800	800	1,400	2,000

## Step 2: Calculate contribution per unit of limiting factor

Particular	A II V2022 ICPA	B V2022 CPAR	C 2022ICPAR	DV2022ICPAL
Contribution Y20221CPARJULY20221C	PARJULY2022 <b>800</b>	JULY20221C800	1,400	2,000
Limiting factor (Hour)	PARJULY2022 ICPAI	JULY2022ICPA 2	JLY2022ICP <b>3</b> R	ULY2022ICP4
Contribution per Limiting Factor	800	400	467	500

## Step 3: Rank the products

Particular	<b>A</b> H V2022 ICPA	B V2022 ICPARJ	C 2022ICPAR	D Y 2022 I CPAR
Contribution per Limiting Factor	RЛЛ У2022 <b>800</b>	TT V2022 ( 400	1467	111 Y2022 500R
Ranking RUII Y2022ICPARJUII Y2022ICP	ARJULY2022 ICP <b>A</b> J	JULY2022ICPA <b>4</b> II	JLY20221CP <b>/3</b> R	ULY2022ICP <b>2</b> R

Step 4: Allocate the scarce resource, find the optimal production plan and total contribution

Ranking	Product	Units to produce	Hours used	Hour Remaining	Contribution per unit	Total Contribution
YL022ICPARJI	II AO221CPAR	1,000	1,000	11,000	PAR II 1 220 800	800,000
Y $2$ 022ICPARJU	JLY <b>D</b> 0221CPAR	2,000	8,000	CPARJUL3,000	PARJULY22,000	4,000,000
Y3022ICPARJU	A CO22ICPAR	1,000	3,000	CPARJULY202210	1,400	1,400,000
4 0221CPARJU	BOZZICPAN	JULY 2022 ICPAR	JULY 2022	CPARJULY 2022 II	CPARJULY 2022 ICPA	RJULY 2022 ICPARJ
Total PARI	Л Y2022ICPAR	JULY2022ICPAR	JULY2022	CPARJULY2022IG	CPARJULY2022ICPA	6,200,000

The optimal production plan is to produce 1,000 units of A, 2,000 units of D and 1,000 units of C to have a total contribution of FRW 6,200,000.

F2.1 cpariui y2022icpariui y2022icpariui y2022icpariui y2022icpariui y2022icpariu Page 11 of 20

### **QUESTION FIVE**

## **Marking Guide**

Ite	M VICPAR II II VOOQOICPAR II II VOOQO	Marks	
a)	Calculation of total emoluments		
•02	Straight Piece Rate JULY2022ICPARJULY2022ICPARJULY2022ICPARJULY2022		022ICPAR
2.02	BIKORIMANA Emoluments/Earnings 22 CPARJULY2022 CPARJULY2022		0221( <b>0.5</b> R
202	HABIMANA Emoluments/Earnings		)22 I (0.5 R
Ma	ximum Marks		)221CP <b>2</b> R
. 202 •9:02	Taylor's Differential Piece Rate System		
€02	Calculation of Standard Performance for 10 Hour 1920221CPARJULY2022		0221CPAR
202	Calculating Earning of BIKORIMANA- Below performance		022ICPAR
202	Calculating Earning of Habimana - Above performance		022ICP4R
	22 ICPARJULY 2022 ICPARJULY 2022 ICPARJULY 2022 ICPARJULY 2022 ICPARJULY 2022 20 ICPA D IUU VOO 20		
Ma	aximum Marks cpariii vənəə icpariii vənəə icpariii vənəə icpariii vənəə icpariii		1221CFAR
b)	Earnings of Workers: \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		
202	KAZI (0.5 Marks for Calculation of percentage and 0.5 Marks for		022ICPAR
cal	culating earning)		
(202 •\no	VUBA (0.5 Marks for Calculation of percentage and 0.5 Marks for		D221CPAR
cal	culating earning)		
€02	TAYALI (0.5 Marks for Calculation of percentage and 0.5 Marks for		022ICPAR
cal	culating earning) PARJULY2022ICPARJULY2022ICPARJULY2022ICPARJULY2022		
	aximum Marks		0221CP <b>3</b> R
c)	i) Advantages and disadvantages of piece rate system		
•.02	Advantages (At least two points each 1 mark)		)22 ICP 2R
€02	Disadvantages (At least two points each 1 mark)		)22ICP <b>2</b> R
ii)	Description of incentive schemes giving examples (2 marks for		022ICP <b>4</b> R
des	scription and 2 for examples)		
iii)	P. I.G.P.A.K. I.U. D.Y.2.0.2.1 G.P.A.K.I.U.G.Y.2.0.2.2 IG.P.A.K.I.U.G.Y.2.0.2.2 IG.P.A.K.I.U.G.Y.2.0.2.2		)221CPAR
of	1 mark each)		
Ma	aximum JLY2022ICPARJULY2022ICPARJULY2022 ICPARJULY2022ICPARJULY2022		)221C <b>12</b> R
To	tal PARJULY2022ICPARJULY2022ICPARJULY2022ICPARJULY2022ICPARJULY2022		)221C <b>20</b> R

#### Model Answer

a)

Standard Time allowed for 30 Trucks is 1 Hour

Time rate is FRW 150,000 per Hour

Straight Piece Rate = (Standard rate per hour)/(Standard production per hour)

Hence for one truck = (FRW 150,000)/(30 Units of truck) = FRW 5,000

That is, for every truck produced, the specialist will get FRW 5,000

## Straight piece rate system:

Earnings/Emoluments = No of units produced \* Piece Rate (SPR)

- BIKORIMANA Emoluments/Earnings = 260 Trucks \* FRW 5, 000 = FRW 1,300,000
- HABIMANA Emoluments/Earnings = 320 Trucks \* FRW5, 000= FRW 1,600,000

 ${
m F2.1}$  cpariii y2022icpariii y2022icpariii y2022 icpariii y2022icparii i y2022icparii  ${
m Page~12~of~20}$ 

## Taylor's differential piece rate system:

Standard Performance= 30 Units of trucks\*10hours per truck = 300 Units of truck (Standard performance)

- BIKORIMANA- Below performance since he has produced 260 Units: 80% applicable to low performance (FRW 5, 000) PARTILIY 2022 ICPARTILIY 2022
- HABIMANA- Above performance since he has produced 320 Units: 120% applicable to high performance (FRW 5, 000)
- BIKORIMANA Pay Rate= FRW5, 000\*80/100= FRW 4, 000
- HABIMANA Pay Rate= FRW 5, 000\*120/100= FRW 6, 000

Calculation of Emoluments/Earnings: Units produced\*Payrate adjusted for differential piece rate

BIKORIMANA= 260 Units\* FRW 4,000 = FRW 1,040,000

HABIMANA= 320 Units\* FRW 6, 000 = FRW 1,920,000

## b) Earnings of each worker

Merrick's Multiple or Differential Piece Rate System (D.P.R System)

Level of performance = Act Output/Std output\*100

KAZI= 240/300\*100= 80%

VUBA= 280/300\*100= 93%

TAYALI=350/300\*100= 116%

Calculations of Earning s= Unit Produced\*Normal Pay rate

KAZI= 240 Units\*FRW5, 000= FRW 1,200,000

VUBA= 280 Units\*FRW5, 000\*110/100= FRW1,540,000

TAYALI= 350 Units\*FRW5, 000\*120/100= FRW2,100,000

## C) i) Advantages and disadvantages of piece rate system of remuneration

**MEMORANDUM** 

TO: Management of Volkswagen Rwanda Limited

FROM: Management Accountant

RE: Alternative Remuneration Methods

DATE: August 2015

Further to your recent request for information I have prepared this memorandum which outlines the advantages and disadvantages of piece rate remuneration schemes, describes how incentive schemes operate and presents the conditions necessary for incentive schemes to operate successfully.

F2.1 CPARJULY20221CPARJULY20221CPARJULY20221CPARJULY20221CPARJULY20221CPARJULY20221CPARJUPage 13 of 20

## Piece rate remuneration systems

Piece rate remuneration systems are systems whereby workers are paid on the basis of output produced rather than hours worked. There are a number of different variations of piece rate remuneration systems including straight piece rate systems, piece rates with guaranteed minimum pay and differential piece rate systems.

## Advantages of piece rate systems

- 22 Each worker is paid on his/her merits and hence individual effort is encouraged.
- The employer knows in advance the direct labor cost of each job and this information is very useful in pricing or tendering for jobs.
- 122 Workers may be more careful with tools and equipment as they know that any damage to these will reduce their earning capacity. If Y2022 IC PARTITIY 2022 IC PARTITIY 2022
- Companies may ensure that time wasted by employees in production is not paid for.

## Disadvantages of piece rate systems

- It may be difficult to agree an equitable rate for units produced.
- Slower workers may feel disgruntled at earning a lower wage and this may lead to demotivation
- There may be an adverse effect on quality as workers try to increase their output.
- There may be excessive waste of material by workers trying to work as fast as possible and while the worker will not be paid for items scrapped there is a cost associated with these items.

## C) ii) Description of incentive schemes

Incentive schemes operate on the basis that a target is set and actual performance is compared with that target. If actual production is greater than the target employees are rewarded for their efficiency. Thus, employees are incentivized to work harder to increase production and their remuneration. While incentives may lead to higher labor costs the resulting efficiencies lead to a reduction in the overall cost per unit of output and higher profits. In this way both the employer and the employee may be better off from a financial perspective. Incentive schemes may impact favorably on employee morale as employees are seen to receive extra reward for extra effort.

## C) iii) Conditions necessary for incentive schemes to operate successfully

For an incentive scheme to be successful there are a number of conditions that must be met.

These include:

Output

Description:

These include:

Output

Description:

These include:

Output

Description:

Descr

- The objectives must be clearly stated and attainable.
- The scheme should be clearly communicated to all participants.
- 22 Any rules or conditions should be easy to understand and not liable to misinterpretation or manipulation. 21 CPARJULY 2022 ICPARJULY 202
- The reward should be as nearly related to effort as possible, both in amount and time.
- 022 The standard of performance set must be reasonably attainable by the average employee.
- The scheme must have the support of all relevant parties e.g. staff, employer, and unions.
- 122 The scheme should be seen to be fair from the perspective of the employees as well as from the employer's perspective. [PARJULY2022][CPA

F2.1 cpariui y2022icpariui y2022icpariui y2022icpariui y2022icpariui y2022icpariu Page 14 of 20

Ideally incentives should be paid as near as possible to the time that they are earned so that the link between effort and reward is very apparent.

Only employees who invest effort in securing the incentives should receive them – employees should not be rewarded for the work of others.

Allowances should be made for factors outside employees' control which have impinged upon their performance.

If you require any further clarification or information regarding anything contained in this memorandum, please feel free to contact me.

Yours sincerely,

Management Accountant

### **QUESTION SIX**

## **Marking Guide**

Item CPARJULY2022ICPARJULY2022ICPARJULY2022ICPARJULY2022ICPARJULY2022ICMarks Y2022	
a) 22 i) Waste Y2022ICPARJULY2022ICPARJULY2022ICPARJULY2022ICPARJULY2022ICPARJULY2022ICPARJULY2022	ICPA1
Y <sup>202</sup> Scrap <sup>R</sup> JULY2022ICPARJULY2022ICPARJULY2022 ICPARJULY2022ICPARJULY2022ICPARJULY2022	ICPAI
Spoilage LY2022 ICPARJULY2022 ICPARJULY2022 ICPARJULY2022 ICPARJULY2022 ICPARJULY2022	ICPAI
ii) Material cost per unit 1 mark for cost of material 1 mark for total	3
output and 1 mark for cost per unit)	
b) i) Overhead reapportionment using simultaneous equations CPARJULY2022ICPARJULY2022	
Formulation of service X equation PARJULY2022 ICPARJULY2022 ICPARJULY2022 ICPARJULY2022	ICP41
Formulation of service Y equation PARJULY2022 ICPARJULY2022 ICPARJULY2022 ICPARJULY2022	ICPAI
Solving of the equation to find X	1.5
Solving of equation to find Y	1.5
Reapportionment of X (0.5 marks each * 4)	2
Reapportionment of Y (0.5 marks each * 4) 022 ICPARJULY2022 ICPARJULY2022 ICPARJULY2022	ICP2
Total of each department A, B, C, X & Y 2022 ICPARIULY 2022 ICPARI	ICP41
i) Difference between allocation and apportionment	
Allocation	2
Apportionment	2
Total pariuly 2022 icpariuly 2022 ic	20

 ${
m F2.1}$  cpariii y2022icpariii y2022icpariii y2022 icpariii y2022icparii i y2022icparii  ${
m Page}$   ${
m 15}$  of  ${
m 20}$ 

#### Model Answer

a) i) Explain with reasons the quantities that you will classify as:

Material issued to production 0221CPARJULY20221CPARJULY20221CPARJU	200 kg
Less- Shrinkage (1% of 200) 0221CPARIULY20221CPARIULY20221CPARIU	LY 0221CPARJULY 202 2 kg
Input PARJULY2022ICPARJULY2022ICPARJULY2022ICPARJULY2022ICPARJU	198 kg
Less- 12% of 198 (Trimmings in process)	23.76 kg
T 2022 ICTARGUET 202 V 2022 ICPAR II II V 2022 ICPAR II V II V 2022 ICPAR	174.24 kg
Less- 8% sub-standard (8% of 198) ARITHY 2022 ICPARITHY 2022 ICPAR	15.84 kg
Output (80% of input) RJULY2022ICPARJULY2022ICPARJULY2022ICPARJU	LY 0221CPARJULY2 158.40

### Wastage

As waste has practically no value, the accounting is relatively simple. The effect of the waste is to reduce the quantity of output. In order to arrive at the unit cost of the process, operation or job, the total cost of the process etc. is distributed over the reduced output, that is, the units of good production only. The cost of abnormal waste, should however, be excluded from the total cost and charged to Profit and Loss Account. Here, waste generated = 2 kgs.

## • 022 Scrap

Scrap is the form of incidental material residue coming out of certain types of manufacturing processes but it is usually in small amounts and has low measurable utility or market value, recoverable without further processing. Scrap is discarded material having some value. Here Scrap generated = 23.76 kgs.

#### Spoilage

Spoilage arises when the production output is damaged in such a manner and to such an extent that it cannot be used for the original purpose for which it was designed but is to be disposed off in some suitable manner without further processing. Spoilage involves not only the loss of material but also labour and manufacturing overheads. Here spoilage=15.84 kgs.

## ii) Material cost per unit

Particulars	Workings	FRW
Cost of material 221CPARJULY20221CPARJULY20221CP	ARJU 200 x 50 RJULY20	221CPARJULY2(10,000R
Total output Y <sup>2022</sup> ICPARJULY2022ICPARJULY2022ICP	ARJULY2022ICPARJULY20	158.4
Material cost per unit of output	ARJU Y2022ICPARJULY20	63.13131

# b) i) Statement showing the distribution of service dept. overheads to the production departments, by the simultaneous equation method

Formulate Simultaneous equations using service department overheads

$$x=140,000 + 10\%$$
 of y

$$x = 140,000 + 0.1y$$

$$y = 96,000 + 15\%$$
 of x

F2.1 cpariui y2022icpariui y2022icpariui y2022 icpariui y2022 icpariui y2022icpariu Page 16 of 20

$$y = 96,000 + 0.15x$$

Solve the Equations

x = 140,000 + 0.1y

x = 140,000 + 0.1(96,000 + 0.15x)

x = 140,000 + 9600 + 0.015x

x - 0.015x = 140,000 + 9,600

0.985x = 149,600

## $\mathbf{x} = \frac{151,878.17}{151,878.17}$

y = 96,000 + 0.15x

y = 96,000 + 0.15\*151,878.17

y = 96,000 + 22,781.73

y = 1CPARJULY20221CPA1118,781.73

Y 2022 I CPARJULY 2022 I	CPARAULY 2022 ICPA	В	$^{\Lambda}C_{\text{TTV202}}$	X	YPARJULY2022ICPA
Primary Distribution	240,000	210,000	250,000	140,000	PARJULY20221CPA PARJULY20221CPA 96,000
Reapportion x	45,563	30,376	53,157	(151,878.17)	22,781.73
Reapportion y	29,695	47,513	29,695	11,878	(118,781.73)
	315,259	287,888	332,853	ZICPARJULY202210 21 <u>CPARJULY202<b>0</b></u> 10	PARJULY 2022 ICPA PARJULY 2022 I <mark>(0)</mark>

ii)Explain the difference between overhead allocation and overhead apportionment

Overhead allocation is the transfer of service department overheads to their respective departments. The term is normally used in reference to specific overheads.

**Overhead apportionment** is the sharing out of the overhead costs to all the departments irrespective of whether they are production departments or even service departments.

F2.1 cparith y2022 icparith y2022 icparith y2022 icparith y2022 icparith y2022 icparith y2022 icparith Page 17 of 20

## **QUESTION SEVEN**

## **Marking Guide**

Ttem CDARJULY2022ICPARJULY202ICPARJULY202ICPARJULY202ICPARJULY202ICPARJULY202ICPARJULY202ICPARJULY202ICPARJULY202ICPARJULY202ICPARJULY2	Marks	
a) i) Calculation of sales price planning variance		2
ii) Calculation of sales price operational variance RHU Y20221CPARHU Y20221		CP2RJ
b) Labour rate variance UUIY2022ICPARJULY2022ICPARJULY2022ICPARJULY2022IC		CP2RJ
c) i) Material mix variance Y2022ICPARJULY2022ICPARJULY2022ICPARJULY2022I		CP2RJ
Material yield variance		2
i) Variable overhead expenditure variance		2
Variable overhead efficiency variance		2
ii) Standard cost card when 4000 units produced: RHULY20221CPARHULY20221C		
Material cost computation (1 Marks * 2) Y2022 ICPARJULY2022 ICPARJULY202 ICPARJULY202 ICPARJULY202 ICPARJULY202 ICPARJULY202 ICPARJULY202 ICPARJULY202 ICPAR		CP2rj
Labour cost 1Y20221CPARJULY2022		CP4RJ
Prime cost Prime cost		CPARJ
Marginal cost		CPARJ
Standard cost		CPARJ
yTotal parjuly2022icparjuly2022icparjuly2022 icparjuly2022icparjuly2022i		20

#### Model Answer

i) Sales Price Planning Variance (SPPV)

SPPV = (Original standard price -Revised standard price)\*Actual quantity

SPPV = (80 - 100)\*220,000

SPPV = 20 \* 220,000

 $SPPV = 31111 \times 2022 \times 10^{11} \times 10^{12} \times 14.400.000 \times 10^{11} \times$ 

ii) Sales Price Operational Variance (SPOV)

SPOV = (Revised standard price - Actual price)\*Actual quantity

SPOV = (100 - 90)\*220,000

SPOV = 10 \* 220,000

SPOV = 2.200.000 Adverse

b) Labour Rate Variance (LRV)

LRV = (Budgeted rate/hour - Actual rate/hour)\*Actual Hours

 $LRV = (150 - \{730,000/4,000\})*4,000$ 

LRV = (150 - 182.5)\*4000

LRV = (130,000)

LRV = 130,000 Adverse

b)

i) Material Mix Variance (MMV) and Material Yield Variance (MYV)

MMV = (Budgeted mix for actual quantity - Actual quantity) \* Budgeted price/kg

Budgeted quantity for actual production (BQAP)

F2.1 cpariui y2022icpariui y2022icpariui y2022icpariui y2022icpariui y2022icpariu Page 18 of 20

BQAP (A) = 2022   CPA	2 * 40,000 = 80,00	0
BQAP (B) = 20221CPA	3 * 40,000 = 120,00	0
20221CPARJULY20221CPAF 20221CPARJULY20221CPAF	ил у 022 ICPAR и и у 200,00	0
	THE VACCATOR DITTE VACCA TO A DIT	

Actual Quantity (A) =		78,000		
Actual Quantity (B) =	1022ICPARJUE 1022ICPARJUE	121,000		
20221CPARJULY20221CPARJULY 20221CPARJULY2022ICPARJULY	2022 ICPARJUL 2022 ICPARJUL	199,000		

Budgeted price/kg (A) = TY20221CT	PARJULY 2022 ICPAF 25 LY
Budgeted price/kg (B) =	PARJULY 2022 ICPAR 75 LY

BMAQ (A) = (80,000/200,000)*199,000 =	2022ICPARJULY2022IC	79,600
BMAQ (B) = (120,000/200,000)*199,000 = 22 ICPARJULY	2022ICPARJULY2022IC	119,400
Y2022ICPARJULY2022ICPARJULY2022ICPARJULY2022 ICPARJULY	2022ICPARJULY2022I0	PARJULY2

Total Material Mix	Variance = PARIULY 2022 ICPARIULY	(80,000)	Adverse
MMV (B) =	(119,400 - 121,000)*75 =	202(120,000) 20221GPARJULY20221	Adverse PARJULY 2022 ICPA
MMV (A) =	(79,600 - 78,000)*25=	20221C <b>40,000</b> Y20221	Favourable

MYV = (Budgeted quantity for actual production -Budgeted mix for actual quantity)\*Budgeted price/kg

Material Variance	Yield	or 40,000 units	55,000	Favourable
MYV (B) =	2022ICPAR	(120,000 - 119,400)*75 =	45,000	Favourable
MYV(A) =	2022ICPAR	(80,000 - 79,600)*25 =	10,000	Favourable

Y2022ICPARJULY2022ICPARJULY2022ICPARJU	LY 2022 ICPARJULY 2022 ICPARJULY 2022 ICP	FRW
Direct Material (A) =	40,000 units * 2kgs * 25 =	2,000,000
Direct Material (B) =	40,000 units * 3kgs * 75 =	9,000,000
Y2022ICPARJULY2022ICPARJULY2022ICPARJU	LY 2022 ICPARJULY2022 ICPARJULY2022 ICP	11,000,000
Direct Labour =	4hrs * 30 * 40,000 =	4,800,000
Prime Cost 2022/CPARJULY2022/CPARJU	LY 2022 ICPARJULY2022 ICPARJULY2022 ICP	15,800,000
Variable Overheads =	20 * 4 * 40,000 =	3,200,000
Marginal Cost	LY 2022 ICPARJULY 2022 ICPARJULY 2022 ICP	19,000,000
Fixed Overheads =	4 * 6.25 * 40,000 =	1,000,000
Absorption Costing RUUY20221CPARJU	LY 2022 ICPARJULY 2022 ICPARJULY 2022 ICP	A 20,000,000
Non production costs (Not available)	LY 2022 ICPARJULY 2022 ICPARJULY 2022 ICP I N 2022 ICPARJULY 2022 ICPARJULY 2022 ICP	ARJULY2022ICPA
Standard Cost	LY 2022 ICPARJULY 2022 ICPARJULY 2022 ICP	20,000,000

Page 19 of 20

```
END OF MARKING GUIDE AND MODEL ANSWERS
                                                               Y2022ICPARJU Page 20 of 20
\mathbf{L}\mathbf{F2.1} CPARJUI
```