MAC2601
May/June 2013: Suggested solution

QUESTION 1

1.1 – C

FIFO Method of valuation

Date	Receipts			Issues			Balance		
December	Quantity	Price	Amount	Quantity	Price	Amount	Quantity	Price R	Amount R
1							300	6.50	1950
3	350	7.32	2562				300 350	6.50 7.32	1950 2562
7				300 100	6.50 7.32	1950 732	250	7.32	1830

Cost of purchases of 350 units

350 units at R6.90 = R2 415
+Freight costs: R294*50%=R147
Total: 2562
R2 562/350 units = R7,32

Therefore option C is correct**.**

1.2 - B
1.3 - D
1.4 - A

	R
Fixed cost in opening stock (10 000 x R7.50)	75 000
Fixed cost in closing stock (8 000 x R9.00)	72 000
Difference	3 000

1.5 - A

1.6 - C
1.7 - B

	R
Direct material	238 500
Direct labour	143 100
Manufacturing overheads	95 400
Less: proceeds from by-product	(6 000)
	471 000

1.8 - A

	R
Sales (25 000 x 90% x R15)	337 500
Less: Joint cost	(214 091)[1]
Less: Further processing cost (25 000 x R4)	(100 000)
Profit	R23 409

[1] R471 000 x 25 000/55 000 = R214 091

1.9 - D

1.10 - D

QUESTION 2

a. Labour rate variance **R**

Actual hours @ actual rate (25*R12*500)	150 000
Actual hours @ standard rate (25*R8*500)	100 000
Unfavourable variance:	50 000

b. Labour efficiency variance **R**

Actual hours @ standard rate (25*R8*500)	100 000
Standard hours @ standard rate (20*R8*500)	80 000
Unfavourable variance:	20 000

c. Overhead efficiency variance **R**

Actual hours @ standard rate (25*R4*500)	50 000
Standard hours at standard rate (20*R4*500)	40 000
Unfavourable variance:	10 000

d. Purchase price variance for steel **R**

Actual quantity @ actual price (500*10*R12)	60 000
Actual quantity @ standard price (500*10*R16)	80 000
Favourable variance	20 000

e. True

QUESTION 3

(a) Number of sales units per product (sales mix) to maximise budgeted profit

Refer to the "steps" on page 177 of the study guide:

Step 1 was already performed as part of the information given.

Step 2: Contribution per unit

	Vase	Cutting board
Selling price	30^	25^
Less: Total variable costs	(11) ^	(13) ^
Contribution per unit	R19	R12

Step 3: Contribution per limiting factor

	Vase	Cutting board
Contribution per unit	19^principle	12
Multiplied by: Units per labour hour 3 000 / 1 500 = 2 4 000 / 1 000 = 4	2	4
	R38	R48

Step 4: Order in which limiting factor should be used in manufacturing:

1. Cutting boards (R48 per labour hour)
2. Vases (R38 per labour hour)

Step 5: Allocate the available labour hours until none left:

	Labour hours
Labour hours available	1 600
1. Cutting boards	1 000
Remaining	600
2. Vases	600
	-

Step 6: Number of units to be manufactured

1. Cutting boards (1 000 x 4) 4 000 units
2. Vases (600 x 2) 1 200 units

(b) (iv)

QUESTION 4

(a)

Outcome value (effect on profit)	Probability (%)	Weighted value
-R200 000	10%	-R20 000
-R100 000	20%	-R20 000
0	20%	0
+R100 000	35%	+R35 000
+R200 000	15%	+R30 000
Total	100%	R25 000

Therefore, the expected value is R25 000.

(b) +R100 000 (the outcome with the highest probability)

(c) $\frac{A2 - A1}{A1} \times \frac{100}{1}$

$= \frac{(2\,000\,000 - 100\,0000) - 2\,000\,000}{2\,000\,000}$

$= \frac{1\,900\,000 - 2\,000\,000}{2\,000\,000}$

= -100 000 / 2 000 000
= -5%
= 5% decrease

OR SIMPLY

- 100 000 / 2 000 000 = -5% = 5% decrease

(d) Biased

(e) (i) Uncontrollable event
(ii) Branch
(iii) Conditional profit

QUESTION 5

PART A

a. Variable cost per unit = $\frac{\text{R2 247 500 (145 000 x R15,50) – R1 911 000 (98 000 x R19,50)}}{145\,000 - 98\,000}$

$= \frac{\text{R336 500}}{47\,000}$

= R7,16

Total fixed costs (*@ Highest observation*) = R2 247 500 – 1 038 200 (145 000 x R7,16)
= R1 209 300

OR

Total fixed costs (*@ Lowest observation*) = R1 911 000 – R701 680 (98 000 x R7,16)
= R1 209 320, say R1 209 300*

*rounded off

b. y = R1 209 300 + R7,16x

c. y = R1 209 300 + R7,16 (115 000)
= R1 209 300 + R823 400
= R2 032 700

PART B

a.

Conversion costs = Direct labour + Manufacturing overheads
R215 000 = R120 000 + x
x = R215 000 – R120 000
x = R95 000
Variable man. overheads = Total man. overheads – Fixed man. overheads

Answer: R95 000 – R55 000 = R40 000

b.

	R	
Sales	560 000	**OR** R35 – 19,25[#]
Less: Variable costs (R148 000 +R120 000 + R40 000)	(308 000)	=R15,75
Contribution	252 000	

Contribution ratio = $\frac{\text{Contribution}}{\text{Sales}} \times \frac{100}{1}$

[#] R9,25 + R7,50+R2,50*

$\frac{\text{R252 000}}{\text{R560 000}} \times \frac{100}{1}$ **OR** $\frac{\text{R15,75}}{\text{R35}} \times \frac{100}{1}$

45% 45%

QUESTION 5 (continued)

c.	**R**
Sales (20 000 x R35)	700 000
Less: Variable costs	(385 000)[1]
Contribution	315 000
Less: Fixed costs	(55 000)
Net profit	260 000

[1] R185 000 (20 000 x R9,25) + R150 000(20 000 x R7,50) + R50 000 (20 000 x R2,50*)

* R40 000/16 000 = R2.50

d.	**R**
Sales (18 000(20 000 x .90) x R40 (R35+R5)	720 000
Less: Variable costs	(346 500)[2]
Contribution	373 500
Less: Fixed costs (R55 000 + R5 000)	(60 000)
Net profit	313 500

[2]R166 500 (18 000 x R9,25) + R135 000(18 000 x R7,50) + R45 000 (18 000 x R2,50*)

OR

Contribution: R40 – R19,25 = R20,75
R20,75 x 18 000 = R373 500 – R60 000 = R313 500

QUESTION 6

a. Budgeted cost per smart id card

9 places; 5 marks

	R
Direct Materials (2.5m^ *R3.50^)	8,75
Direct labour (2^*R8^)	16,00
Variable Manufacturing overhead (2^*R1.50^)	3,00
Variable selling costs (not part of product costs) ^for not including VSC	-
Fixed cost per unit (2 ^ *13,75√)	27,50
Total budgeted smart ID card cost per unit	**55.25**

If they have not shown the zero for the VSC, you can still award the mark for the "^for not including VSC" if it is clear that the VSC has not been included anywhere and they have totalled/attempted to total their costs (which does not include the VSC). This also applies to the alternative methods.

Fixed cost per labour hour

Calculation of the fixed overhead recovery rate

550 000/ (20 000*2) =R13.75 per labour hour

Possible alternative 1: 9 places; 5 marks

DM(175 000^ / 20 000^)	8,75
DL (320 000^ / 20 000^)	16,00
VMOH (60 000^ / 20 000^)	3,00
VSC ^for not including VSC	-
FMOH (550 000^ / 20 000^) +^for having both 550 000 and /20 000	27,50
	55,25

Possible alternative 2: 9 places; 5 marks

175 000	^
320 000	^
60 000	^
-	^for not including VSC
550 000	^
1 105 000	

1 105 000 / 20 000^^^^ = 55,25

There could be more alternatives – give marks accordingly, please.

b. Total budgeted profit if Gidima Ltd manufactures and supplies 9000 smart ID cards

10 places; 6 marks limited to a max of 5

	R
Sales (9000^* R125^)	1 125 000
Less:	
Variable cost of smart ID cards (9000^*R27.75^principle)	249 750
Variable selling costs (9000^ *R6.25√)	56 250
Fixed costs allocated to production (9000^*13.75^principle*2^)	247 500
Fixed costs under-recovered (550 000 – 247 500)	302 500√
Total profit	269 000

Possible alternative 1 of many

Sales (9000^* R125^)	1 125 000
Less:	
Variable costs (9 000√ x 34 ^principle√)	
Fixed costs	550 000√√^
Total profit	269 000

The marks for the 34 or whatever the student has, is made up as follows:
^principle for using the variable manufacturing costs from (a), even if wrong in (a)
√ for adding the 6,25 to their variable manufacturing costs from (a)
^^ for multiplying by 9 000 (a full mark, as they have effectively both the 9 000 for variable manufacturing costs and the 9 000 for variable selling costs combined into one

Possible alternative 2 of many

Sales (9000^* R125^)	1 125 000
Less:	
Costs (61,50√principle√^ x 9 000√^)	553 500
Underrecovery (550 000 – 247 500)	302 500√
Total profit	269 000

The marks for the 61,50 or whatever the student has, is made up as follows:
^principle for using the variable manufacturing costs from (a), even if wrong in (a)
^principle for using the fixed manufacturing overhead rate per hour from (a), even if wrong in (a)
^ for incorporating multiplication of the fixed overhead rate per hour by two
√ for including the 6,25 in the total cost per unit in (b)
^^^ for multiplying by 9 000 (one and a half marks, as they have effectively all three the required 9 000's (for variable manufacturing costs, variable selling costs and fixed costs combined into one)

Possible alternative 3 of many

Sales (9000^* R125^)	1 125 000
Less:	

Manufacturing costs (9 000√ x 55,25√principle^)	
Non-manufacturing costs (9 000^ x 6,25√)	
Underrecovery (550 000 – 247 500)	302 500√
Total profit	269 000

The marks for the 55,25 or whatever the student has, is made up as follows:
^principle for using the variable manufacturing costs from (a), even if wrong in (a)
^principle for using the fixed manufacturing overhead rate per hour from (a), even if wrong in (a)
^ for incorporating multiplication of the fixed overhead rate per hour by two
^^ for multiplying by 9 000 (one mark, as they have effectively both the required 9 000's (for variable manufacturing costs and fixed costs combined into one)

There could be more alternatives – give marks accordingly, please.

QUESTION 7

a. General Ledger

DirectMaterial

		R		R
01/04/2013	Opening balance b/d	90 000	Work-in-process	79 200[1]
			Balance c/d	10 800
		90 000		90 000
01/05/2013	Balance b/d	10 800		

[1] R25 200 + R32 400 + 18 700 + R2 900

Manufacturing overheads

		R		R
30/04/2013	Bank	72 600	Work-in-process	71 280
			Cost of sales	1 320
		72 600		72 600

[2] R79 200 x 90%

Work-in-process

		R		R
01/04/2013	Opening balance b/d	-	Finished goods	191 290
	Material	79 200	Balance c/d	5 510
	Wages	46 320[3]		
	Man. Overheads	71 280		
		196 800		196 800
01/05/2013	Balance b/d	5 510		

[3] R16 800 + R20 160 + R9 360

Fin.Goods

		R		R
30/04/2013	Work-in-process	191 290	Cost of sales	109 570[4]
			Balance c/d	81 720
		191 290		191 290
01/05/2013	Balance b/d	81 720		

[4] Khali: R64 680 (25 200+16 800 + 22 680) + Lusiko: R44 890 (18 700+9 360+ 16 830) = R109 570

b. Profit and loss for the month of April

	R
Sales (R 109 570 x 150%)	164 355
Less: Cost of sales	(110 890)[#]
Gross profit	53 465
Less: sales expenses	(3 600)
Profit	49 865

[#] R109 570 + R1 320 = R110 890

QUESTION 8

BONTEBO (PTY) LTD.
Quantity statement for March 2013

Physical units			Equivalent units			
Input		**Output**	**Raw materials**		**Conversion cost**	
(units)	**Details**	**(units)**	**Units**	**%**	**Units**	**%**
12 000	WIP - opening					
38 000	Put into production					
	Completed from:					
	- Opening inventory①	12 000	-	-	④4 800	40
	- Current production③	23 000	23 000	100	23 000	100
	Completed and transferred	35 000	23 000		27 800	
	Normal loss②	2 800	②2 800	100	②840	30
	Abnormal loss③	2 200	2 200	100	⑤660	30
	WIP - closing	10 000	10 000	100	⑥2 000	20
50 000		50 000	38 000		31 300	

b. **BONTEBO (PTY) LTD.**
Production cost statement for March 2013

	Total	**Material**		**Conversion cost**
	R			
Opening WIP	83 520			
Current production cost	327 940	209 000		118 940
Total	411 460			
Equivalent units per quantity statement		38 000		31 300
Equivalent cost per unit	9,30	= R5,50	+	R3,80

c. Calculate the rand value of the normal loss in terms of material only.

NLM
= 2 800 x R5,50
= R15 400

d. Closing WIP for cost allocation statement

		R
Closing WIP		62 600
Material	(5,50 x 10 000)	55 000
Conversion cost	(3,80 x 2 000)	7 600
Normal loss		⑦0

OR

Dr		Cr	
WIP			
	R		R
1/3 Opening balance	83 520	31/3 Production account	83 520
31/3 Production account (55 000 + 7 600 + 0)	62 600	Closing balance	62 600
	146 120		**146 120**
1/4 Opening balance	62 600		

Explanatory notes

① 12 000 (no adjustment, as 60% is not smaller than 30%)

② (50 000 – 12 000 – 10 000) = 28 000.

28 000 x 10% = 2 800.

Opening WIP passed the wastage point in the previous period and closing WIP will only pass the wastage point in the next period; therefore we deduct both of these in the normal loss unit calculation. Abnormal losses occur at the normal wastage point, as no information was given to the contrary, and therefore no adjustment for these units should be made.

2 800 x 100% = 2 800

2 800 x 30% = 840

③ Balancing figure

④ (100% - 60%) x 12 000 = 4 800

⑤ 2 200 x 30% = 660

⑥ 10 000 x 20% = 2 000

⑦ No portion of the normal loss will be allocated to closing WIP, as closing WIP has not yet passed/reached the wastage point [20% < 30%].